SPI Electricity Pty Ltd

Electricity Distribution Price Review 2011-2015

Regulatory Proposal

Public Version

November 2009

SP AusNet
A member of Singapore Power Group

Executive Summary

Background to this proposal

SP AusNet is one of Australia's largest publicly-listed energy delivery businesses. Its subsidiary SPI Electricity Pty Ltd owns and operates the electricity distribution network that provides services to customers located in the eastern half of Victoria.

On 1 January 2009 the Australian Energy Regulator (AER) assumed responsibility for the economic regulation of electricity distribution networks in Victoria, under the National Electricity Rules (NER). This document is SPI Electricity Pty Ltd's Regulatory Proposal (Proposal) for the regulatory control period commencing 1 January 2011, submitted in accordance with Clause 6.8.2 of the NER and the Regulatory Information Notice (RIN) dated 30th November 2009.[1]

In accordance with the requirements of Schedule 2 of the RIN, the Proposal contains a certification by directors that the underlying assumptions are reasonable, and a statutory declaration by an officer of SPI Electricity Pty Ltd that the information contained herein is accurate and can be relied on by the AER for its decision making in all material respects.

The Proposal has been prepared in accordance with all applicable provisions of the NER and the National Electricity Law (NEL). SPI Electricity has followed a comprehensive process, with suitable governance to ensure that this Proposal provides the information required by the RIN in good faith.

Day to day, most people and documents refer to SP AusNet, rather than the exact subsidiary. The remainder of this Executive Summary follows that convention.

Focus on customer service

SP AusNet is committed to delivering high quality services to its customers. In the current regulatory control period, SP AusNet has invested $71 million (real 2010 $) to improve customer service and reliability. This Proposal sets out plans to maintain supply reliability at the levels delivered over the current regulatory period, in accordance with the opex and capex objectives set out in the NER.

However, this Proposal also includes some specific measures aimed at delivering targeted improvements in customer service over the forthcoming regulatory period. These measures include proposed amendments to the AER's Service Target Performance Incentive Scheme (STPIS) to provide a more effective incentive on SP AusNet to improve customer reliability. The Proposal also sets out plans to reduce planned customer interruptions and durations[2].

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[1] The AER served a RIN on SP Australia Networks (Distribution) on the 13th October 2009. In response to submissions from SP AusNet, the AER subsequently served an Urgent RIN, identical in other respects, on SPI Electricity Pty Ltd on the 30th November.

[2] In line with commitments to the Essential Services Commission of Victoria (ESC) and through process improvement and judicious use of temporary local generation. The benefits to customers of SP AusNet's proposals outweigh the forecast costs.

The current regulatory control period

The following events have each had a significant influence on the costs incurred by SP AusNet in delivering services over the 2006-2010 regulatory period, and on the standard of services the company has been able to deliver:

- peak demand growth and the costs of servicing customer connection growth have both turned out to be consistently above the forecasts adopted by the ESC for the current regulatory period[3], with the rate of actual peak demand growth being just under twice the ESC forecast for the last two years;
- input costs have risen faster than the rate of cost escalation assumed in the ESC's expenditure allowances with, for example, customer connections costing SP AusNet on average 24% higher than expected;
- a number of disruptive natural events including six extreme events have occurred, such as the 2007 Gippsland Floods, the 2008 April Storm and the 2009 Bushfires; and
- the global financial crisis has resulted in a sharp increase in the cost of capital, with capital markets effectively closed in the period immediately following the collapse of Lehman Brothers in September 2008. These unprecedented conditions have resulted in all firms including SP AusNet under pressure to ration capital in the near term as funding options have tightened considerably and funding costs have increased dramatically.

SP AusNet has managed the impacts of these events by adopting strong financial discipline and a risk-based approach to asset management, in line with the following priorities:

- Safety: Safety is SP AusNet's top priority, and it is the most critical driver for asset replacement programs. Throughout the current period, SP AusNet has continued to allocate resources to ensure that all statutory safety requirements and internal safety policies and practices are complied with at all times;
- Customer connections: Customers and the broader community expect a timely response to connection enquiries. SP AusNet has therefore continued to be highly responsive to connection requests in accordance with SP AusNet's Licence obligations;
- Network reliability: Over the current period SP AusNet has invested amounts that are significantly ($71 million in real 2010 $) above its regulatory allowance to improve customer reliability, properly responding to the ESC S-factor incentive. While this investment has had a positive impact on the standard of services delivered to customers, the overall reliability performance of SP AusNet's network reflects the effects of extreme weather events and volatility during the current period;
- Network reinforcement: Utilisation is a summary indicator of loading on the network. It is also an indication of the efficiency with which the network's available capacity is deployed. Over the period, network wide utilisation has increased, following prudent and economic deferral of some reinforcement projects;[4] and

[3] ESC, "Electricity Distribution Price Review 2006-10 Final Decision", October 2005. That document is referred to throughout this Proposal as the 2006 EDPR Determination.

[4] For example, overall utilisation is now approaching 80%. This appears to be reaching the upper manageable limit, given current limits on real-time monitoring. That said, there were no outages due to lack of capacity even under the extreme stress of the 2009 heat wave.

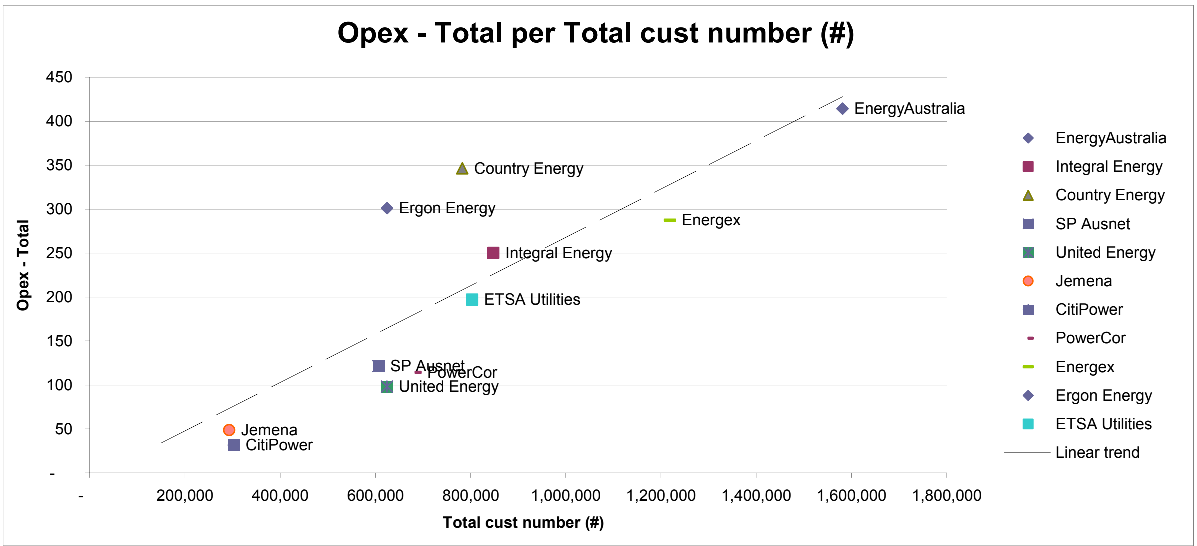
- Information technology: Over the current period, SP AusNet has replaced and rationalised end-of-life IT systems and infrastructure to ensure the maintenance of the IT capability required to support the delivery of standard control services. Investment was undertaken in SCADA, Outage Management, GIS, Enterprise Asset Management and underlying IT infrastructure assets.

Even with the financial incentives on SP AusNet to minimise its expenditure at all times, and the company's further efforts to prioritise its expenditure against an unexpected growth in demand, SP AusNet's expenditure has been higher than expected. In particular, capex for the current regulatory period will be 23% higher than that provided in the ESC's determination (net of reliability improvement capex).

Under the price control that has operated during the current regulatory control period, SP AusNet has been unable to recover these unforeseen expenditure increases through additional revenue. In the context of the global financial crisis, the strong upward pressure on expenditure and the network reliability issues arising from climate impacts have presented significant challenges for SP AusNet during the current regulatory period.

In the current commercial and regulatory environment, it is axiomatic that only efficient and prudent expenditure is incurred by the company. Nevertheless, for regulatory purposes SP AusNet commissioned SKM to provide a benchmarking study to assess independently the efficiency of SP AusNet's expenditure for 2008, being the most recently audited financial year. SKM's report, which is provided as an appendix to this Proposal, confirms that SP AusNet is among the most efficient Australian distributors, as illustrated in the example figure below.

Figure 1: SKM benchmarking results



Source: SKM

The 2011-2015 Regulatory Control Period

The assumptions and demand forecasts prepared for this building block proposal reflect independent expert advice and rigorous economic and technical analysis. SP AusNet's demand forecasts, for example, take account of State and Federal Government initiatives to reduce emissions and improve the efficiency of energy usage, including the roll out of smart meters. Despite the impact of these important initiatives, SP AusNet's analysis indicates that customer and peak demand growth will abate only marginally over the forthcoming regulatory control period.

Whilst this Proposal provides details of the key drivers and assumptions (such as demand forecasts) that underpin the company's expenditure plans, it is equally important to highlight the following important changes that affect SP AusNet's operating environment:

- customer expectations;
- climate change; and
- the financial environment.

In relation to customer expectations, SP AusNet is particularly conscious that customers expect services to improve over time. Importantly, customers also understand that there is a natural trade-off between service levels and prices.

As a customer-orientated organisation, SP AusNet supports a regulatory approach that affords customers the prospect of better service in return for paying a higher price. The regulatory framework must encourage the right level of investment in both growth and replacement capex. It must also foster the adoption of new and emerging technology.

The next decade will see the development of smart networks globally and in Australia, using digital technology and pervasive bandwidth to provide more flexibility, more information and better outcomes to customers. Among other things, this Proposal sets out SP AusNet's plans to use AMI technology to deliver cost-reflective price signals to customers through new tariff structures. The facilitation of a customer response is, of course, one of the primary benefits of a smart meter roll-out.

The AER's STPIS will provide strong incentives for SP AusNet to apply smart network approaches to network reliability, building on experience from the current regulatory control period. In this regard, SP AusNet supports the AER's service performance scheme, and has proposed some important changes which will further strengthen the incentives to deliver service improvements. The Proposal also proposes development work to better prepare for the changing role of the network, to maximise the prospect for active demand management and to pursue the long term interests of consumers. SP AusNet expects the pace of smart network development to accelerate over the next five years – this Proposal establishes a solid foundation for these developments.

In relation to the climate, the environment in which SP AusNet operates has changed fundamentally. The frequency of extreme weather events has increased, as has the volatility around the norm. SP AusNet's expenditure plans recognise the need to ensure that the company is fully prepared to respond to more unusual events, and is capable of responding to extreme events more frequently. There needs to be a clear framework in place to provide SP AusNet with incentives to maintain and improve services, while ensuring it is not penalised for the effects of extreme events which are beyond the company's control.

To address climate change, more resources will be required for power restoration. Adjustments also need to be made to ensure that additional resources are available to respond to more frequent extreme events. The proposed adjustments to the AER's service performance scheme will provide SP AusNet a strong incentive to do just that. Unfortunately, the nature of climate change means that history is not a good predictor of the future. As a consequence, planning for the future is problematic and network companies will be exposed to additional risks, which is evident from the recent Victorian bushfires.

The increased riskiness of the operating environment will be reflected in the returns that equity and debt holders require – and these need to be recognised by the regulator in its forthcoming determination. Further detailed information on the cost of capital is provided in this Proposal.

Recent events in the financial sector provide another example of fundamental change in SP AusNet's operating environment. Individuals and businesses across the world have de-leveraged their balance sheets in response to a reappraisal of financial risk. The previous model, in which individuals geared up to invest in companies that were also highly geared, is no longer sustainable as it exposed investors and national economies to unprecedented volatility in returns. As a consequence, attitudes to risk have changed dramatically, and this is reflected in the re-pricing of risk by investors, leading to significant increases in the costs of equity and debt.

SP AusNet's experience is instructive. The company's market value is now below the value of the regulated assets. While access to credit has improved, credit spreads have now settled at far higher levels. Bankers and lenders are viewing SP AusNet's business as higher risk. The limited availability of credit poses an enormous risk. There is a real risk of disruption if SP AusNet were to adopt a 'previously normal' or aggressive approach to funding. The efficient operation of the business and the funding of new capex cannot occur unless the required financing is available. The global financial crisis has resulted in the collapse of major corporations, often as a result of funding issues and the, albeit temporary, de facto closing of markets. SP AusNet must therefore adopt a conservative approach to managing financial risk and this necessarily entails raising funds earlier and accessing a broader range of markets, potentially at higher cost in order to diversify risk.

The financial environment, climate change and customer expectations provide an important backdrop to the forthcoming regulatory period, reflected in SP AusNet's expenditure plans and revenue requirements.

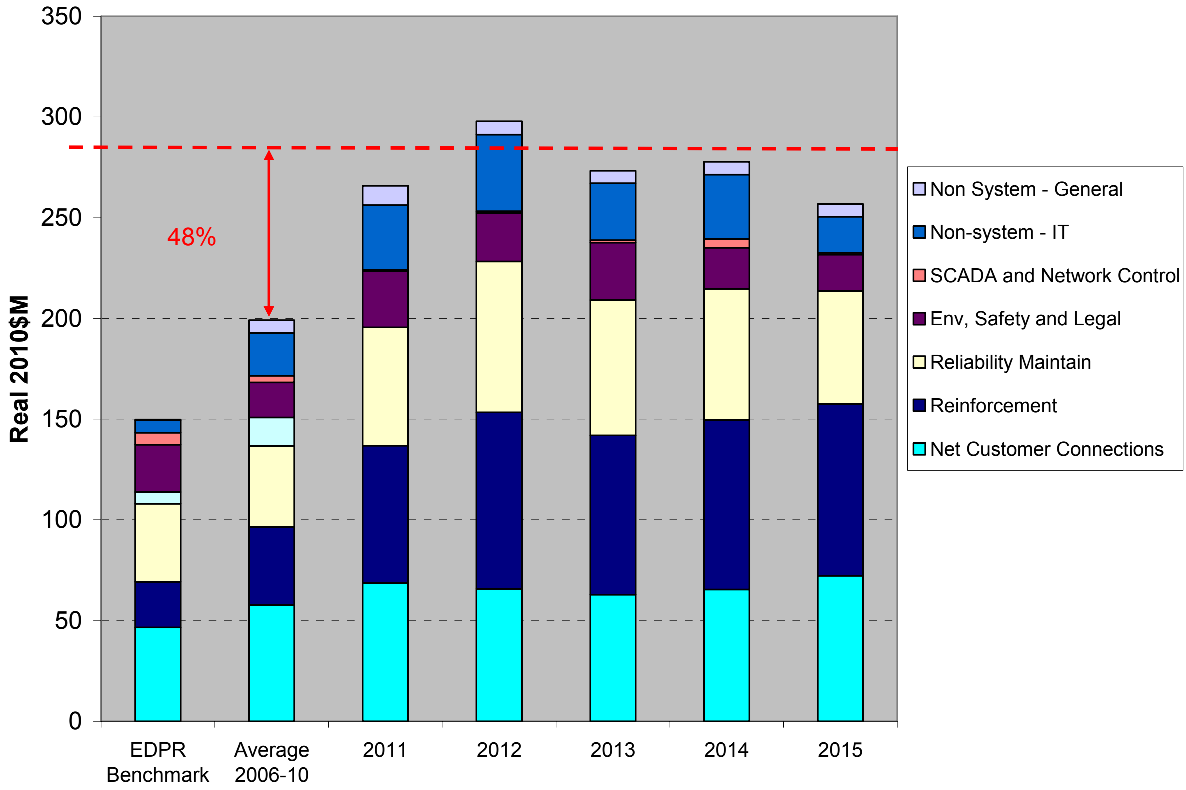
Building Block Forecasts

Capex Forecasts

The capex forecasts contained in this Proposal are designed to meet the NER capex objectives and criteria. The total net capex forecast for the 2011-2015 regulatory control period is $1,371 million (real 2010 $), which is 48% higher than in the previous regulatory control period. The main drivers are sustained high demand growth, asset condition, increased unit costs and a greater emphasis on Information Technology (IT).

The capex forecast is set out in the figure below.

Figure 2: Forecast Net Capex



Source: SP AusNet

As can be seen from the figure above, captital expenditure in this period has considerably exceeded the 2006 EDPR benchmark, illustrating the flaws in basing forecast capex on historical expenditure. For completeness, SP AusNet's forecast at the time of the 2006 EDPR was $173 million (real $2010).

The following table provides a breakdown of the capex forecasts by category.

Table 1 – Capex Forecasts

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Environmental, safety and legal	27.8	24.2	28.6	20.5	18.0	119.0
New customer connections (gross)	87.1	83.3	79.7	82.8	91.3	424.1
Reinforcement	68.2	87.6	78.9	84.2	85.3	404.2
Reliability and quality maintained	58.7	74.9	67.2	65.0	56.2	321.9
Reliability and Quality improve	0.0	0.0	0.0	0.0	0.0	0.0
SCADA and network control	0.6	0.8	1.2	4.3	1.0	7.8
Non-system – IT	32.3	38.1	28.2	31.9	17.9	148.4
Non-system – Other	9.6	6.5	6.2	6.4	6.3	35.0
Total (gross)	**284.2**	**315.4**	**290.0**	**295.1**	**275.8**	**1460.5**
Customer contributions	18.3	17.5	16.8	17.3	19.0	89.0
Total (net)	**265.9**	**297.8**	**273.3**	**277.8**	**256.8**	**1371.5**

The remainder of this section provides a high level explanation of the volume assumptions underlying these forecasts. The efficiency of the forecasts is supported by benchmarking carried out by SKM and an expert report which forecasts cost escalations over the forthcoming regulatory period. This Proposal, together with the accompanying appendices and templates, sets out the detailed supporting information required by the NER and the RIN to explain the forecast expenditure.

Environmental and Safety Capital Expenditure

SP AusNet's forecasts in this category are designed to comply with all applicable regulatory obligations or requirements associated with the provision of standard control services, as required by Clause 6.5.7(a)(2).

SP AusNet's safety vision is that:

> *"Safety is our way of life. Everyone is responsible for leading safety. Together we seek out and correct all unsafe behaviours and situations and aim for zero injuries."*

The main development in safety regulation is the replacement of the Network Asset Regulations with a 'safety case' approach by ESV at the end of 2009, in accordance with the Victorian Electricity Safety Amendment Act 2007. Over the 2011-2015 regulatory control period, SP AusNet must maintain an Electricity Safety Management Scheme (ESMS) to achieve network risk outcomes that are as low as reasonably practicable. The amendment specifically envisages the network operator using recognised risk management techniques such as AS/NZ standard 4801 in its ESMS.

SP AusNet will submit its revised ESMS to ESV by the end of December 2009. This Proposal includes estimates for the likely safety related programs, including increased vegetation clearances. However, ESV may require additional programs beyond those anticipated in this Proposal. Although further information regarding ESV's requirements should be available before the AER makes its Draft Decision, it may be necessary to establish a pass-through arrangement to enable SP AusNet to recover the actual costs of meeting the additional safety obligations.

SP AusNet's asset management strategy (titled Enhanced Network Safety Plan) covers a range of additional asset replacement and refurbishment programs that would not otherwise be identified through asset inspection cycles or zone substation plant condition assessments. The key objective of this plan is to reduce the annual number of incidents reported to ESV by 20% in the 2011-15 regulatory control period. Programs that fall into this category include:

- conductor replacement program;
- enhanced insulator replacement program;
- service cable replacement;
- asbestos removal; and
- insulator replacement program.

The total environmental and safety capex for the forthcoming regulatory period is $119 million (real 2010 $).

New Customer Connections Capital Expenditure

The primary purpose of the customer connections capex program is to meet new customer demand for standard control services, and to comply with the relevant regulatory obligations, as required by Clauses 6.5.7(a)(1) and (2) of the NER. This category of capex therefore includes the expenditure required to meet the connection and augmentation requirements for forecast new customer connections.

In accordance with advice received from the Victorian Government, the Proposal assumes the continued application of current Victorian Customer Connection Guidelines. Therefore, the customer connections capex in this Proposal is designed to fund the forecast costs of connections, $335 million (real 2010 $), which is net of customer contributions.

The 16% increase in net customer connections capex compared to the current period is driven by an increase in unit rates forecast for the next regulatory control period.

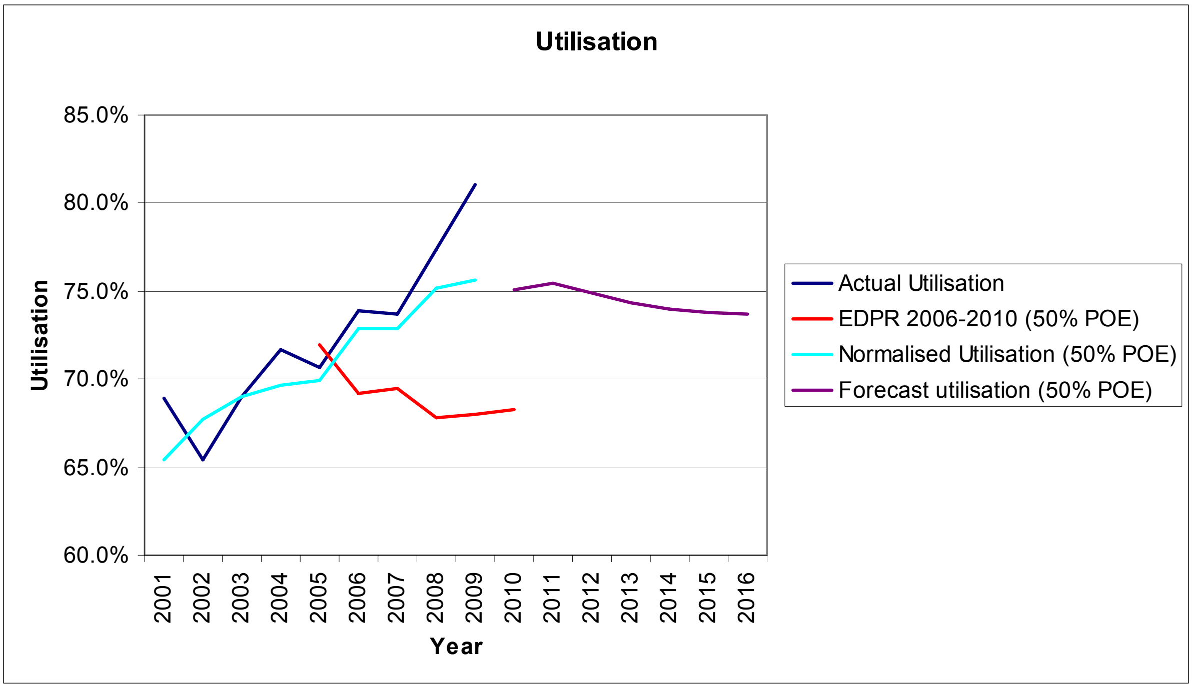
Reinforcement Capital Expenditure

The reinforcement capex forecasts are designed to meet or manage (through demand management initiatives, for instance) the expected demand for standard control services over the forthcoming regulatory control period, as required by Clauses 6.5.7(a)(1) of the NER.

Despite demand growth during the current period being substantially above that assumed in the 2006 EDPR Determination (the rate of increase in actual demand from 05/06 summer to the

2008/09 summer has been 6.7% per year, significantly higher than than the 3.7% per year forecast), SP AusNet has found efficient short term solutions to demand growth that use the network's capacity more fully and direct limited capital resources so as to maximise the value of investment to customers. This is reflected in the increase in utilisation observed between 2005 and 2010, and shown below.

Figure 3: Utilisation 2001 to 2016



Source: SP AusNet

The EDPR 2006-2010 (50% POE) forecast was provided to the ESC at the time of the 2006 EDPR Determination.[5] It reflects SP AusNet's forecast capex and not the amount allowed in fact by the ESC. The impact on utilisation of the very hot 2009 summer can also be seen.

These summary statistics provide some indication of the need for increased reinforcement activity in the forthcoming regulatory period. The planned projects for the forthcoming period have been determined by applying SP AusNet's detailed load forecasts and the relevant planning standards, which are - as noted in detail in this Proposal - soundly based. That said, the outcomes over the forthcoming period will be dependent on actual weather patterns and air-conditioning load, and both of these factors are subject to significant uncertainty.

Maximum demand for the SP AusNet network is expected to continue to increase on average by 4.4% per annum over the forthcoming regulatory period, principally as a result of further development in the northern and south-eastern growth corridors, and continued growth in air conditioner penetration. Importantly, SP AusNet's franchise area includes two of Melbourne's five growth areas designated by the Victorian Government.[6] Consequently, this Proposal forecasts

[5] A 50% POE, or probability of exceedance, forecast is one that has a 50% probability of being exceeded in any year.

[6] Growth Areas Authority, "A Strategic Framework for Creating Liveable New Communities", March 2008.

annual growth in peak demand of 10% in the Epping/Plenty Valley and the Cranbourne/ Pakenham areas, and commensurately lower than the average in other areas.

As noted earlier, the demand forecasts take into account the ameliorative impact of the Government initiatives aimed at reducing emissions, and also SP AusNet's proposed plans for greater use of demand tariffs and demand side initiatives. Even so, in key areas of the network there is no longer sufficient capacity to meet projected demand growth. Load at risk for key areas of the network is now projected to grow materially unless addressed with reinforcement investment.

The 109% increase in network augmentation capex compared to the current period is driven by an increase in unit rates forecast and the significant step up in the planned volume of work. As explained above, the planned augmentations must satisfy the 4.4% annual growth in maximum demand and also address the sustained effects of exceptional demand growth during the current regulatory period.

The total reinforcement capex for the forthcoming regulatory period is $404 million (real 2010 $).

Reliability and Quality Maintained Capex

Replacement capex is the principal means of maintaining the quality, reliability and security of supply of standard control service, as required by Clauses 6.5.7(a)(3) of the NER. SP AusNet's replacement capex program in this Proposal is predominately asset condition-based.

The 60% increase in replacement capex compared to the current period is driven by forecast increases in the unit cost rates and volumes of asset replacement. Detailed quantitative risk modelling and economic (Net Present Value) analysis for each asset class has been used to determine the optimum asset management strategy and replacement capex. In a review of the modelling used by SP AusNet's transmission business (during the AER's 2007 transmission determination), the AER's engineering consultant found that:

> *"the detailed use of quantitative risk modelling and assessment processes is of a very high quality and in PB's opinion would be close to best practice; the capability of SPA to systematically identify individual asset risk and track its network, program and asset risk profiles over time is to be commended."*[7]

SP AusNet's modelling approach has subsequently been the subject of further independent expert review and further improvements.

Capex of $10.1 million is forecast to address material variances to supply quality standards specified under the Victorian Distribution Code of Practice. The totals proposed for replacement (reliability and quality maintained) capex for the forthcoming regulatory period are $322 million (real 2010 $).

Reliability and Quality Improved Capex

Consistent with the requirements of the NER and consistent with the AER STPIS, no capex is included in the forecasts for reliability and quality improvement.

SCADA and Network Control Capex

The SCADA system provides the remote monitoring and control functionality on the distribution network. SCADA investment is strongly driven by performance and security requirements. SP AusNet's current SCADA system, unless upgraded substantially, is likely to be non-compliant

[7] PB Strategic Consulting, "SP AusNet Revenue Reset: An independent review for the AER", August 2007.

with the new security IT standards. As such, SP AusNet's investment plans are designed to ensure compliance with the relevant performance and security standards by the end of the forthcoming regulatory period.

SP AusNet expects a 53% reduction in SCADA capex compared to the current period, which reflects efficiency savings as a result of standardising the SCADA platform across SP AusNet's three networks.

The total SCADA and Network Control capex for the forthcoming regulatory period is $8 million (real 2010 $).

Non-system - IT and Other Capital Expenditure

SP AusNet's IT capex has been developed to ensure that the company's IT systems have sufficient capability to support the maintenance of the reliability, safety and security of the distribution system through the supply of standard control services, as required by Clause 6.5.7(a)(4) of the NER. SP AusNet's IT Strategy has been designed to support the Asset Management Strategy. It addresses asset failure risk on an IT infrastructure base that is rapidly becoming obsolete, and implements GIS and Electronic Asset Management systems, bringing SP AusNet into line with industry standards.

The 40% increase in IT capex compared to the current period is driven by the significant step up in the volume of replacement works and the implementation of new systems.

Proposed Enterprise Performance & Data Management works include:

- capacity enhancements through major upgrades and license expansion of the Enterprise Data Warehouse;
- reengineering of Enterprise Data Warehouse; and
- implementation foundation platform for data analytics.

Proposed Back Office Automation works include:

- maintenance & rationalisation of core business systems focused on Financial & HR;
- upgrades to core platform for Oracle financials;
- consolidation of current HR platforms for recruitment, learning and development skills; and
- migration of Oracle financials.

The above IT initiatives will deliver opex efficiencies, quality improvements and an improved customer service outcome for customers in the forthcoming regulatory period. The opex forecasts set out in this Proposal reflect these expected benefits.

Non-network IT and Other capex for the forthcoming regulatory period is $148 million (real 2010 $) and $35 million (real 2010 $), respectively.

Deliverability

The capex programs outlined in this Proposal are critical and must be delivered. SP AusNet has recently revised its organisational structure to enhance its delivery capability. As a result, SP AusNet has established highly effective processes, project management and works planning approaches and has well-resourced construction arrangements in place for the delivery of these programs. Over the next year, further process improvements will be initiated to ensure that the volumes of work identified in this Proposal can be delivered efficiently. The experience already gathered in the 2009/10 financial year, where the work program is similar in size to the forecast period, demonstrates SP AusNet's delivery capability.

The overall capex program has been subject to detailed financial modelling to ensure that it can be financed, within the constraints of maintaining a BBB+ credit rating. The results of this analysis indicate that the proposed capex program is deliverable from a funding perspective, although those results are highly sensitive to credit market and revenue assumptions.

Operating expenditure forecasts

The opex forecasts in this Proposal are designed to meet the opex objectives and criteria set out in the NER. The opex forecasting methodology is a standard approach, based on projecting forward from the most recent year's actual opex. As noted earlier, benchmarking analysis confirms that SP AusNet's opex is efficient, and therefore projecting forward from the most recent year is a reasonable forecasting method.

In SP AusNet's case, the opex forecasting methodology contains four primary steps:

- the latest available estimate of 2009 actual opex is adjusted to exclude one-off events, namely bushfire-related expenditure and an additional cost incurred relating to superannuation liabilities;
- an actuarial assessment of SP AusNet's self insured risk, such as bushfire liability risk, is included;
- step changes are included to reflect the costs of meeting new obligations, and new initiatives are also included where these provide a net benefit to customers; and
- a cost escalation is applied to reflect growth in labour costs and output growth.

The labour cost growth rate is based on independent work undertaken by BIS Shrapnel on behalf of the Victorian DNSPs. The net impact of these adjustments is to increase SP AusNet's opex by $59.81 million in 2015, compared to the adjusted 2009 (real 2010 $) base year. The table below provides a summary of the derivation of SP AusNet's opex forecasts.

Table 2 – Operating Expenditure Forecasts

(Real 2010 $M)	2009	2010	2011	2012	2013	2014	2015
Unadjusted Base Year	141.1						
Excluded one-offs	-14.1						
Adjusted Base Year	127.0	128.0	132.0	134.9	138.2	141.2	144.1
PLUS Cost changes		3.2	36.4	40.6	41.4	42.6	42.7
Total	**127.0**	**131.3**	**168.4**	**175.6**	**179.6**	**183.8**	**186.8**

The largest changes in costs are associated with the increased costs of bushfire insurance, improved PSAIDI and increases in vegetation management.[8]

[8] Described more fully in Sections 7.7.3, 7.8.3 and 7.8.4 in the main body of the text.

The AER has established a Demand Management Incentive Scheme (DMIS). SP AusNet intends to use the DMIS to trial broad-based peak demand management solutions and smart network technologies throughout the regulatory control period. These programs are detailed in the Proposal. The Proposal also sets out other demand management operating expenditure to avoid network reinforcement expenditure, where such substitution is economic.

Return on Capital

As noted earlier, the global financial environment has changed fundamentally, presenting serious challenges in the forthcoming regulatory period. The AER established return on capital parameters in its May 2009 Decision. However, the AER also correctly observed that the financial crisis could result in higher costs of debt and equity in the near term. It stated that the appropriate place for addressing such short term effects is in each DNSP's price review.

As such, this proposal includes adjustments to both the long term costs of debt and equity which would allow the AER to meet the NER requirement that:

> *"[T]he AER must have regard to… the need for the rate of return calculated for the purposes of [the Review] to be a forward looking rate of return that is commensurate with prevailing conditions in the market for funds and the risk involved in providing standard control services"*

Specifically, SP AusNet's Proposal includes:

- new evidence that supports the adoption of a value of 8% for the MRP for SP AusNet's forthcoming determination, instead of the value of 6.5% adopted in the SORI;
- new evidence that supports a move to a gamma of 0.5 from the value of 0.65 that is set out in the SORI; and
- a test of the Debt Risk Premium proxy to ensure that the data source currently favoured by the AER reflects the actual issuing costs of BBB+ 10-year corporate debt.

The WACC parameter values adopted by SP AusNet in this Proposal are set out below.

Table 3 – WACC parameter values

	AER May 2009 Decision	This Proposal
Gearing	60%	60%
Nominal Risk Free Rate	10 year CGS	10 year CGS
Market Risk Premium	6.5%	8%
Equity Beta	0.8	0.8
Credit Rating	BBB+	BBB+
Gamma	0.65	0.5
Debt Risk Premium	N/A	4.71%
Nominal "Vanilla" WACC	**N/A**	**10.86%**

RAB and Return of Capital

Clause S6.2.1 of Schedule 6.2 of the NER established a RAB for SP AusNet of $1,307 million.[9] This has been rolled forward in line with Clauses S6.2.1(e) and (f) of the NER and the 2006 EDPR Determination, taking into account actual capex, depreciation and capitalised foregone interest on capex spending higher than regulatory allowance in 2005 (previous regulatory control period). Depreciation has been based on an overall remaining economic service life for each class of the existing asset base and on forecast economic lives for new assets.

This provides the opening RAB for the forthcoming regulatory control period. The return of capital is the economic depreciation for each year, again calculated based on prudent economic lives in accordance with Clause 6.5.5(b)(1) of the NER, which requires the use of a profile that *"reflects the nature of the assets or category of assets over the economic life of that asset or category of assets."*

The tables below show the RAB values and economic depreciation.

[9] As at 1 January 2006 in July 2004 dollars.

Table 4 – RAB Roll Forward to 1st January 2011

(Nominal $M)	2006	2007	2008	2009	2010
Opening RAB	1,372.1	1,456.6	1,556.1	1,679.3	1,920.4
Net capex	118.0	128.1	187.3	260.5	256.1
Economic Depreciation	-33.5	-28.6	-64.2	-19.4	-85.6
Closing RAB	1,456.6	1,556.1	1,679.3	1,920.4	2,090.9
Capitalised Interest					16.4
RAB as at 1 Jan 2011					**2,107.3**

Source: SP AusNet Roll Forward Model.

Table 5 – RAB Roll Forward to 1st January 2016

(Nominal $M)	2011	2012	2013	2014	2015
Opening RAB	2107.3	2293.1	2554.2	2788.6	3030.1
Net capex	281.7	323.8	304.5	316.0	299.6
Economic Depreciation	-95.9	-62.6	-70.1	-74.6	-64.9
Closing RAB	2293.1	2554.2	2788.6	3030.1	3264.7
RAB as at 1 Jan 2016					**3,264.7**

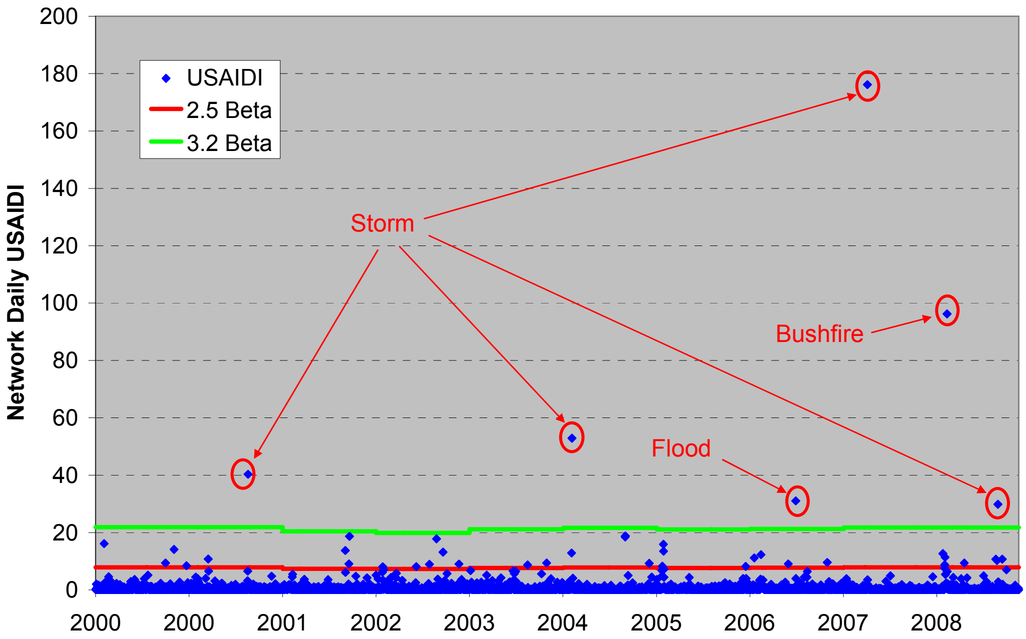
Source: SP AusNet PTRM.

Service Standards

This Proposal includes a service standard incentive that meets the objectives set out in the AER's STPIS. The Proposal includes two changes to better meet the STPIS objectives.

The Proposal includes a wider exemptions threshold (3.2β SAIDI compared to the AER's proposed 2.5β) to exclude only the most extreme events, as shown in the graph below. As can be seen, a 3.2β exemptions regime would have excluded the six most extreme events between 2001 and 2008. The proposed change will give SP AusNet a strong incentive to improve performance on the high weather impact days that it can influence, while providing risk mitigation for the extreme events it cannot.

Figure 4: Exclusion of Extreme Events



Source: SP AusNet.

The Proposal also removes the +/-5% revenue cap established in the STPIS. The cap limits the upside and downside from the scheme in any year. The primary justification for the change, in line with the objectives in clause 1.5 of the STPIS, is "the need to ensure that the incentives are sufficient to offset any financial incentives the service provider may have to reduce costs at the expense of service levels." In the absence of the proposed change, SP AusNet would have an incentive to stop investing before the full value of economic reliability benefits has been achieved.

The targets for the STPIS are based on the past five calendar years performance, adjusted by the proposed 3.2β exemptions regime. Targets have also been adjusted for the forecast effects of climate change over the forthcoming regulatory control period.

Building Block Summary and X-Factor

The following table summarises the resulting building blocks for the price control and the resulting X factor.

The X-factor has been set in accordance with Clause 6.5.9 of the NER.

Table 6 – Building blocks

(Nominal $M)	2011	2012	2013	2014	2015
Return on capital	228.8	249.0	277.4	302.8	329.0
Return of capital	95.9	62.6	70.1	74.6	64.9
Operating expenditure	171.8	181.2	189.9	199.1	207.2
Incentive schemes	14.7	-20.2	-2.4	5.4	3.1
Taxation allowance	13.9	3.6	6.9	9.4	11.3
Revenue Requirement	**525.2**	**476.3**	**541.9**	**591.2**	**615.5**
Smoothed Revenue Requirement	**516.3**	**517.4**	**527.2**	**566.2**	**618.6**
P_o	**-46.25%**				
X-Factor		**-5.5%**	**-5.5%**	**-5.5%**	**-5.5%**

Source: SP AusNet PTRM.

SP AusNet recognises that these represent significant price rises for customers. They arise primarily because of the need for additional investment in the network but also because of the proposed significant tariff restructuring and its expected impact on demand.

Tariffs

SP AusNet's Proposal introduces two new Distribution Use of System tariffs:

- Time of Use tariff for Residential and Small Commercial Customers; and
- Critical Peak Demand Price for large LV customers, HV customers, and sub-transmission customers.

The Time of Use tariffs use the functionality of AMI meters to provide cost reflective price signals to residential and small commercial customers, particularly during peak summer demand periods. The new tariffs are expected to drive:

- significant reductions in overall energy use and a shift in energy use away from peak periods to 'off peak' periods (as explained in detail in Chapter 5); and so
- reductions in peak demand, which in turn will allow the deferral of some reinforcement capex.

The key attributes of both tariffs are outlined in the following table.

Table 7 – Details of proposed tariffs

Tariff Type	Detail of Proposed Tariff
Time of Use Tariff	Summer Peak Demand Period: 2pm-6pm weekdays December to March. Price based on an estimate of the overall systems LRMC of supply for peak demand. Summer Shoulder Period: 12pm-2pm and 6pm-8pm. Price based on the average peak day demand within these periods (eg: around 85%) multiplied by summer peak demand charge. Winter Peak Demand Period: 4pm-8pm weekdays in Winter. Price based on the ratio of summer peak to winter peak multiplied by the summer peak demand charge. Off Peak Charge: All other usage. Price based on a hybrid of SRMC and LRMC.
Critical Peak Demand Tariff	Defined Peak Demand Period: 2pm-6pm weekdays December to March. Demand Charge: Based on the average 5 peak demand days identified in 1 day in advance during the Defined Peak Demand Period. Price based on estimated LRMC for the relevant parts of the network servicing that customer group, converted to a kVA basis. Energy Charge: All other periods.

The proposed Time of Use tariff will be phased in between 2010 and 2013 in parallel with the AMI meters, which will provide time for retailers to adjust to the new arrangements. The network component of some customers' bills may increase, which would be offset by reductions in other customers' bills. The impact on any particular customer will depend on their load profile, in particular, the amount of energy that they consume in the peak period versus the off peak period.

As SP AusNet's peak period is constrained to only 4 hours a day, there is a significant opportunity for customers to respond to this price signal, by either reducing the amount of energy that they consume or shifting when they use some electrical appliances. An example comparison of a flat rate and time of use tariff is provided in the table below.

Table 8 – Example tariffs

Tariffs	Standing Charge ($/ cust/yr)	Peak Energy Summer (c/KWh)	Shoulder Energy Summer (c/KWh)	Peak Energy Winter (c/KWh)	Off Peak Winter (c/kWh)	Off Peak Summer (c/kWh)
Single rate	8	8	9	0	0	0
Residential time of use	8	42	36	34	3	3

The 2009 Victorian Bushfires Royal Commission

The 2009 Victorian Bushfires Royal Commission was established on 16 February to investigate the causes and responses to the bushfires which swept through parts of Victoria in late January and February 2009. The Commission is required to deliver a final report on 31 July 2010. It may provide recommendations that result in additional network operational and capital expenditure levels to satisfy increased societal expectations for electricity network safety and performance. Given the final report's due date, it is unlikely that the impact of the recommendations will be available in time for AER consideration in its Final Decision. As such, SP AusNet considers it should be covered by the standard 'regulatory change event' pass-through NER provision.

1 Introduction

This document is the regulatory proposal for the regulatory control period from 1st January 2011 to 31st December 2015 that SPI Electricity Pty Ltd ABN 91 064 651 118 (SP Electricity) must submit to the AER by the 30th November 2009, under Rule 6.8 of the NER. This document and the provided supporting material are compliant with the Regulatory Information Notice (RIN) and the Cost Allocation Method (CAM) at Appendix B.

SP Electricity owns and operates an electricity distribution system in eastern Victoria. The system distributes electricity to 610,000 customer supply points, across a mix of alpine, rural, urban and coastal areas across the eastern half of Victoria. This area includes some of Australia's fastest growing communities.

SP Electricity is a part of the SP AusNet group. The group includes Victoria's electricity transmission system, a gas distribution system and a specialist services business, Select Solutions. Listed on the Australian and Singapore Stock Exchanges as a stapled security, SP AusNet's majority security-holder is Singapore Power International Pte Limited. Day to day, most people and documents refer to SP AusNet, rather than the exact subsidiary. The remainder of this regulatory proposal generally follows that convention, except in the few cases where greater precision is required.

As required by Rule 6.8, this regulatory proposal includes SP AusNet's:

- classification proposal, setting out how SP AusNet intends to classify distribution services and explaining where classification differs from the AER's Framework and Approach Paper;[10]
- building block proposal for standard control services, including, in terms of the RIN, the forecast opex proposal and the forecast capex proposal;
- demonstration of the application of the control mechanism set out in the AER's Framework and Approach Paper for alternative control services;
- indicative prices for direct control services from 1st January 2011 to 31st December 2015;
- proposed negotiating framework for negotiated distribution services; and
- an indication of the parts of the regulatory proposal where confidentiality is claimed.

Among other things, this regulatory proposal has been developed to:

- comply with the National Electricity Law, NER and the RIN issued by the AER on the 30th November 2009;[11]
- maintain existing service and reliability standards efficiently and prudently, in the face of more difficult environmental conditions; and
- meet, or manage, demand for standard control services through an efficient and prudent mix of tariffs, demand management initiatives and reinforcement capex.

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[10] AER, Final *Framework and approach paper for Victorian electricity distribution regulation*, May 2009.

[11] The AER served a RIN on SP Australia Networks (Distribution) on the 13th October 2009. In response to submissions from SP AusNet, the AER subsequently served an Urgent RIN, identical in other respects, on SPI Electricity Pty Ltd on the 30th November.

1.1 Company Overview

This section provides an overview of SP AusNet's electricity distribution system, operating environment and business structure.

1.1.1 SP AusNet's Electricity Distribution System

SP AusNet's distribution area is set out in Schedule 2 of its Electricity Distribution Licence. It spans more than 80,000 square kilometres, from the fringe of the northern and eastern Melbourne metropolitan area, to the NSW border in the North, and to the Victorian coastline in the Southeast, as illustrated in the figure below.

Figure 1.1: SP AusNet's Electricity Distribution Area

SP AusNet's electricity distribution system consists of a 'sub-transmission' network operated at 66 kV and a 'distribution' network operated at voltages of 22 kV, 12.7 kV, 11 kV, 6.6 kV and 240/415 Vand 240/480 V. SP AusNet distribution system contains:

- 47 66/22 kV zone substations;
- 57,000 distribution substations;
- 371,000 power poles and 100,000 streetlights; and
- 46,000 kilometres of underground cable and overhead lines.

1.1.2 Operating Environment

SP AusNet's distribution area includes alpine regions, rural areas, highly populated suburbs, forested areas with few customers and coastal areas that are subject to high winds and salt. These characteristics affect both network performance and efficient expenditure. Average customer density is low, reflecting isolated farms, small country towns, even after taking into account large cities and some of Melbourne's fastest growing suburban corridors. That said, the benchmarking information contained in this regulatory proposal demonstrates that SP AusNet is one of Australia's most efficient distribution network service providers.

Other physical characteristics of the area include:

- windy and dry conditions in Victoria's south and hot, dry and windy conditions in the North, with the prolonged drought affecting vegetation;
- densely populated growth corridors including South Morang, Lilydale, Beaconsfield and Narre Warren;
- the Great Dividing Range, extending from Melbourne's outer eastern metropolitan region to the across the north east of Victoria, imposes a physical separation between SP AusNet's northern and eastern regions, reducing network operational flexibility and resource utilisation;
- mountainous terrain, giving rise to higher vegetation management costs than in flatter regions; and
- a large proportion of customers living in heavily vegetated areas, with vegetation related outages the primary cause of supply interruptions during storms.

1.1.3 Business Structure

The SP AusNet group is listed on the Australian and Singapore Stock Exchanges as a stapled security, which includes SP Australia Networks (Finance) Trust, SP Australia Networks (Transmission) Ltd and SP Australia Networks (Distribution) Ltd.

The RIN requires information on related parties. These include:

- SPI Management Services Pty Ltd (SPIMS), a wholly owned subsidiary of SPI;
- Enterprise Business Services (Australia) Pty Ltd (EBS), a subsidiary of SPIMS; and
- Jemena Asset Management (6) Pty Ltd, ultimately a wholly-owned subsidiary of SPI.

The complete information required on related parties is contained in the confidential attachment 'SP AusNet Related parties.'

1.2 Regulatory Proposal Structure

The remainder of this Proposal is structured as follows:

- Chapter 2 classifies SP AusNet's distribution services;
- Chapter 3 summarises SP AusNet's approach to asset management;
- Chapter 4 proposes service targets for and amendments to the AER's service target performance incentive scheme;
- Chapter 5 provides demand and customer number forecasts, and the underpinning methodologies;
- Chapter 6 outlines SP AusNet's forecast capex proposal;
- Chapter 7 outlines SP AusNet's forecast opex proposal;

- Chapter 8 outlines SP AusNet's demand management strategy;
- Chapter 9 describes SP AusNet's application of the efficiency benefit sharing scheme;
- Chapter 10 outlines SP AusNet's application of the roll forward model to establish the RAB;
- Chapter 11 outlines SP AusNet's regulatory depreciation;
- Chapter 12 outlines SP AusNet's calculation of its proposed return on capital and taxation treatment;
- Chapter 13 presents SP AusNet's proposed cost pass through mechanism;
- Chapter 14 summarises SP AusNet's building block proposal:
- Chapter 15 summarises SP AusNet's distribution tariff strategy and indicative prices; and
- Chapter 16 presents information on SP AusNet's approach to negotiated and alternative control services and public lighting.

2 Distribution Service Classification

This chapter sets out SP AusNet's proposed distribution service classifications in accordance with Clause 6.8.2(c)(1) of the NER. The service classification determines the form of control and the cost recovery mechanism, in particular:

- whether the service should be subject to price or revenue control; a 'negotiate arbitrate' framework; or should not be regulated; and
- whether the costs of providing the service should be recovered from the generality of customers through network tariffs or recovered directly from the individual customer requesting the service.

The chapter is structured as follows:

- Section 2.1 sets out the relevant regulatory requirements for establishing the classification of distribution services;
- Section 2.2 provides a summary of the AER's proposed classification set out in the Framework and Approach Paper;
- Section 2.3 provides details of SP AusNet's proposals to depart from the approach set in the Framework and Approach Paper; and
- Section 2.4 concludes by presenting SP AusNet's proposed distribution service classification.

2.1 Regulatory Requirements

The key regulatory requirements for the distribution service classification proposal are set out in the NER and the RIN. Further details of the relevant requirements contained in each of these instruments are set out below.

2.1.1 National Electricity Rules

Clause 6.2 of the NER sets out the regulatory arrangements regarding the classification of distribution services.

In particular, Clause 6.2.1(d) requires that when classifying services that have previously been subject to regulation under the present or earlier legislation, the AER must act on the basis that:

- there should be no departure from a previous classification (if the services have been previously classified under the NER), or
- if there has been no classification under the NER, the classification should be consistent with the previously applicable regulatory approach.

In all other cases, Clause 6.2.1(c) sets out the factors that will guide the AER's decision on service classification. Clause 6.8.2(c)(1) requires the DNSP to submit a classification proposal:

- showing how the distribution services to be provided by the Distribution Network Service Provider should, in the provider's opinion, be classified under Chapter 6; and
- if the proposed classification differs from the classification suggested in the AER's Framework and Approach Paper – including the reasons for the difference.

It is also noted that Clause 6.2.3 states that the classification forms part of the distribution determination and operates only for the period for which the determination is made.

2.1.2 Regulatory Information Notice

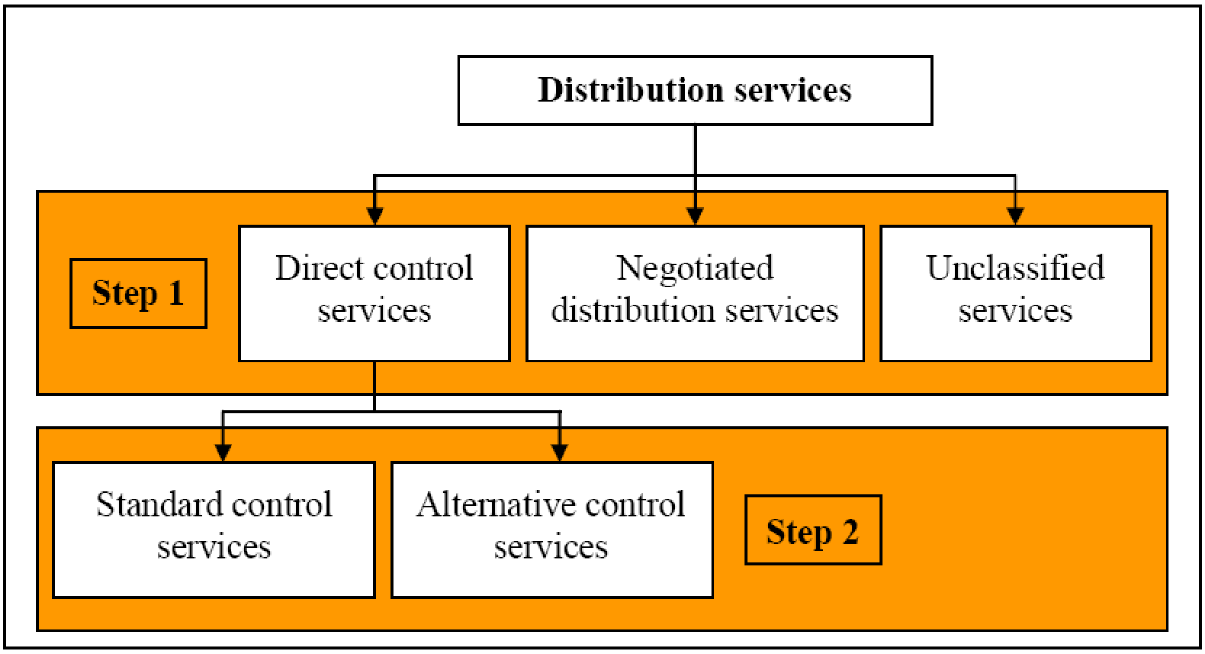
In circumstances where a DNSP proposes a service classification which departs from a service classification set out in the Framework and Approach Paper, the RIN requires the DNSP to:

- explain the reasons for the departure, including why the proposed service classification is more appropriate; and
- explain how the treatment of the service will differ under the proposed service classification in comparison to that in the Framework and Approach Paper; and
- provide a second set of regulatory templates, modified as necessary, to incorporate the proposed service classifications.

2.2 Framework and Approach Paper

The Framework and Approach Paper set out the AER's likely approach to the classification of the Victorian DNSPs' distribution services for the next regulatory control period. The AER classified the distribution services as either direct control services or negotiated distribution services. The AER further classified direct control services as either standard control services or alternative control services. Figure 2.1 below outlines the steps in the distribution service classification process.

Figure 2.1: Distribution Classification Process



Source: AER Framework and Approach Paper, page 18.

Table 2.1 below, sets out the AER's likely service groups and classifications from Appendix A of the Final Framework and Approach Paper.

Table 2.1: AER's likely Service Groups and Classifications

AER Service Group	AER likely Classification	Service Activity
Network services	Standard control service	Constructing the distribution network
		Maintaining the distribution network and connection assets
		Operating the distribution network and connection assets for DNSP purposes
		Planning the distribution network
		Designing the distribution network
		Emergency response
		Administrative support (e.g. call centre, network billing)
Connection services	Alternative control service	Energisation of new connections
	Negotiated distribution service	Connection and augmentation works for new connections
Metering services	Alternative control service	Metering data provider services for unmetered supplies with Type 7 metering installations
Public lighting services – Operation, repair, replacement and maintenance	Alternative control service	Operation, repair, replacement and maintenance of DNSP public lighting assets
Public lighting services – Alteration and relocation	Negotiated distribution service	Alteration and relocation of DNSP public lighting assets
Public lighting services – New public lighting	Negotiated distribution service	New public lighting
Quoted services	Alternative control service	Rearrangement of network assets at customer request, excluding alteration and relocation of existing public lighting assets

AER Service Group	AER likely Classification	Service Activity
		Supply enhancement at customer request
		Emergency recoverable works (i.e. emergency works where customer is at fault)
		Auditing of design and construction
		Specification and design enquiry fees
Fee based services	Alternative control service	De-energisation of existing premises
		Re-energisation of existing premises
		Temporary disconnect / reconnect services
		Temporary supply services
		Wasted attendance - not DNSP fault
		Service truck visits
		Location of underground cables
		Elective underground service where an existing overhead service exists
		Covering of low voltage mains for safety reasons
		Re-test of types 5 and 6 metering installations for first tier customers with annual consumption greater than 160 MWh
		Supply abolishment
		Fault response — not DNSP fault

AER Service Group	AER likely Classification	Service Activity
		Damage to overhead service cables caused by high load vehicles
		High load escorts — lifting overhead lines
Unregulated services	Not classified	All "metering provider services" other than as detailed above
	Not classified	The installation and maintenance of watchman (security) lights

Source: AER Framework and Approach Paper, Appendix A.

2.3 SP AusNet's Proposed Changes to the Framework and Approach Classification

SP AusNet has followed the classifications set out in the Framework and Approach Paper, except for:

- above standard connection services – connection and augmentation works for new connections as standard control services rather than negotiated services;
- standard connection services for new connections as alternative control services rather than negotiated services;
- elective undergrounding servicing as an alternative control quoted service rather then an alternative control fee based service;
- covering of low voltage mains as an alternative control quoted service rather then an alternative control fee based service; and
- damage to overhead service cables caused by high load vehicles as an alternative control quoted service rather then an alternative control fee based service.

In accordance with Clause 6.8.2(c)(1)(ii) of the NER and Clause 2.1(a) of the RIN, the reasons for the classification differences are set out below. In accordance with Clause 2.1(b) of the RIN, the differences in treatment resulting from the proposed classification are also set out below.

2.3.1 Connection Services – Connection and Augmentation Works for New Connections

Current Victorian Regime

In Victoria, the construction of above standard connection and augmentation works is made contestable under the ESC's Electricity Industry Guideline 14 (Guideline 14). The contestability arises from the requirement in Guideline 14 for a DNSP to call for tenders to construct the works from at least two other people who otherwise compete for such work.

Guideline 14 also sets out under its capital contribution provisions, arrangements for customer contributions to the capital cost of new works and augmentations. These arrangements are separate to the tendering provisions in Guideline 14 discussed above. While the tendering provisions deal with contestability arrangements, the capital contribution provisions deal with the regulatory approach to up-front contributions by customers to the cost of new works and augmentations, which is a pricing matter. These capital contribution arrangements were developed by the ESC to ensure that capital contributions for new connections and augmentations are consistent with providing efficient price signals to customers and DNSPs have sufficient flexibility to estimate the incremental cost of servicing a customer.

Given that the scope of connection and augmentation works are not generally known before the customer has requested a connection, these services are not provided for a fixed fee. Connection and augmentation works are currently treated as a contestable excluded distribution service under the ESC's regulatory arrangements and fees for such services are generally quoted because a 'standard' service fee cannot be predetermined.

Despite ensuring contestability with respect to the cost of construction, Guideline 14 operates such that the difference between the total capital cost of the connection and augmentation works and the customer's up-front contribution is included in the DNSPs regulated asset base and recovered via standard regulated DUoS charges. Ongoing opex and asset replacement are also included in the standard regulated DUoS charges.

Framework and Approach Paper's Classification

The AER has combined standard and above standard connection and augmentation works together for the purposes of service classification. The AER has classified these combined services as negotiated distribution services because:

- the market for these services is contestable and characterised by several participants in the market
- the AER has assumed that the regulatory obligations applicable to DNSPs for the tendering of construction works (contestability) will continue in some form after 2010, and
- there is no economic need for direct control regulation.

This decision was made in light of some uncertainty as to the future application of the ESC Guideline 14 once the transition to the national regime occurred on 1 January 2011.[12] Implicit in the decision was that the DNSPs would be able to recover all costs via negotiated charges under Chapter 6 of the NER.

Issues Resulting From Classification

Since the finalisation of the Framework and Approach Paper, the Victorian Government has clarified that the Victorian arrangements governing customer connection should continue to apply for the forthcoming regulatory control period. In particular, the capital contributions made by the customer will continue to be subject to regulation under Guideline 14.

These Victorian arrangements in combination with the proposed Framework and Approach classification would leave the Victorian DNSPS effectively unable to recover the cost of connection and augmentation works (net of the upfront customer contribution). This unanticipated outcome arises because:

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[12] AER, Final *Framework and Approach Pape*r, page 38, "The AER notes that the NER do not provide a derogation to allow the existing Victorian (ESCV Guideline 14) capital contribution" arrangements to continue in their current form.

- the Framework and Approach Paper classification prevents a DNSP including the net capital costs in the RAB and recovering these costs through standard control charges; and
- the Victorian Arrangements and specifically Guideline 14, prevent a DNSP from recovering the capital costs of connections (net of the allowed customer contribution) through unregulated charges outside of DUoS charges.

The AER has acknowledged that its proposed classification in the Framework and Approach Paper would not facilitate cost recovery of capital expenditure properly incurred by the Victorian DNSPs.

SP AusNet's Proposed Service Classifications

SP AusNet intends to classify and treat all above standard connection and augmentation works as standard control services. The intended effect of the proposed approach is that capital expenditure incurred in relation to connection services, net of any capital contributions made by the customer, will be included in the regulated asset base. SP AusNet understands that the AER is likely to accept this treatment in light of the Victorian Government clarification outlined in the previous section.

Importantly, SP AusNet's proposed approach will achieve a similar outcome to the current Victorian regulatory framework, where customers make a capital contribution for routine or non routine new or modified connections and the balance of the costs of providing the service are included in the RAB.

SP AusNet's proposed classification is consistent with Clause 6.2.1(d)(2) and Clause 6.2.2(d)(2) which state that, unless a different classification is clearly more appropriate:

> *"if there has been no previous classification – the classification should be consistent with the previously applicable regulatory approach."*

It is also consistent with Clause 6.2.1(c)(2) which states the AER must, in classifying a distribution service or distribution services have regard to:

> *"the form of regulation (if any) previously applicable to the relevant service or services and, in particular, any previous classification under the present system of classification or under the previous regulatory system (as the case requires)".*

With regard to capital contributions, SP AusNet notes that by proposing to classify all connection services as standard control services, it is bound by Clause 6.21.2 of the NER, which deals with capital contributions, prepayments and financial guarantees, in addition to the provision of Guideline 14. SP AusNet considers that these two regulatory instruments do not conflict.

2.3.2 Standard Connection Services for New Connections

Current Victorian Regime

The description of standard connection services and associated charges are set out in the SP AusNet Excluded Services Section of the *2006-10 EDPR Final Decision Volume 2 Price Determination*[13]. The 2006 EDPR Determination requires that installations below 100 amps are to be charged as a fixed fee and installations above 100 amps are to be quoted services. The

[13] ESCV, *2006-10 EDPR Final Decision Volume 2 Price Determination*, pp. 161-73.

2006 EDPR Determination also concludes that, fixed fee and quoted services are not contestable and that the contestability provisions of Guideline 14 are not applicable.

Framework and Approach Paper's Classification

As stated above, the AER has combined standard and above standard connection and augmentation works together for the purposes of service classification. The AER has classified these services as negotiated distribution services because:

- the market for these services is contestable and characterised by several participants in the market;
- the AER has assumed that the regulatory obligations applicable to DNSPs for the tendering of construction works (contestability) will continue in some form after 2010; and
- there is no economic need for direct control regulation.

This decision appears to have arisen from some confusion over the applicability of the contestability provisions of Guideline 14. Implicit in the decision was that the DNSPs would be able to recover all costs via negotiated charges under Chapter 6 of the NER.

Issues Resulting From Classification

As explained above, the provision of a 'standard connection' is not contestable as only SP AusNet can provide standard connection services (as opposed to 'augmentation works', which are contestable).

In light of this, the following conclusion in the Framework and Approach Paper is incorrect:

> *"The AER considers that classifying connection and augmentation works as negotiated services will result in the current form of regulation for these services being broadly retained".*[14]

Furthermore, the AER proposed classification is not consistent with Clause 6.2.1(d) of the NER as it has not properly considered Clause 6.2.1(c)(1) which states the AER must, in classifying a distribution service or distribution services have regard to:

> *"the potential for development of competition in the relevant market and how the classification might influence that potential".*

SP AusNet's Proposed Service Classifications

SP AusNet intends to classify and treat all standard connection services as an alternative control service based on a fixed fee approach for customers up to 100 amps and as a quoted service for customers above 100 amps. The intended effect of the proposed approach is to continue the current Victorian approach.

SP AusNet's proposed classification is consistent with Clause 6.2.1(d)(2) and Clause 6.2.2(d)(2) of the NER which state that, unless a different classification is clearly more appropriate:

> *"if there has been no previous classification – the classification should be consistent with the previously applicable regulatory approach."*

[14] AER, Final *Framework and Approach Paper*, page 38.

It is also consistent with Clause 6.2.1(c)(2) which states the AER must, in classifying a distribution service or distribution services have regard to:

> *"the form of regulation (if any) previously applicable to the relevant service or services and, in particular, any previous classification under the present system of classification or under the previous regulatory system (as the case requires)."*

2.3.3 Elective Undergrounding Servicing

Current Victorian Regime

The description of charges for elective undergrounding servicing are set out in the SP AusNet Excluded Services Section of the *2006-10 EDPR Final Decision Volume 2 Price Determination*[15]. The 2006 EDPR Determination requires that these works are billed at recoverable works rates (equivalent to a quoted service). The 2006 EDPR Determination also concludes that these works are not contestable and that the contestability provisions of Guideline 14 are not applicable.

Framework and Approach Paper's Classification

The AER has classified elective undergrounding servicing as fixed fee alternative control services on the basis of the following reasoning:

> *"Although SP AusNet and Jemena do not publish a fee for this service, but rather apply their recoverable works rates, the fact that other DNSPs charge a fixed fee suggests that prices can be developed in advance for this service."*[16]

Issues Resulting From Classification

SP AusNet services a diverse urban, rural and remote service territory, which leads to materially different undergrounding costs with respect to:

- travel time and vehicle costs;
- pole to pit distances due to varying block sizes; and
- differing network design parameters.

In addition, as this work is a result of a specific and easily attributable request from a customer, it is important that charges are cost reflective. Given the diversity in undergrounding requests, a quoted service is much preferred to a fee based charge. In particular, a fee based charge must necessarily reflect a degree of averaging, and the resulting charges will only be fully cost reflective in a relatively small number of cases. In contrast, quoted charges can consider the particular circumstances of each undergrounding request.

SP AusNet has provided a sample of job costs to illustrate the diversity of costs in support of Chapter 16 of this Proposal which addresses alternative control services. The samples are confidential as they contain customer information.

SP AusNet's Proposed Service Classifications

SP AusNet intends to classify elective undergrounding servicing as quoted alternative control services.

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[15] ESCV, *2006-10 EDPR Final Decision Volume 2 Price Determination*, pp. 161-73.

[16] AER, Final *Framework and Approach Paper*, page 51.

SP AusNet's proposed classification is consistent with Clause 6.2.1(d)(2) and Clause 6.2.2(d)(2) of the NER which state that, unless a different classification is clearly more appropriate:

> *"if there has been no previous classification – the classification should be consistent with the previously applicable regulatory approach."*

It is also consistent with Clauses 6.2.1(c)(2) and (5) which states the AER must, in classifying a distribution service or distribution services have regard to:

> *"the form of regulation (if any) previously applicable to the relevant service or services and, in particular, any previous classification under the present system of classification or under the previous regulatory system (as the case requires); and*
>
> *the extent the costs of providing the relevant service are directly attributable to the customer to whom the service is provided."*

2.3.4 Covering of Low Voltage Mains for Safety Reasons

Current Victorian Regime

The description of charges for covering of low voltage mains for safety reasons are set out in the SP AusNet Excluded Services Section of the *2006-10 EDPR Final Decision Volume 2 Price Determination*[17]. The 2006 EDPR Determination requires that these works are billed at recoverable works rates (equivalent to a quoted service). The 2006 EDPR Determination also concludes that these works are not contestable and that the contestability provisions of Guideline 14 are not applicable.

Framework and Approach Paper's Classification

The AER has classified charges for covering of low voltage mains for safety reasons as fixed fee alternative control services.

Issues Resulting From Classification

These types of works are very diverse in nature which leads to considerable variance of costs depending on where the work is to occur. The biggest driver of this variation is traffic management costs which are often associated with this work, the number of bays to be covered, the type of covering used and the period of time for the installation.

In addition, as this work is a result of an independent parties requests, it is important that the costs recovered from them are reflective of the costs incurred.

For the same reasons outlined above in relation to undergrounding, the diversity in the costs of providing this service warrants the adoption of a quotation based approach to charging.

SP AusNet has provided a sample of job costs to illustrate the diversity of costs in support of Chapter 16 of this Proposal which addresses alternative control services. The samples are confidential as they contain customer information.

[17] ESCV, *2006-10 EDPR Final Decision Volume 2 Price Determination*, pp. 161-73.

SP AusNet's Proposed Service Classifications

SP AusNet intends to classify charges for covering of low voltage mains for safety reasons as quoted alternative control services.

SP AusNet's proposed classification is consistent with Clause 6.2.1(d)(2) and Clause 6.2.2(d)(2) of the NER which state that, unless a different classification is clearly more appropriate:

> *"if there has been no previous classification – the classification should be consistent with the previously applicable regulatory approach."*

It is also consistent with Clause 6.2.1(c)(2) and (5) which state the AER must, in classifying a distribution service or distribution services have regard to:

> *"the form of regulation (if any) previously applicable to the relevant service or services and, in particular, any previous classification under the present system of classification or under the previous regulatory system (as the case requires); and*
>
> *the extent the costs of providing the relevant service are directly attributable to the customer to whom the service is provided."*

2.3.5 Damage to Overhead Service Cables caused by High Load Vehicles

Current Victorian Regime

The description of charges for damage to overhead service cables caused by high load vehicles are set out in the SP AusNet Excluded Services Section of the *2006-10 EDPR Final Decision Volume 2 Price Determination*[18]. The 2006 EDPR Determination requires that these works are billed at recoverable works rates (equivalent to a quoted service). The 2006 EDPR Determination also concludes that these works are not contestable and that the contestability provisions of Guideline 14 are not applicable.

Framework and Approach Paper's Classification

The AER has classified charges to repair damage to overhead service cables caused by high load vehicles as fixed fee alternative control services on the following basis:

> *"SP AusNet submits that it does not currently publish a fee for a "charge for damage to overhead service cables caused by high vehicles" and that this should be classified as a quoted service.*
>
> *The AER understands that other DNSPs do charge for this service on a fixed fee basis. This was an important consideration for the AER in proposing that this service be classified as fee based."*[19]

Issues Resulting From Classification

SP AusNet network is very diverse which leads to considerable variance of costs depending on where the damage has occurred. For example, repairing a service line brought down over the Monash Freeway incurs considerably different costs to the repair of a service line to a single residence.

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[18] ESCV, *2006-10 EDPR Final Decision Volume 2 Price Determination*, pp. 161-73.

[19] AER, Final *Framework and Approach Paper*, page 52.

In addition, as this work is a result of an independent parties (vehicle driver/operator) actions, it is important that the costs recovered from them are reflective of the damage caused in order to encourage due care and responsibility.

For the same reasons outlined above in relation to undergrounding, the diversity in the costs of providing this service warrants the adoption of a quotation based approach to charging.

SP AusNet has provided a sample of job costs to illustrate the diversity of costs in support of Chapter 16 of this Proposal which addresses alternative control services. The samples are confidential as they contain customer information.

SP AusNet's Proposed Service Classifications

SP AusNet intends to classify charges to repair damage to overhead service cables caused by high load vehicles as quoted alternative control services.

SP AusNet's proposed classification is consistent with Clause 6.2.1(d)(2) and Clause 6.2.2(d)(2) of the NER which state that, unless a different classification is clearly more appropriate:

> *"if there has been no previous classification – the classification should be consistent with the previously applicable regulatory approach."*

It is also consistent with Clause 6.2.1(c)(2) and (5) which state the AER must, in classifying a distribution service or distribution services have regard to:

> *"the form of regulation (if any) previously applicable to the relevant service or services and, in particular, any previous classification under the present system of classification or under the previous regulatory system (as the case requires); and*
>
> *the extent the costs of providing the relevant service are directly attributable to the customer to whom the service is provided."*

2.4 SP AusNet's Proposed Classification

In accordance with Clause 6.8.2(c)(1)(i) of the NER, SP AusNet's proposed distribution service classification is set out in Table 2.2 below (changes from the Framework and Approach Paper are shaded in green).

Table 2.2: SP AusNet's Service Groups and Classifications

AER Service Group	AER likely Classification	Service Activity
Network services	Standard control service	Constructing the distribution network
		Maintaining the distribution network and connection assets

AER Service Group	AER likely Classification	Service Activity
		Operating the distribution network and connection assets for DNSP purposes
		Planning the distribution network
		Designing the distribution network
		Emergency response
		Administrative support (e.g. call centre, network billing)
Connection services	Alternative control service	Energisation of new connections
	Alternative control service	Standard connection
	Standard control service	Above standard connection and augmentation works for new connections
Metering services	Alternative control service	Metering data provider services for unmetered supplies with Type 7 metering installations
Public lighting services – operation, repair, replacement and maintenance	Alternative control service	Operation, repair, replacement and maintenance of DNSP public lighting assets
Public lighting services – alteration and relocation	Negotiated distribution service	Alteration and relocation of DNSP public lighting assets
Public lighting services – new public lighting	Negotiated distribution service	New public lighting
Quoted services	Alternative control service	Rearrangement of network assets at customer request, excluding alteration and relocation of existing public lighting assets
		Supply enhancement at customer request

AER Service Group	AER likely Classification	Service Activity
		Emergency recoverable works (i.e. emergency works where customer is at fault)
		Auditing of design and construction
		Specification and design enquiry fees
		Elective underground service where an existing overhead service exists
		Covering of low voltage mains for safety reasons
		Damage to overhead service cables caused by high load vehicles
Fee based services	Alternative control service	De-energisation of existing premises
		Re-energisation of existing premises
		Temporary disconnect / reconnect services
		Temporary supply services
		Wasted attendance - not DNSP fault
		Service truck visits
		Location of underground cables
		Moved to quoted services
		Moved to quoted services

AER Service Group	AER likely Classification	Service Activity
		Re-test of types 5 and 6 metering installations for first tier customers with annual consumption greater than 160 MWh
		Supply abolishment[20]
		Fault response — not DNSP fault
		Moved to quoted services
		High load escorts — lifting overhead lines
Unregulated services	Not classified	All "metering provider services" other than as detailed above
	Not classified	The installation and maintenance of watchman (security) lights

Source: SP AusNet.

[20] SP AusNet does not charge for supply abolishment as it does not believe it is in the community interest to place a disincentive to the safe abolishment of connection assets that would result in a hazard to the public.

3 Asset Management Overview

This chapter provides an overview of SP AusNet's asset management processes, the key drivers of asset management expenditure, and the resulting asset management strategies. SP AusNet's approach to asset management is designed to comply with all regulatory and legislative requirements, including licence and Code obligations, efficiently.

The chapter is structured as follows:

- Section 3.1 sets out the high-level regulatory requirements within which SP AusNet's asset management approach is framed;
- Section 3.2 provides an overview of SP AusNet's asset management vision and objectives;
- Section 3.3 sets out the key drivers of network expenditure and performance over the forthcoming regulatory period;
- Section 3.4 outlines SP AusNet's asset management documentation and process;
- Section 3.5 summarises SP AusNet's approach to optimising life cycle costs; and
- Section 3.6 summarises the trade-offs between opex, capex and service standards embodied in the Proposal.

3.1 Regulatory Requirements

This section provides a short summary of the key regulatory instruments that affect SP AusNet's asset management strategy. The intention here is not to provide an exhaustive discourse on the obligations that arise for SP AusNet under these instruments. Rather, the intention is to demonstrate, in conjunction with the remainder of the chapter, that these requirements are deeply embedded in SP AusNet's approach to asset management.

3.1.1 National Electricity Law

The National Electricity Objective, set out in Section 7 of the NEL, is:

> *"to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to —*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system."*

SP AusNet's asset management processes, in complying with the detailed regulatory and statutory obligations described elsewhere in this Proposal, are designed to further this objective as it applies to SP AusNet's electricity distribution system.

3.1.2 National Electricity Rules

Clauses 6.5.6 and 6.5.7 of the NER set out operating and capital expenditure objectives respectively, which are to:

"Meet or manage the expected demand for standard control services over the period[21]

Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services[22]

Maintain the quality, reliability and security of supply of standard control services[23]

Maintain the reliability, safety and security of the distribution system through the supply of standard control services[24]*"*

In broad terms, much of the expenditure that is driven by these objectives is of a non-discretionary nature. The following two sections - which examine electrical safety standards and SP AusNet's compliance obligations under Victorian jurisdictional regulatory instruments - provide two particularly important examples.

The operating and capital expenditure criteria, also found in Clauses 6.5.6 and 6.5.7 of the NER, are concerned with the efficiency and prudency of the resulting forecasts. SP AusNet's asset management processes are designed to assess expenditure needs rigorously, drawing on independent advice where necessary. They then identify the most efficient method to meet that need, be it capital expenditure, demand management, operating expenditure, changes to tariffs or improvements in systems and processes. Safety aside, rigorous cost-benefit analyses underpin SP AusNet's asset management decisions.

3.1.3 Electricity Safety Act 1998

The Electricity Safety Act 1998 requires that SP AusNet must operate in compliance with an Electrical Safety Management Scheme (ESMS) that has been approved by ESV[25]. The ESMS must be updated and resubmitted for approval every 5 years.

Under modifications to the Act during 2009, ESV issued new Guidelines which the new ESMS must comply with. Essentially the new ESMS requirements are an extension of those existing requirements for the operation of an ESMS in Victoria. Among other things, the new scheme will be required to contain information on:

- a formal safety assessment including methodology, hazards identified and measures to reduce those hazards; and
- a description of the management scheme including content, responsibilities, formal policy, technical standards applied and an asset management plan detailing the change management process.

SP AusNet's asset management approach has been prepared having regard to the new ESMS requirements, and is intended to facilitate SP AusNet's compliance with those requirements.

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[21] Clauses 6.5.6(a)(1) and 6.5.7(a)(1) of the NER.

[22] Clauses 6.5.6(a)(2) and 6.5.7(a)(2) of the NER.

[23] Clauses 6.5.6(a)(3) and 6.5.7(a)(3) of the NER.

[24] Clauses 6.5.6(a)(4) and 6.5.7(a)(4) of the NER.

[25] ESV is Victoria's statutory independent electricity, gas and pipeline safety and technical regulator.

3.1.4 Electricity Distribution Licence and Code

SP AusNet is, among other things, obliged by its Electricity Distribution Licence to comply with the Electricity Distribution Code. The Code sets out obligations on SP AusNet to practice good asset management and in particular use best endeavours to:

> *"develop and implement plans for the acquisition, creation, maintenance, operation, refurbishment, repair and disposal of its distribution system assets […] to comply with the laws and other performance obligations […] to minimise the risks associated with the failure or reduced performance of assets."*

SP AusNet's asset management processes, strategies and forecasts are designed to meet these obligations.

3.2 Asset Management Vision and Objectives

3.2.1 SP AusNet's Asset Management Vision

Our asset management vision is to be a "leader in the asset management of energy networks". Key considerations in this regard include:

- the safety of the public and employees;
- the demand for network services;
- the performance, age and condition of network assets;
- the objective of maintaining quality, reliability and security of supply;
- technological advancements;
- substitution possibilities between operating and capital expenditure; and between network and non-network solutions; and
- the impacts of climate change, which include the increased risks associated with storm activity, drought, bushfires and the changing nature of generation and demand.

The above considerations are closely aligned with the requirements of Chapter 6 of the NER, which are intended to result in SP AusNet establishing economically efficient operating and capital expenditure plans. In this regard, SP AusNet's asset management strategy (AMS) provides useful background information, explaining the basis of SP AusNet's expenditure plans, and demonstrating that those plans are consistent with the expenditure objectives and the expenditure criteria set out in Clauses 6.5.6 and 6.5.7 of the NER. The AMS is attached as an Appendix to this Proposal.

3.2.2 Asset Management Objectives

SP AusNet's AMS is focused on achieving this vision through optimal distribution network performance at minimum efficient costs, in accordance with the operating and capital expenditure objectives and criteria set out in Chapter 6 of the NER.

To realise the asset management vision, the AMS objectives are to:

- enhance network safety in accordance with statutory obligations and industry best practice;

- increase network capacity to satisfy future projections for energy supply and peak demand;
- achieve supply reliability targets taking account of risk, costs and customer expectations;
- enhance supply quality; and
- manage network risk in an efficient manner.

In achieving these objectives, the AMS ensures that all decisions to augment, replace or maintain network assets are justified on economic grounds.

3.3 Network Expenditure Pressures

The main pressures on network expenditure over the forthcoming regulatory period are:

- compliance with increased safety obligations and environmental and security obligations – including SP AusNet's new safety case submitted to Energy Safe Victoria;
- future expected demand for network services – including a growing and increasingly peaky load, rising asset utilisation and load at risk;
- maintenance of supply reliability and quality – including mitigating the natural deterioration of asset condition due to asset aging;
- impacts of climate change and associated Government policy – including effects on SP AusNet's operating environment and connected generation mix; and
- technological change – including opportunities provided by the roll out of interval meters in Victoria.

These are summarised below.

3.3.1 Safety Obligations

An overview of the new safety management obligations applying to SP AusNet under the new Electricity Safety Act is provided in section 3.1.3 above. Safety programs include:

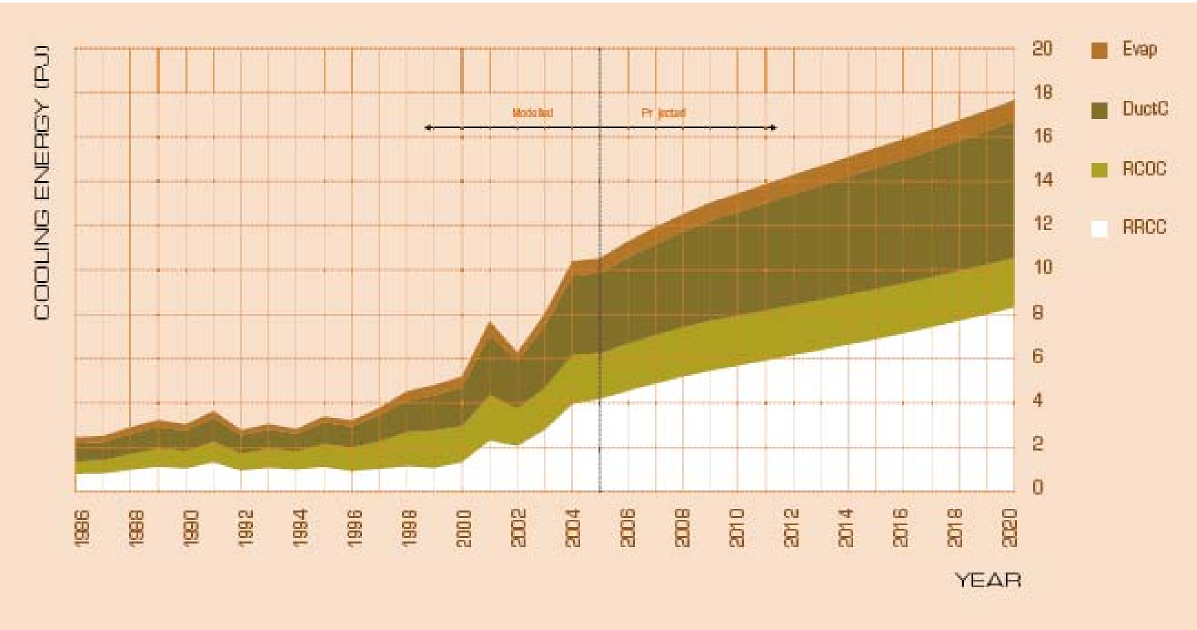
- conductor replacement capex program, including approximately 2,000km replacements, due to the increasing age profile and deteriorating performance of steel and copper conductor;
- cross-arm and MV insulator replacement capex program, including approximately 30,650 pole top structure replacements to address timber cross arm failure rates and insulator failure rates;
- fuse replacement capex program – this includes approximately 7,000 fuse replacements (100% increase) to stabilize failure rates which are driven by an increasing proportion of fleet nearing end of life; and
- Increased vegetation management.

3.3.2 Demand for Network Services

The northern, eastern and south eastern growth corridors of Melbourne are situated in SP AusNet's Distribution area. As such, demand growth and customer connection growth associated with Victoria's population and economic growth impact heavily on SP AusNet's network.

Compounding this, demand associated with new housing developments tends to be relatively peaky due to the rapid uptake of air conditioning (cooling). The Commonwealth government predicts a dramatic increase in energy use by air conditioning as illustrated in the figure below.

Figure 3.1: Residential energy use by air-conditioning in Australia

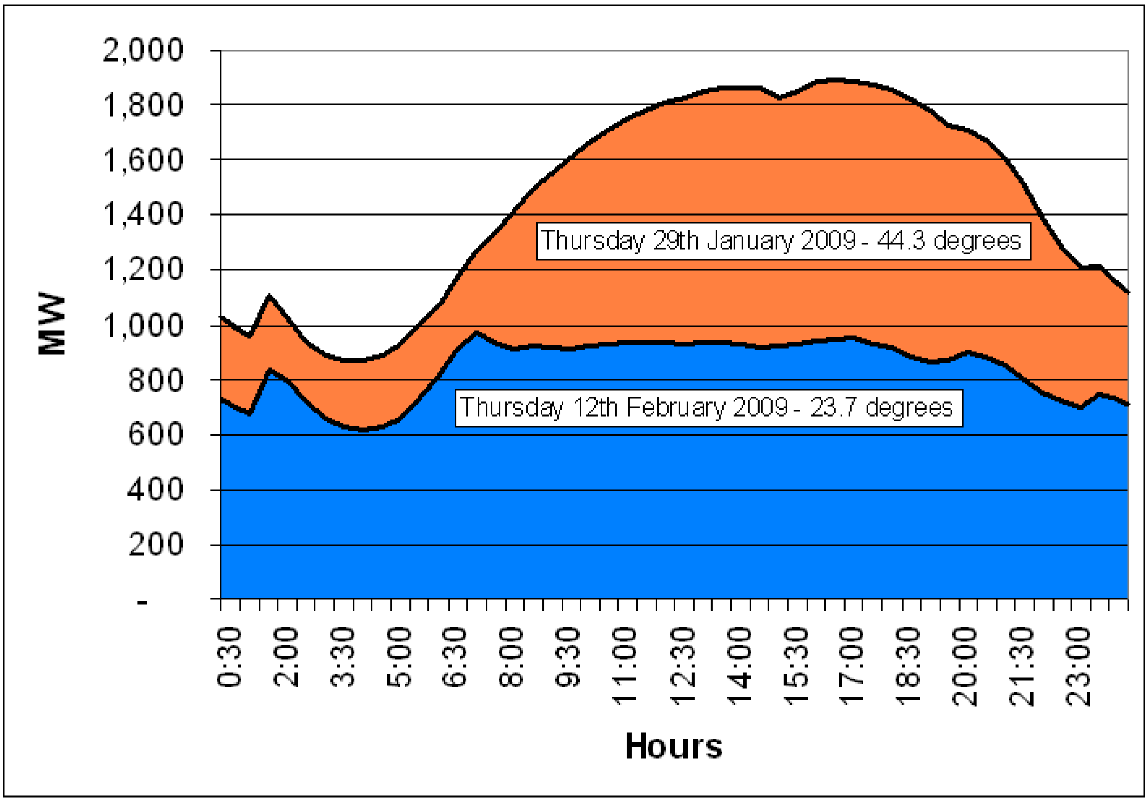


Source: "Energy Use In The Australian Residential Sector 1986 – 2020", Department of the Environment, Water, Heritage and the Arts 2008

Whilst air-conditioning electrical load accounts for only a small proportion of annual energy consumption, it is responsible for the peak load on the network on an increasing number of occasions each year. SP AusNet anticipates that whilst total annual energy consumption per dwelling may remain constant; peak demand will continue to increase as more air conditioning is installed in existing and new dwellings. In addition, climate change predictions which forecast more hot days each year reinforce the expectation that there will be continued growth in the use of air-conditioners for cooling.

Naturally, this peak loading coincides with high ambient temperatures which are the limiting factor in the rating of most electrical equipment. The figure below illustrates the sensitivity and impact of ambient temperature on electrical demand by contrasting the difference between energy demand on a 24°C day and on a 44°C day due primarily to increased use of air-conditioners.

Figure 3.2: Total Network Demand on a Mild (24°) and Hot (44°) Day



Source: Excerpt from SP AusNet' AMS – 20-01 – Electricity Distribution Network

Peak demand loading on SP AusNet's distribution network has been growing at the rate of 6.7% per year from 05/06 summer to the 2008/09 summer. This growth rate is much higher than the 3.7% forecast in 2005 for the 2006 EDPR Determination. Customer connections have also remained strong even the face of the economic downturn in 2009, boosted through measures introduced as part of the Commonwealth Government's economic stimulus package (for example, the first home owners grant for new construction).

In addition, during the current regulatory period SP AusNet's load has become peakier, meaning maximum demand has risen faster than overall energy supplied. This is as a consequence of significant new housing development on the outskirts of Melbourne and growth in air-conditioner load.

At 4.4% per annum, demand growth is expected to remain strong over the forthcoming regulatory control period.

Customer connections are forecast to average 13,596 per year (or 2.1% per year) and, therefore, they are also expected to remain strong over the forthcoming regulatory control period.

Further information on demand and customer number growth forecasts, and their impact on SP AusNet's capex requirements is set out in detail in Chapter 5 and in sections 6.6 and 6.14.

3.3.3 Maintenance of Supply Reliability and Quality

In accordance with Clauses 6.5.6(a)(3) and 6.5.7(a)(3) SP AusNet has proposed capital and operating expenditure that maintain existing levels of service to its customers. To achieve this objective, SP AusNet's AMS maintains the average age of the network across the forthcoming regulatory control period.

This issue is discussed in more detail in section 6.8.

3.3.4 Network Condition

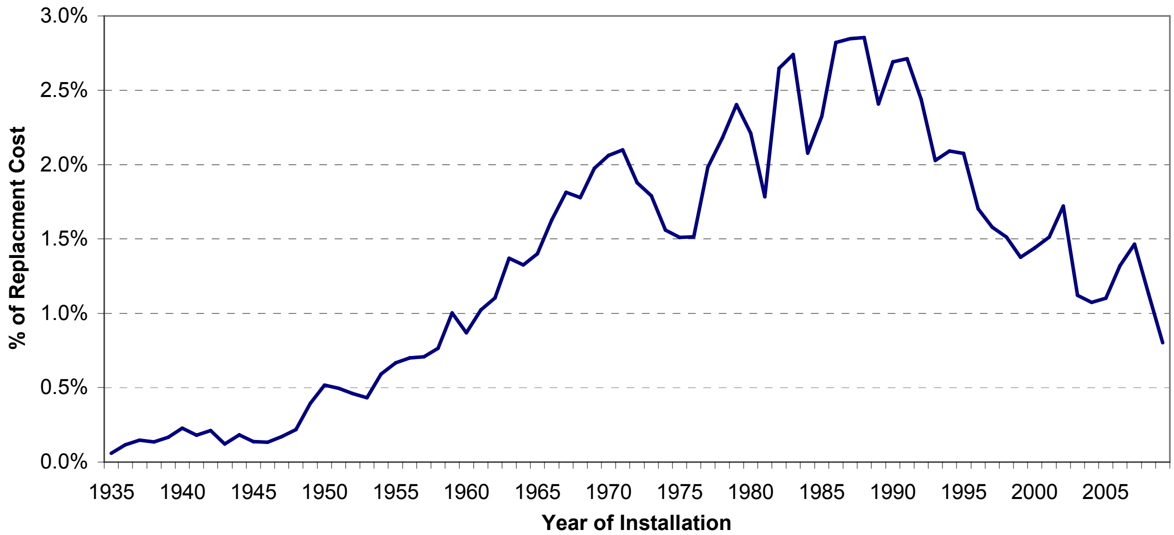
SP AusNet replaces assets based on condition, except for a small number of critical assets. Nonetheless, there is obviously a strong correlation between asset age and condition. Therefore, the age profile of the network and the various asset fleets is a useful indicator when forecasting volumes of condition based asset replacement.

Victoria was electrified in the 1950s and 60s. In particular, the majority of the 220 kV transmission network and associated co-development of the metropolitan and country distribution sub-transmission network occurred at this time.

Distribution primary system assets have an expected engineering life of around 50 to 70 years. Therefore, the surge in replacement (with some smoothing) associated with the original development of the system is expected from around 2010.

This is illustrated in the figure below showing the development history by asset cost share of the SP AusNet distribution network. It is the early part of the curve that is most instructive. The percentage of installed assets replacement cost nearly doubles every five years from 1945 to 1960. By 1970, over a quarter of the current distribution network was in place.

Figure 3.3: Network Age profile



Source: SP AusNet

This surge in asset replacement has already been observed in the Victorian transmission sector.[26]

[26] Transmission assets are subject to higher electrical stresses with resulting shorter expected lives.

Therefore, careful management of the replacement of aging asset fleets is required to ensure that whole-of-life costs are minimised, having regard to the trade-offs between:

- the increased costs associated with maintaining obsolescent unsupported plant, equipment and systems;
- the increased costs incurred if aging but, nonetheless, serviceable assets are replaced prematurely; and
- the costs of resources to meet expected replacement work associated with the replacement of large aging asset fleets (that is, benefits from smoothing peaks in replacement profiles).

SP AusNet ensures that it has strategies in place to sustain network performance levels, minimise asset life cycle costs and avoid volatility in replacement programs through:

- careful modelling of network performance risk;
- focussed condition monitoring programs;
- sophisticated analysis of asset life extension and replacement options;
- selective asset life extension programs; and
- efficient delivery of asset replacement though integration with network augmentation projects.

Capex and opex for the forthcoming regulatory control period under these strategies are included in the forecasts set out in this Proposal.

3.3.5 Climate Change

Climate change is expected to impact SP AusNet in two main ways:

- direct physical impacts of climate change include changes to the operational performance of networks, increased risk of equipment failure and altered deterioration mechanisms which reduce asset life; and
- indirect impacts of climate change include government policy responses to reduce carbon emissions, such as incentives for distributed energy connections. These connections can in turn effect network reliability and quality in the absence of corresponding network augmentation occurring.

SP AusNet covers some of the most hostile territory in Australia for operating an electricity distribution network due to significant vegetation cover, mountainous terrain and a dry climate. Evidence is accumulating that this environment is becoming worse due to a lengthening drought which stresses trees leaving them more likely to fall or drop branches across SP AusNet assets. For example, the following severe natural events have affected the SP AusNet network in the current regulatory period:

- bushfires during the summer of 2006/07 (resulting in a network USAIDI impact of 14 system minutes);
- Gippsland Floods in 2007 (network USAIDI impact of 34 minutes);
- windstorm during April 2008 (network USAIDI impact of 179 minutes) was the worst storm event recorded in Victoria;

- heatwave in January 2009 (network USAIDI impact of 37 minutes) including the highest temperatures recorded in Melbourne;
- bushfires in February 2009 (network USAIDI impact of 104 minutes); and
- windstorms in September 2009 (estimated network USAIDI impact of 30 minutes).

While not directly attributed to climate change, all these events are consistent with the expected effects of climate change, such as increased drought and more extreme weather events.

South-east Australia is expected to experience increased temperatures and lower rainfall as a result of climate change. In particular, Victoria is expected to experience increasing water shortages, bushfires, storm events, flash floods and rising temperatures. The Commonwealth Scientific Institute and Research Organisation (CSIRO) warns that in future years these impacts will continue to increase in extent and severity, in the form of increasing and more extreme events, warmer temperatures, less rainfall, more extreme droughts and perhaps substantial sea level rises.

SP AusNet has taken a rigorous and conservative approach to accounting for the expected direct impacts of climate change on the network. A key part of this approach has been to commission AECOM to assess the likely impacts of climate change on SP AusNet's network over the 2011-15 regulatory control period.[27] This report is included as an Appendix to the Proposal.

The AECOM report draws heavily on existing work from the CSIRO. On the recommendation of CSIRO, two models from a suite of 23 were selected to be applied to SP AusNet. The CSIROMk3.5 and HADGEM1 models best represent SP AusNet's risk exposure under more extreme temperature, rainfall and wind conditions.

The report makes recommendations on:

- supply restoration and reliability;
- potential effects on asset lives and/or maintenance costs;
- changes to asset design requirements and capability; and
- changes to bushfire management.

Where prudent and efficient, these recommendations have been reflected in SP AusNet's asset management strategy and in the expenditure forecasts set out in this Proposal.

3.3.6 Embedded Generation

The Australian Federal and State Governments have created incentives for the establishment of alternative energy sources that lead to lower overall greenhouse gas emissions. These include the mandatory renewable energy target scheme (MRETS) and the foreshadowed emissions trading scheme (ETS, also referred to as the carbon pollution reduction scheme, or CPRS). These schemes will create a demand for the broadened and increased use of embedded generation across the following primary types:

- wind farms;
- photovoltaic;

[27] AECOM, *Assessment of Climate Change Impacts on SP AusNet Electricity Network for 2011-2015 EDPR*, 30 October 2009.

- landfill generation;
- customer cogeneration; and
- hydro (distribution network connection).

Embedded generators present generic issues for distribution businesses, regardless of the generation type. They include:

- facilitation of network connection arrangements and agreements;
- quality of supply implications on the distribution network;
- network support;
- metering; and
- arrangements for payment of transmission charge (TUOS) rebates.

The implications of these factors for SP AusNet's asset management strategy have been taken into account and are reflected in the expenditure forecasts contained in this Proposal.

3.3.7 Technology Change and Smart Networks

Advances in technology are changing the nature and functionality of new equipment. While new technology often brings with it significant improvements in functionality and reduced maintenance costs, it can also leave older items of equipment unsupported and hence obsolete before the end of their technical lives.

Recent advances in technology, design and manufacturing have provided primary assets (poles, cables, ACRs, circuit breakers, power transformers, and civil infrastructure and buildings) with:

- increasing reliability through the use of fewer components and improved materials;
- increasing availability of integrated condition monitoring equipment;
- increasing use of polymeric insulation in explosion resistant designs;
- reducing need for intrusive maintenance; and
- aggregation of previously discrete primary assets.

The dominant trend in secondary systems (protection relays, control relays, metering and the associated cabling and communication circuits) is toward the application of digital technology devices and systems with in-built intelligence and integrated functionality. These digital technology platforms add value by:

- increasing functionality, reliability and availability through the use of microprocessors, solid-state devices, digital technology and optic fibre-based communication systems;
- lowering per function costs whilst increasing performance capability;
- embedding intelligent diagnostic software that optimises operation and improves asset management;
- rationalising equipment via functional integration and multiple signal processing capability; and
- providing remote management facilities of network elements.

The next decade will see the development of these smart networks globally and in Australia, using this technology to provide more flexibility, more information and better outcomes to customers. Among other things, this Proposal sets out:

- SP AusNet's plans to use AMI technology to deliver cost-reflective price signals to customers through new tariff structures. This is, of course, one of the primary benefits of a smart meter roll-out, so facilitating a customer response;
- Reductions in forecast demand to reflect the impact of those tariffs allowing a lower forecast for reinforcement capex than would otherwise have been the case;
- Establishment of an organisational demand management capability, building on existing programs to avoid investments through peak demand management; and
- Development work to better prepare for the changing role of the network, to maximise the prospect for active demand management in the longer term.

The AER's STPIS will provide strong incentives for SP AusNet to apply smart network approaches to network reliability, building on experience from the current regulatory control period. SP AusNet's Distribution Feeder Automation projects have already demonstrated significant reliability benefits, compared to more conventional switching response times.

Smart network technology will have a shorter economic life than traditional network assets. This will require care the AER's decision making processes, as if expenditure is disallowed, it will be completely unsustainable for the company to make a prudent investment following the determination on 'speculative' terms. This occurs because the return of capital will be materially diluted by even a short delay in funding coverage.

Technological change presents both challenges and opportunities for SP AusNet in the development and execution of its asset management strategy. The AMS aims to maximise the value and potential value of employing new technologies, within the over-arching objective of achieving optimal distribution network performance at minimum efficient costs, in accordance with the operating and capital expenditure objectives and criteria set out in Chapter 6 of the NER. SP AusNet expects the pace of smart network development to accelerate over the next five years – this Proposal establishes a solid foundation for these developments.

3.4 Asset Management Documentation and Process

The delivery of quality services to customers and value to stakeholders is determined by SP AusNet's success in managing the electricity distribution network assets.

The AMS outlines strategic actions for the purpose of achieving regulatory and business performance targets over the next five years, through the efficient management of SP AusNet's electricity distribution network assets. The AMS is informed by the 30-year Network Development Strategy which addresses the longer term capacity and investment requirements of the network.

The AMS is underpinned by the regulatory and commercial imperatives of delivering efficient cost and service performance. The AMS recognizes that cost and service efficiency does not mean lowest possible cost nor does it mean guaranteed supply. Instead, efficiency requires the costs and benefits of all expenditure decisions to be weighed against one another. A key element in this cost benefit analysis is the consideration of risk management in relation to asset performance and network reliability.

As already noted, the efficiency concepts that underpin the NER are also embedded in the AMS. In particular, Clauses 6.5.6(a) and 6.5.7(a) of the Rules define the operating and capital expenditure objectives that SP AusNet must satisfy. Specifically, the expenditure objectives are:

- to meet or manage the expected demand for standard control services over the regulatory period;
- to comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
- to maintain the quality, reliability and security of supply of standard control services;
- to maintain the reliability, safety and security of the distribution system through the supply of standard control services.

The NER require the AER to assess whether SP AusNet's total expenditure forecasts reasonably reflect: the following criteria:

- the efficient costs of achieving the expenditure objectives;
- the costs that a prudent operator in SP AusNet's circumstances would require to achieve the expenditure objectives; and
- a realistic expectation of the demand forecast and cost inputs required to achieve the expenditure objectives. .

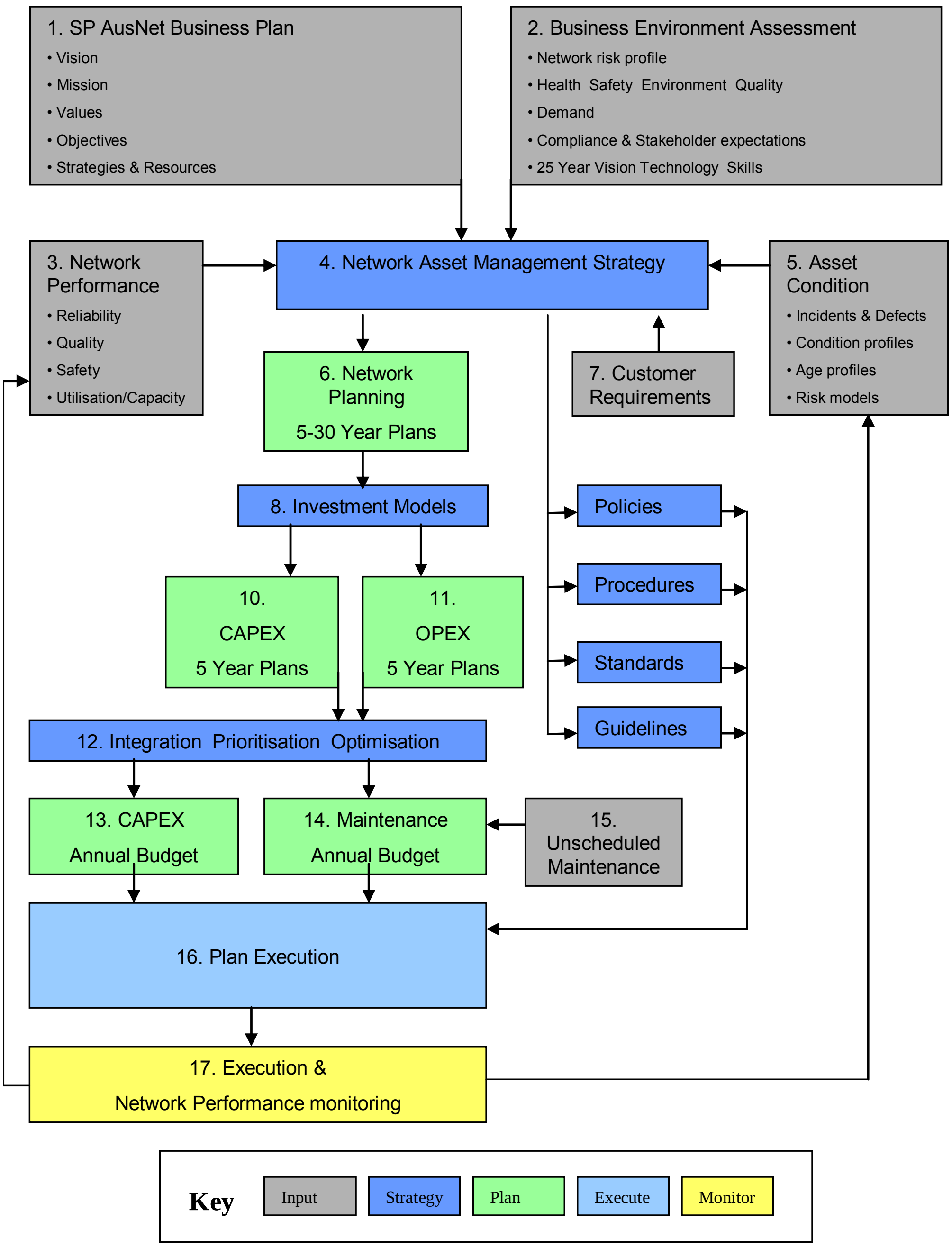
In making its assessment of SP AusNet's Proposal, the AER is required to apply the criteria listed above, and to consider a number of expenditure factors including the possibility of substituting operating and capital expenditure.

The expenditure objectives, criteria and factors to be considered by the AER are integral to this AMS. In this respect, SP AusNet expects this AMS to provide useful information in support of the company's expenditure plans, and to demonstrate the compliance of those expenditure plans with the requirements of the NER, in conjunction with the supporting documentation. A list of all asset management support documentation is referenced in SP AusNet's Support Document Register supplied in support of this Proposal.

The asset management process ensures that the strategy and its supporting documentation is informed by inputs from the SP AusNet business plan, assessments of the external environment, asset condition assessments, information on network performance and the future augmentation requirements of customers. The asset management process also ensures that the strategy feeds into the implementation plans and internal budgeting process.

The asset management process is an iterative one, and it involves updating the AMS and associated documents and actions when conditions and information change. The asset management process showing the inter-relationships between inputs, strategy, planning and implementation is illustrated in the figure below.

Figure 3.5: Asset Management Process



3.5 Rigorous Economic Analysis

SP AusNet's cost-benefit evaluations use discounted cash flow analysis techniques, for all major projects where costs can reasonably be estimated. (It is noted that estimation accuracy declines towards the end of the forecast regulatory period). These costs include capital costs, operational risks and operating and maintenance costs. The assessment includes a quantitative estimate of the value of reliability, taking the risk of plant failure and the consequences of unserved load (namely, the cost to consumers of involuntary supply interruption), and reduced network performance into account as part of each asset management decision.

In addition to developing least-cost options for addressing specific equipment issues, careful attention is paid to ensure that overall program costs are minimised when specific solutions are consolidated into overall opex and capex forecasts. These plans incorporate additional work scheduling efficiencies for the entire planning period by integrating projects, where possible.

As well as co-ordinating the various SP AusNet-initiated replacement projects, the AMS also integrates replacement plans with the augmentation plans of Australian Energy Market Operator (AEMO), other distributors and the generators. This approach:

- minimises project delivery costs by optimising engineering effort and resource utilisation; and
- minimises the number of planned outages required to carry out the full work program.

Matters relating to the optimisation of capex and opex generally differ across different categories of expenditure. Accordingly, a detailed description of the relevant analysis is included in the relevant sections of Chapters 6 and 7 of this Proposal.

3.6 Trade Offs between Opex, Capex and Service Levels

SP AusNet's expenditure forecasts reflect explicit decisions on trade-offs in the following areas:

- climate change effects on reliability are addressed through adjustments to reliability targets rather than through (upward) adjustments to opex and capex;
- the planned demand management opex defers certain capex projects (in some cases, beyond the forthcoming regulatory period);
- proposed tariffs defer certain capex projects (in some cases, beyond the forthcoming regulatory period);
- IT capex is expected to lead to opex efficiencies over the forthcoming regulatory period; and
- SP AusNet's decision to lease fleet assets lowers capex in the forthcoming regulatory period.

SP AusNet's capex and opex forecasts constitute an integrated and internally consistent set of expenditure forecasts, based on the trade-offs between the various factors noted above. The resulting expenditure forecasts meet the over-arching objective of SP AusNet's asset management strategy, which is to achieve optimal distribution network performance at minimum efficient costs, in accordance with the operating and capital expenditure objectives and criteria set out in Chapter 6 of the NER. Any material change to any component of SP AusNet's expenditure forecasts will necessitate a re-assessment of the trade-offs noted above, and a corresponding re-assessment of expenditure requirements in all areas.

4 Service Targets

This chapter describes SP AusNet's proposed approach to the Service Target Performance Incentive Scheme. The associated service levels are fundamentally interlinked to SP AusNet's expenditure proposals as both an input to and output from the company's asset management strategy and work programs that underpin this Proposal. SP AusNet's opex and capex proposals are outlined in Chapters 6 and 7.

This chapter and its supporting material are provided to comply with Clause S6.1.3(4) of the NER and Clause 1.3 of the RIN. The chapter is structured as follows:

- Section 4.1 sets out the regulatory requirements relevant to the service standard proposal;
- Section 4.2 sets out the key assumptions behind the service standard proposal;
- Section 4.3 sets out SP AusNet's proposed variations to the default STIPS outlined in the relevant Guidelines;
- Section 4.4 explains the proposed reliability measures and targets for the STPIS and proposed modification to the exclusion regime;
- Section 4.5 explains the proposed customer service measures and targets for the STPIS;
- Section 4.6 explains the GSL measures and targets for the STPIS; and
- Section 4.7 addresses issues associated with the transition from the Victorian to the National Regime including the calculation of the payout of the old scheme.

4.1 Regulatory Requirements

The default Service Target Performance Incentive Scheme, as it will be applied in Victoria is defined in the following two documents:

- Electricity Distribution Network Service Providers Service Target Performance Scheme Guidelines, released in November 2009 (STPIS Guidelines); and
- The AER's Framework and Approach Paper.

Clause S6.1.3(4) of the NER requires that a proposal must contain a description of how the DNSP proposes the STPIS should apply for the relevant regulatory control period.

Modifications to default positions set out in the STPIS Guidelines can be proposed under Clause 2.2 of those guidelines, which requires that the DNSP must:

- include the reasons for and an explanation of the proposed variation;
- demonstrate how the proposed variation is consistent with the objectives in Clause 1.5; and
- if appropriate, include the calculations and/or methodology which differ to that provided for under this scheme.

The AER's Framework and Approach Paper and clause 1.3 of the RIN similarly provides for proposed modifications to the STPIS.

4.2 Key Assumptions

The following key assumptions underlie SP AusNet's service standards proposal:

- SP AusNet's capex and opex forecasts; and
- a major event day boundary based on a 3.2β is applied for the exemption regime.

Any variance in the above will require the service standards proposal be adjusted accordingly.

4.3 Proposed Modification to the Default STPIS

SP AusNet proposes to modify four aspects of the default scheme:

- the revenue at risk as set out in Clause 2.5 of the STPIS Guidelines;
- adding an new event to the exclusion criteria;
- the major event day boundary for exclusions as set out in Clause 3.3(b) of the STPIS Guidelines; and
- adjustments to the targets to account for climate change inputs.

The reasons for these changes are set out below as per the requirements of Clause 2.2 of the STPIS Guidelines and Clause 1.3 of the RIN.

4.3.1 Revenue at Risk

Clause 2.5(a) of the STPIS Guidelines establishes a default 5% limit on revenue at risk in the STPIS. As stated in Section 6.4.2 of the June 2008 Decision on the Electricity DNSP STPIS, the key rationale for capping the revenue outcomes is risk mitigation:

> *"The AER notes that it has discretion over the level of revenue at risk that is applied under the STPIS. … In forming its view on the level of revenue at risk the AER considered that … an uncapped scheme may introduce an unreasonable level of risk for DNSPs that have not previously operated under a service performance incentive scheme."*

SP AusNet proposes that no cap be applied to reliability component of the STPIS for the forthcoming regulatory control period, under Clause 2.2 of the STPIS Guidelines. Variation of the scheme in this way is allowed under Clause 2.5(b) of the STPIS Guidelines. Specifically, it is proposed that Clause 2.5(a) and equation 4A in Appendix C of the STPIS Guidelines not be applied to SP AusNet in the forthcoming regulatory control period.

As outlined in both SP AusNet's responses to the Framework and Approach position paper and the consultation on the proposed amendment to the STPIS to be applied nationally to DNSPs released in February, the removal of the cap better aligns both with the national electricity objective outlined in the National Electricity Law and the objectives of the STPIS.

In contrast, SP AusNet's Proposal does not seek to modify the application of the STPIS customer service parameter cap of +/-0.5% revenue at risk.

Background

SP AusNet has submitted previously on the revenue cap in the following three documents:

- the response to the AER's Framework and Approach position paper consultation;

- the response to the consultation on the proposed amendment to the STPIS to be applied nationally to DNSPs released in February; and
- a letter dated 28 April requesting an early indication from the AER on its likely approach to a request to remove the revenue cap in SP AusNet's specific case.

As outlined in SP AusNet's submissions, there appears little probability of random events improving reliability dramatically above the true underlying performance (and consequently, revenue) relative to the probability of random events dramatically decreasing it (for example, storms). Therefore, a cap on revenue upside is simply penalising consumers by preventing them from receiving efficient reliability improvements as opposed to protecting them from paying windfall gains to a DNSP from random reliability improving events not related to the underlying reliability performance.

Conversely, the downside revenue risk a DNSP faces (controlled by a downside revenue cap) is comprehensively addressed elsewhere in the STPIS Guidelines through the other four risk control measures, namely:

- the exemption regime;
- the S Bank;
- variations proposed in the revenue proposal itself; and
- the suspension of the scheme in extreme cases;

As such, the removal of the revenue cap from the STPIS better aligns both with the national electricity objective (NEO) outlined in the National Electricity Law and the objectives of the STPIS.

Satisfying the National Electricity Objective and STPIS Objectives

Where the company and the regulator can agree risk is adequately controlled with other measures in the STPIS, removing the revenue cap better aligns with the NEL national electricity objective:

> *The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to —*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system.*

It also aligns better with the objectives of the STPIS outlined in Section 1.5 of the STPIS Guidelines, specifically parts 1.5 a) and b)(5) and (6):

> *The AER objectives for this scheme are that the scheme:*
>
> *a) is consistent with the national electricity objective in section 7 of National Electricity Law (NEL);*
>
> *b) is consistent with clause 6.6.2(b)(3) of the NER which requires that in developing and implementing a service target performance incentive scheme, the AER must take into account;*
>
> *(1) the need to ensure that benefits to consumers likely to result from the scheme are sufficient to warrant any reward or penalty under the scheme for DNSPs*

> …
>
> *(5) the need to ensure that incentives are sufficient to offset any financial incentives the service provider may have to reduce costs at the expense of service levels*
>
> *(6) the willingness of the customer or end user to pay for improved performance in the delivery of services."*

When assessing the STPIS cap against the NEO and STPIS objectives, it is important to reiterate the cap has not been set against any efficient reliability benchmark. Rather its justification is purely as a risk mitigation tool (see section 6.4.2 of the June *2008 Decision on the Electricity DNSP STPIS).*

As such, the STPIS cap discourages efficient investment in reliability of supply of electricity if that reliability level is beyond the limit imposed by the cap, as the cap limits (on the upside) the benefits a company can earn from reliability improvements.

Therefore, the removal of the cap would better meet the NEO in SP AusNet's case as the efficient level of reliability has been identified to lie beyond the limit imposed by the cap and the company believes its risk is adequately controlled with the other risk control measures in the STPIS.

Likewise for the STPIS objectives, where the efficient level of reliability improvements lie beyond where the cap binds and the company believes its risk is adequately controlled with the other risk control measures in the STPIS, objectives 1.5 b)(5) and (6) are better met with the removal of the 5% revenue cap. Conversely, on the downside objectives 1.5 b)(1) and (6) are better met.

In particular, the performance payments under the STPIS reflect the estimated value that customers place on changes in reliability following a comprehensive survey conducted by Charles River Associates for VENCorp in 2008. On the basis of this survey, it is reasonable to conclude that customers will be willing to pay for the improved service, as required by clause 1.5 b)(6). Customers will benefit substantially if the improvements in reliability are sustained in future regulatory periods.

Conclusion

In SP AusNet's case, removal of the default cap set put in Clause 2.5(a) of the STPIS Guidelines better aligns both with the national electricity objective outlined in the National Electricity Law and the objectives of the STPIS outlined in Section 1.5 of the STPIS Guidelines.

Therefore, SP AusNet proposes that no revenue cap be applied to its performance outcomes against the targets for reliability measures of the STPIS. That is, Clause 2.5(a) and equation 4A in Appendix C of the STPIS Guidelines will not be applied to SP AusNet in the forthcoming regulatory control period1 January 2011 to 31 December 2015.

4.3.2 New Exclusion Event

SP AusNet is proposing a variation to Clause 3.3 Exclusions of the STPIS Guidelines to include an additional exclusion event as permitted under Clause 2.2 of the STPIS Guidelines. The proposed inclusion would involve the addition of a new clause 3.3(a)(8) that reads:

> *(8) load shedding or load interruption due to the failure of a contracted non-network solution.*

Satisfying the National Electricity Objective and STPIS Objectives

The introduction of this clause better meets the AER objectives for this scheme as set out in Clause 1.5 and, in particular, Clause 1.5(b)(7) as it ameliorates the possible effects of the STPIS on incentives for the implementation of non-network alternatives.

The addition of this exclusion is necessary to allow SP AusNet to manage the risk that may result from a non-network solution delivering below expected reliability requirements. The risks include the reliability penalties as a result of the failure of the contracted non-network solution. Without this exclusion, the reliability risk would be included in the full economic cost of non-network solutions resulting in them being significantly less likely to be adopted, eroding the incentives to implement non-network solutions under clause 6.6.3 of the NER.

Conclusion

SP AusNet proposed the addition of a new clause 3.3(a)(8) aligns both with the national electricity objective outlined in the National Electricity Law and the objectives of the STPIS outlined in Section 1.5 of the STPIS Guidelines.

Therefore, the exclusion of load shedding and load interruptions due to the failure of a contracted non-network solution should be applied as an exclusion criteria of the STPIS for the regulatory control period 1 January 2011 to 31 December 2015.

4.3.3 Major Event Day Boundary

SP AusNet is proposing a variation to the calculation of the major event day boundary under Clause 2.2 of the STPIS Guidelines. Variation of the scheme in this way is allowed under Appendix D of the STPIS Guidelines.

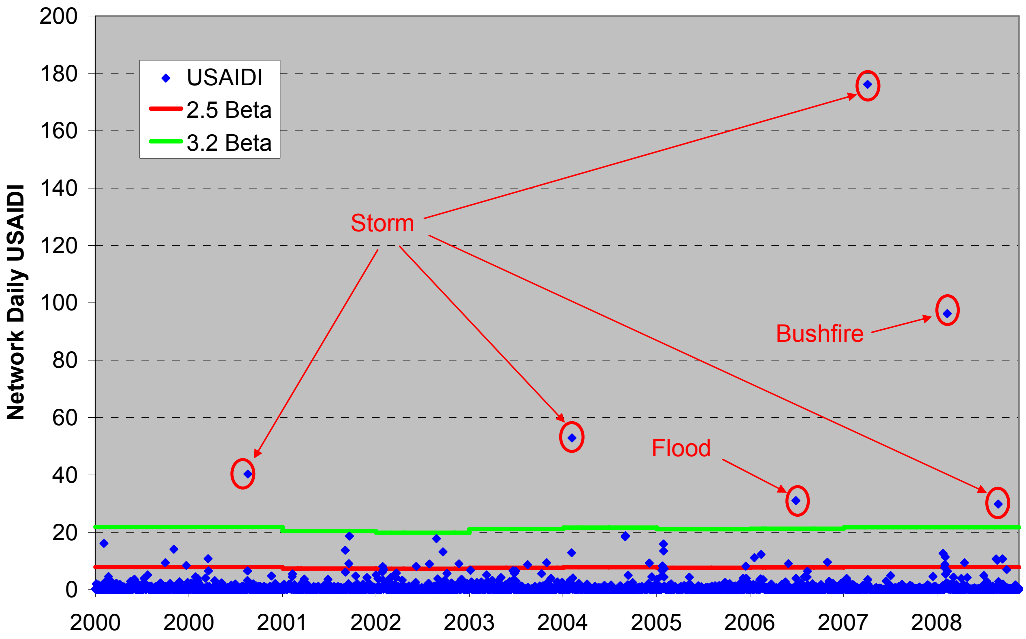
Background

Analysis undertaken on SP AusNet's network performance under the default regime suggests that the major event day boundary (currently mandated at 2.5β) should be, in fact, DNSP specific depending on the underlying nature of the network's condition and environment. This is not unexpected, as the IEEE Standard underlying the current approach has been calibrated against a pool of DNSPs' USAIDI performance.

For example, if a 2.5β is applied to SP AusNet's daily USAIDI performance over the last 9 years, the threshold excludes many days that are not extreme or unusual. As such, the performance on those days would, in fact, be within SP AusNet's ability to control or improve (see the figure below).

The analysis also shows that a threshold of 3.2β would expose SP AusNet to those days while still excluding extreme events.

Figure 4.1: 3.2β versus 2.5β Thresholds



Source: SP AusNet

Satisfying the National Electricity Objective and STPIS Objectives

SP AusNet's proposed threshold of 3.2β better aligns both with the national electricity objective outlined in the National Electricity Law and the objectives of the STPIS outlined in Section 1.5 of the STPIS Guidelines issued by the AER (specifically parts 1.5 a) and b) (5) and (6). These are reproduced above.

The reasons for this are as follows. Where a mandated 2.5β threshold results in too many days being excluded from a DNSP's performance, it potentially;

- allows a DNSP to cut expenditure without bearing the reliability consequences of those cuts as declining reliability will generally manifest as the high (excluded) USAIDI days getting worse. This conflicts with objective 1.5 (b)(5); and
- reduces the incentive to improve performance as the improvement, which generally manifests in the high (excluded USAIDI) days getting better, is not reflected in the DNSP's actual performance against its targets. This conflicts with objectives 1.5 (b)(1) and (6).

Therefore, where a threshold of 2.5β is not appropriate, given the normal distribution of a DNSP's daily USAIDI data, the existing exclusion threshold does not ensure that the reliability customers actually experience is reflected in the DNSP's STPIS revenue outcomes to the fullest extent possible (once the risk of extreme events has been adequately addressed). That is, only the most extreme (uncontrollable) events should be excluded to meet objective 1.5 b)(1), (5) and (6) of the AER's objectives for the STPIS.

With regard to the national electricity objective, an inappropriate threshold or exclusion regime discourages efficient operation and investment in reliability of supply of electricity for the reasons outlined above. Therefore, some flexibility in setting the exclusion regime would better meet the objective.

Calculation of the 3.2β

Under Clause 1.3(c) of the RIN, SP AusNet must explain how its proposed variation affects the operation of the scheme. SP AusNet's proposed calculation operates in an identical way to the default methodology outlined in Appendix D of the STPIS Guidelines except that it applies a 3.2β instead of 2.5β.

Appendix D of the STPIS sets out the calculation of the major event day boundary as:

$T_{med} = e^{(\alpha + 2.5\beta)}$

Where: α = the average of the logarithms of the data set (5 years daily unplanned SAIDI).

β = the standard deviation of the logarithms of the data set.

For the regulatory control period 1 January 2011 to 31 December 2015, SP AusNet proposes to apply 3.2β to the calculation of the major event day boundary such that:

$T_{med} = e^{(\alpha + 3.2\beta)}$

Where: α = the average of the logarithms of the data set (5 years daily unplanned SAIDI).

β = the standard deviation of the logarithms of the data set.

The data sets upon which SP AusNet's analysis and calculations are based have been separately supplied in support of this Proposal in SPA – Calculation of Exemption Threshold 2000 - 2009.xls.

Conclusion

SP AusNet's proposed major event day boundary of 3.2 better aligns both with the national electricity objective outlined in the National Electricity Law and the objectives of the STPIS outlined in Section 1.5 of the STPIS Guidelines.

Therefore, SP AusNet proposes that the proposed major event day boundary be applied to its performance outcomes against the targets for reliability measures of the STPIS for the regulatory control period 1 January 2011 to 31 December 2015.

4.4 Reliability of Supply Measures

To comply with Clause 1.3 of the RIN, SP AusNet has provided two sets of historical data. The proposed targets are based on SP AusNet's proposed major event day boundary as set out in section 4.3.3 above. The second set of historical data is based on the AER's standard exclusion methodology.

The targets are supported by Template 6.6 of the RIN Templates and the file SPA – RIN Service Standards.xls.

4.4.1 Historical Performance

As defined by Clause 3.2.1 (a) of the STPIS Guidelines, the targets must, subject to certain modifications, be based on average performance over the past five regulatory years. The AER's Framework and Approach Paper notes that at the time of submission audited reliability performance data will be available for the period 2004 to 2008.

However, SP AusNet notes that audited data for the 2009 year will become available early in the review process. Therefore SP AusNet has proposed targets on the basis of audited data for calendar years 2005 to 2008 and a forecast of the 2009 result. The 2009 forecast and associated calculations will be updated before or in response to Draft Decision when audited 2009 data is available.

SP AusNet's performance for the period is shown in the table below assuming the proposed 3.2β major event day threshold is applied. The performance is calculated so that it is consistent with the proposed exemption regime applying in the new period. That is, historical information is presented as if the AER (as modified by SP AusNet) exclusion regime had applied at the time.

Table 4.1: Historical Performance (3.2β)

Measure	2005	2006	2007	2008	2009*	Average
USAIDI						
Urban	101.81	160.39	133.34	73.66	158.68	125.58
Rural Short	224.42	227.54	245.58	146.29	320.24	232.81
Rural long	352.86	326.94	307.90	201.69	394.05	316.69
USAIFI						
Urban	1.62	2.16	1.67	0.98	1.84	1.65
Rural Short	2.66	2.94	2.83	2.19	3.59	2.85
Rural long	3.59	3.55	3.85	3.32	4.01	3.66
MAIFI						
Urban	3.07	2.75	2.79	2.23	2.19	2.61
Rural Short	5.20	4.85	5.40	5.61	6.67	5.55
Rural long	9.35	7.37	9.63	8.79	10.78	9.18

** Forecast.*
Source: SPA – Calculation of Performance Targets 2011 – 2015.xls.

SP AusNet's performance for the period using the STPIS safe harbour (2.5β) is shown for comparison purposes in table below.

Table 4.2: Historical Performance (2.5β)

Measure	2005	2006	2007	2008	2009*	Average
USAIDI						
Urban	89.43	120.67	133.34	74.57	75.03	98.61
Rural Short	161.40	187.02	245.58	146.71	215.97	191.34
Rural long	220.80	270.46	307.90	202.59	277.97	255.94
USAIFI						
Urban	1.47	1.92	1.67	0.98	1.84	1.58
Rural Short	2.31	2.64	2.83	2.19	3.59	2.71
Rural long	3.10	3.30	3.85	3.32	4.01	3.51
MAIFI						
Urban	2.94	2.61	2.79	2.23	2.19	2.55
Rural Short	4.81	4.65	5.40	5.61	6.67	5.43
Rural long	9.02	7.01	9.63	8.79	10.78	9.05

** Forecast.*

4.4.2 Modifications to Targets

Climate change

Clause 3.2.1(a)(2) of the STPIS Guidelines also allows the targets to be modified by any relevant factors that materially affect network reliability performance.

Under the STPIS, 5 year historic network performance is used to set the target for the following five years. This is based on the assumption that the operating environment (climate) for the forthcoming regulatory control period will mirror the previous period. SP AusNet has commissioned a report from AECOM[28] on the likely effects and costs of climate change on the performance of the network. A major recommendation of that report is that this assumption is not correct. This report is attached as an Appendix.

AECOM estimates that the number of events having an adverse effect on SP AusNet's network performance will increase during the forthcoming regulatory period, due to climate change. An analysis of network performance after exemptions has been undertaken to quantify the impact

[28] AECOM, *Assessment of Climate Change Impacts on SP AusNet Electricity Network for 2011-2015 EDPR*, 30 October 2009.

and file SPA – Target Adjustment for Effects of Climate Change.xls has been supplied as a support document to this proposal.

This analysis applies an exemption threshold of 3.2β, taking into account changes in two rare events only:

- wind speeds greater than 91 km/h amounting to 1.26% of days over the past 5 years; and
- temperatures greater than 35 degrees amounting to 2.03% of days over the past 5 years.

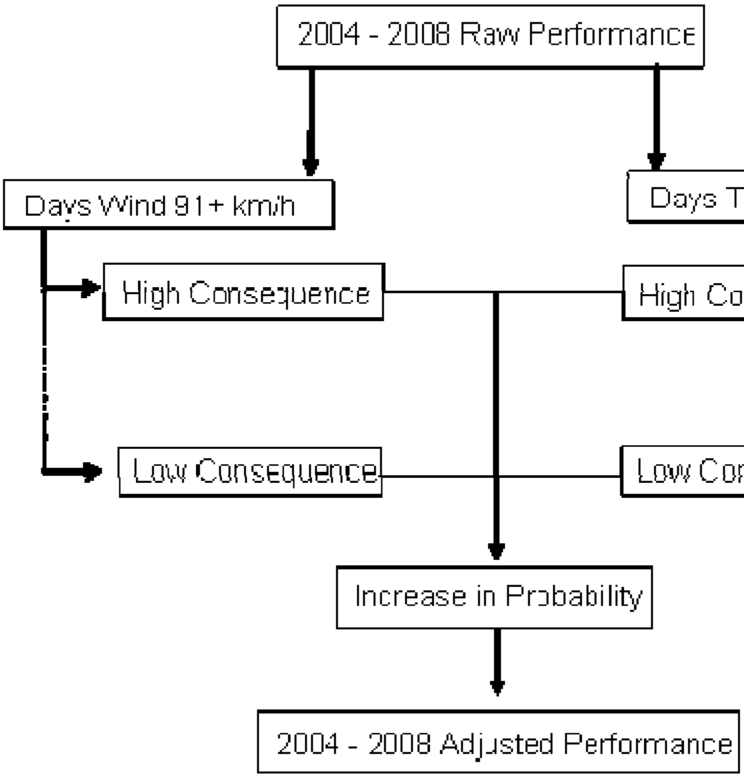
AECOM estimates that the occurrence of these days will increase to 1.81% and 3.23% respectively.

SPA has used this estimate to calculate the appropriate adjustment to its historical average performance to account for the effects climate change. The steps followed are:

- the performance in the stated ranges (days where wind speeds >91 km/h or > 35 0C) is split into high to low consequence events where the probability of any consequence level occurring is equal;
- these are added into the raw 2004 to 2008 performance in line with AECOM's estimates that days where wind speed will exceed 91km/h will increase from 4.6 to 6.6 events per year and temperatures exceeding 35 degrees will increase infrequency from 7.4 to 11.8 days per year;
- an adjusted 2004 to 2008 performance is then calculated taking into account the 3.2β exemption threshold and the impact that the increased number of rare days will have on the threshold itself; and
- Finally, this is then scaled to reflect the targets calculated with the forecast 2009 performance.

These steps are shown in the figure below.

Figure 4.2: Calculation of Climate Change Adjustment



Source: SP AusNet

The adjustment to target as a result of climate change using the above methodology is estimate to be 0.12 USAIFI and 10.12 USAIDI bring the targets for the 2011 – 2015 period to 2.69 USAIFI and 220.23 USAIDI.

4.4.3 Proposed Targets and Incentive Rates

As per Clause S6.1.3(4) of the NER, SP AusNet's proposed targets and incentive rates are shown in table below. The incentive rates are calculated as per Clause 3.2 of the STPIS.

Table 4.3: Proposed Targets

Measure	Average Past Performance (3.2β)	Adjusted Target (3.2β)	Incentive Rates
USAIDI (Network)	**210.11**	**220.23**	**(%/minute)**
Urban	125.58	131.62	2.96%
Rural	260.28	271.11	3.50%
USAIFI (Network)	**2.57**	**2.69**	**(%/0.01 Interruptions)**
Urban	1.65	1.73	2.26%
Rural	3.11	3.24	2.99%
MAIFI (Network)	**5.19**	**5.43**	**(%/0.01 Interruptions)**
Urban	2.61	2.73	0.18%
Rural	6.72	6.98	0.24%

Source: SPA – Calculation of Performance Targets 2011 – 2015.xls and SPA – Calculation of Incentive Rates 2011 – 2015.xls.

4.4.4 Support Documentation

SP AusNet has supplied the following files in support of its proposed reliability targets and incentive rates:

- SPA – Performance Data 2000 – 2008.xls;
- SPA – Calculation of Performance Targets 2011 – 2015.xls;
- SPA – Target Adjustment for Effects of Climate Change.xls; and
- SPA – Calculation of Incentive Rates 2011 – 2015.xls.

4.5 Customer Service Measures

4.5.1 Historical Performance

As noted above, Clause 3.2.1(a) of the STPIS Guidelines requires that the targets must, subject to certain modifications, be based on average performance over the past five regulatory years. SP AusNet notes that audited data for the 2009 year will become available early in the review process. Therefore SP AusNet has proposed targets on the basis of audited data for calendar years 2005 to 2008 and a forecast of the 2009 result. The 2009 forecast and associated calculations will be updated before or in response to Draft Decision when audited 2009 data is available.

The STPIS exclusion regime does not apply to this measure, therefore, it is unaffected by SP AusNet's proposed variations to the STPIS.

Table 4.4: Historical Performance

Measure	2005	2006	2007	2008	2009*	Average
% Calls not Answered Within 30 seconds	82.7%	92.2%	91.16%	92.3%	92%	90.08%

**Forecast.*
Source: SPA – Previous GSL Payments (Call Centre).xls.

Revenue at Risk

SP AusNet's Proposal does not seek to modify the application of the STPIS customer service parameter cap of +/-0.5% revenue at risk.

This revenue cap remains appropriate because of the limited evidence of a customer's willingness to pay for improvements to this measure of performance.

Proposed Targets and Incentive Rates

As per Clause S6.1.3(4) of the NER, SP AusNet's proposed targets and incentive rates are shown in the table below. The incentive rates are as stated in Clause 5.3.2 (a)(1) of the STPIS Guidelines.

Table 4.5: Proposed Targets

Measure	Annual Target	Incentive Rate
% of Total Calls Answered within 30 Seconds	90.08%	-0.040% per unit

Source: SPA – Previous GSL Payments – (Call Centre).xls.

4.5.2 Support Documentation

SP AusNet has supplied the file SPA – Previous GSL Payments – (Call Centre).xls, in support of its proposed reliability targets.

4.6 Guaranteed Service Levels

To comply with Clause 1.3(c) of the RIN, SP AusNet has developed two sets of historical data based on:

- SP AusNet's proposed exclusion major event day boundary as set out in section 4.3.3 above; and
- the AER's standard exclusion methodology.

The targets are supported by Template 6.6 of the RIN Templates and the file SPA – Forecast GSL Payments.xls.

4.6.1 Historical Performance

As noted above, SP AusNet has proposed targets on the basis of audited data for calendar years 2005 to 2008 and a forecast of the 2009 result. The 2009 forecast and associated calculations will be updated before or in response to Draft Decision when audited 2009 data is available.

SP AusNet's Proposal does not depart from the AER's intended application of the national GSL measures and payment amounts. Nonetheless, the exclusion regime applies to the payment of GSLs and the STPIS requires that the same exclusion threshold is used to set the GSL targets as the reliability targets.

SP AusNet's performance for the period is shown in the table below assuming the proposed 3.2β major event day threshold is applied. The performance is calculated so that it is consistent with the AER definitions and payment schedule outlined in Section 6.3 and Appendix A of the STPIS Guidelines and SP AusNet's proposed exclusion regime. That is, historical information is presented as if the STPIS definitions, payments and exclusion regime (as modified by SP AusNet) had applied at the time.

Table 4.6: Historical Performance (3.2β)

(Number incurred)	2005	2006	2007	2008	2009*	Average
No. customers experiencing more than 9 interruptions (CBD, Urban)	3,590	1,721	586	36	1501	1,487
No. customers experiencing more than 15 interruptions (rural)	1,292	2,965	1,159	402	2239	1,611
No. customers experiencing more than 12 hours of interruptions (CBD/Urban)	3,845	11,574	4,758	4,206	8836	6,644
No. customers experiencing more than 18 hours of interruptions (Rural)	16,471	13,692	17,664	6,550	18587	14,593
No. of payments for failure to give 4 days notice for planned interruptions	200	46	1	0	0	49
No. of payments for failure to repair streetlights within 5 days	6	0	1	2	2	2
No. of payments for failure to connect on the agreed date	25	334	334	234	189.6	223

(Number incurred)	2005	2006	2007	2008	2009*	Average
No. customers experiencing more than 20 hours of sustained interruptions	9,579	10,167	9,550	5,251	12208	9,351
No. customers experiencing more than 30 hours of sustained interruptions	4,365	3,847	4,726	1,502	4968	3,882
No. customers experiencing more than 60 hours of sustained interruptions	125	376	420	97	344	272

**Forecast.*
Source: SPA – Forecast GSL Payments.xls.

SP AusNet's performance for the period using the STPIS safe harbour (2.5β) is shown for comparison purposes in the table below.

Table 4.7: Historical Performance (2.5β)

(Number incurred)	2005	2006	2007	2008	2009*	Average
No. customers experiencing more than 9 interruptions (CBD, Urban)	3,435	351	583	36	1206	1,122
No. customers experiencing more than 15 interruptions (rural)	912	2,741	404	402	1795	1,251
No. customers experiencing more than 12 hours of interruptions (CBD/Urban)	2,524	4,575	3,219	4,206	4309	3,767
No. customers experiencing more than 18 hours of interruptions (Rural)	5,246	9,180	11,236	6,550	5755	7,593
No. of payments for failure to give 4 days notice for planned interruptions	200	46	1	0	0	49
No. of payments for failure to repair streetlights within 5 days	6	0	1	2	2	2

(Number incurred)	2005	2006	2007	2008	2009*	Average
No. of payments for failure to connect on the agreed date	25	334	334	234	189.6	223
No. customers experiencing more than 20 hours of sustained interruptions	3,460	5,776	5,794	5,251	5425	5,141
No. customers experiencing more than 30 hours of sustained interruptions	1,438	1,410	2,959	1,502	1893	1,840
No. customers experiencing more than 60 hours of sustained interruptions	21	178	301	97	144	148

**Forecast.*
Source: SPA – Forecast GSL Payments.xls.

4.6.2 Modifications to Targets

Climate change

Clause 3.2.1(a)(2) of the STPIS Guidelines allows targets to be modified by any relevant factors that materially affect network reliability performance.

As explained above, SP AusNet has modified its reliability targets to account for the effects of climate change. The increase in customer interruptions indicated results in an associated increase in GSLs related to the reliability measures. The table below shows these adjustments. This calculation is provided in supporting documentation supplied with this Proposal.

Lack of reliable historical data

Clause 3.2.1(c) of the STPIS Guidelines also allows the targets to be with an alternative methodology where historical data is not available.

The GSL for failure to give 4 days notice for planned interruptions has been averaged for 2004 – 2005 performance as, from 2006 onwards, the reporting of this GSL has been inconsistent and is unreliable for setting targets for the forthcoming regulatory period. These reporting system issues will be rectified for the forthcoming regulatory period.

Table 4.8: Adjustments due to climate change (3.2β)

(Number incurred)	2011	2012	2013	2014	2015
No. customers experiencing more than 9 interruptions (CBD, Urban)	81	82	83	85	86
No. customers experiencing more than 15 interruptions (rural)	76	77	79	80	81
No. customers experiencing more than 12 hours of interruptions (CBD/Urban)	315	320	325	330	335
No. customers experiencing more than 18 hours of interruptions (Rural)	676	687	697	706	716
No. of payments for failure to give 4 days notice for planned interruptions	0	0	0	0	0
No. of payments for failure to repair streetlights within 5 days	0	0	0	0	0
No. of payments for failure to connect on the agreed date	0	0	0	0	0
No. customers experiencing more than 20 hours of sustained interruptions	502	511	518	525	533
No. customers experiencing more than 30 hours of sustained interruptions	208	212	215	218	221
No. customers experiencing more than 60 hours of sustained interruptions	15	15	15	15	16

Source: SPA – Forecast GSL Payments.xls.

4.6.3 Proposed Targets

As per Clause S6.1.3(4) of the NER, SP AusNet's proposed GSL targets are shown in the table below.

Table 4.9: Expected Performance Unadjusted (3.2β)

(Number incurred)	2011	2012	2013	2014	2015
No. customers experiencing more than 9 interruptions (CBD, Urban)	1,634	1,663	1,689	1,713	1,740
No. customers experiencing more than 15 interruptions (rural)	1,740	1,768	1,793	1,817	1,842
No. customers experiencing more than 12 hours of interruptions (CBD/Urban)	7,026	7,152	7,263	7,369	7,485
No. customers experiencing more than 18 hours of interruptions (Rural)	15,747	16,003	16,228	16,438	16,669
No. of payments for failure to give 4 days notice for planned interruptions	292	297	301	306	310
No. of payments for failure to repair streetlights within 5 days	2.3	2.3	2.3	2.3	2.3
No. of payments for failure to connect on the agreed date	278	263	231	217	239
No. customers experiencing more than 20 hours of sustained interruptions	10,512	10,690	10,846	10,992	11,154
No. customers experiencing more than 30 hours of sustained interruptions	4,364	4,437	4,502	4,563	4,630
No. customers experiencing more than 60 hours of sustained interruptions	306	311	316	320	325
Total Payments (Real 2010 $M)	**3.8**	**3.8**	**3.8**	**3.7**	**3.7**

Source: SPA – Forecast GSL Payments.xls.

Table 4.10: Expected Performance Adjusted (3.2β)

(Number incurred)	2011	2012	2013	2014	2015
No. customers experiencing more than 9 interruptions (CBD, Urban)	1,709	1,740	1,767	1,793	1,821
No. customers experiencing more than 15 interruptions (rural)	1,813	1,842	1,868	1,892	1,919
No. customers experiencing more than 12 hours of interruptions (CBD/Urban)	7,364	7,496	7,613	7,723	7,846
No. customers experiencing more than 18 hours of interruptions (Rural)	18,337	18,635	18,897	19,142	19,411
No. of payments for failure to give 4 days notice for planned interruptions	292	297	301	306	310
No. of payments for failure to repair streetlights within 5 days	2.3	2.3	2.3	2.3	2.3
No. of payments for failure to connect on the agreed date	278	263	231	217	239
No. customers experiencing more than 20 hours of sustained interruptions	11,019	11,205	11,368	11,522	11,691
No. customers experiencing more than 30 hours of sustained interruptions	4,574	4,651	4,719	4,783	4,853
No. customers experiencing more than 60 hours of sustained interruptions	321	326	331	336	341
Total Payments (Real 2010 $M)	**4.0**	**4.0**	**3.9**	**3.9**	**3.9**

Source: SPA – Forecast GSL Payments

The annual total dollars calculated in accordance with number of GSLs forecast to be incurred in the table above are included as a line item in the opex proposal outlined in Chapter 7.

4.6.4 Support Documentation

SP AusNet has supplied the file SPA – Forecast GSL Payments.xls in support of its proposed reliability targets and incentive rates.

4.7 Transitional Matters

4.7.1 Interaction with the current ESCV Scheme

The AER's Framework and Approach Paper states that the existing scheme will be paid out as a cash flow in the building blocks model.

> *"… the AER notes that benefits and penalties accrued in the current regulatory control period under the ESCV scheme will not be incorporated in the price cap formula. Rather, financial carryover amounts from the current regulatory control period will be included as a building block element in the calculation of allowed revenue for the next regulatory control period." (page 94)*

The Framework and Approach Paper was silent on the methodology for this calculation.

4.7.2 Calculation of the S Factor Payout

The process of calculating the revenue payout of the current ESC S Factor regime during the forthcoming regulatory control period, including existing and forecast (2009, 2010 performance) adjustments, requires the use of a substantial model. This model has been provided to the AER in support of this Proposal. The issues involved are complex and it is likely that detailed interaction will be necessary in support of the AER's determination.

The model uses the current S Factor incentive mechanism that sets out the interaction between s-factor performance and revenue adjustments, as well as the embedded nature of the S Factor adjustments. The mechanism is set out in Clause 2.3.9 of the 2006 EDPR Determination (Vol 2).

In calculating the payout amount for the S Factor, account needs to be taken of the complexity of the scheme and that its operation in the current period can affect future revenues. SP AusNet's model takes account of:

- the asymmetry that is inherent in the ESC S Factor scheme;
- the fact that after S Factor adjustments are removed from prices after the six year payment period, a proportion remains embedded in revenues; and
- the gap analysis that underlies the S Factor regime (in contrast to the performance against target analysis underlying the STPIS). A Gap analysis relies on performance returning to an underlying level over time. As the regime ceases to exist 2010, the last year of the regime can either penalise or benefit the company permanently due to the fact performance will not return to underlying. To counter this, 2011 performance equal to the underlying reliability performance must be assumed after the 2010 result is accounted for.

The Model steps through the price control formula to enable a component by component assessment of the value of the S Factor and revenue movements during the current period and into the forthcoming period had the S Factor regime continued to apply.

The price control formula (simplified for illustrative purposes) during the current regulatory control period is as follows:

$$P_t * Q_{t-2} = (P_{t-1} * Q_{t-2}) * (1 + CPI) * (1 - X) * L * S_t$$

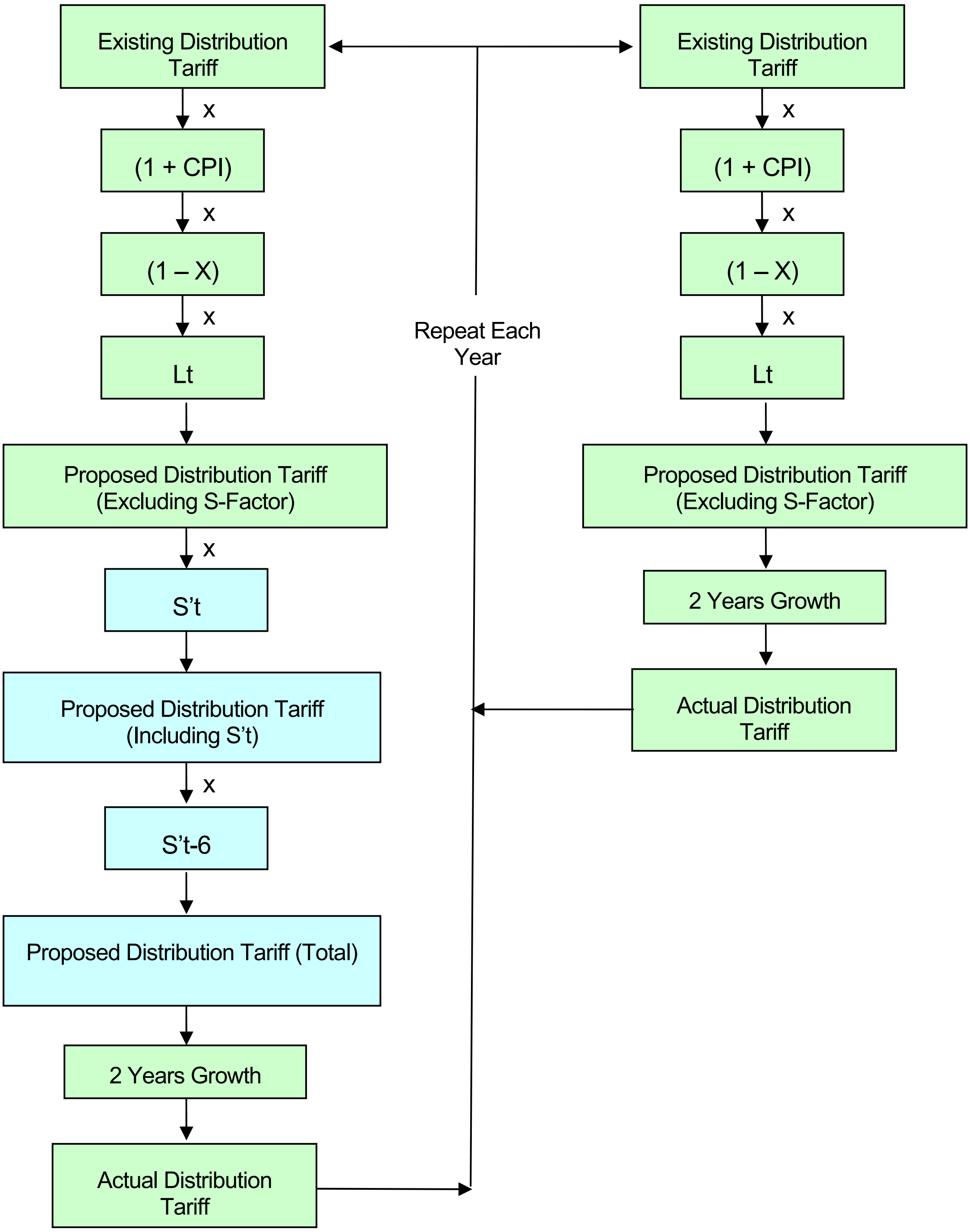
If the S-Factor incentive mechanism had not applied, the simplified price control formula would be as follows

$$P_t * Q_{t-2} = (P_{t-1} * Q_{t-2}) * (1 + CPI) * (1 - X) * L$$

This enables us to take the existing DUoS Tariffs and multiply by the price control formula excluding the S Factor to calculate the revenue had the S Factor regime not applied. The exact process of calculating each revenue stream is set out in the figure below.

The model calculates the payout of the existing scheme by comparing the difference between the two formulas over the forecast period.

Figure 4.3: Revenue Calculations With and Without S Factor



Source: SP AusNet

4.7.3 Modelling Assumptions

A series of assumptions also have to be made to ensure the calculation is as clear as possible and to remove all cyclical issues that form part of the S Factor incentive mechanism. SP AusNet's assumptions are as follows:

- 2010 performance is the average of the past 5 years performance with an adjustment to ignore the effects the 2009 bushfires has on the average (as this is a rare event that is not expected to impact on 2010's performance);
- 2011 will be the average performance over the past 5 years. In principle, this returns performance to underlying and enables the Gap Analysis methodology to be finalised or returned to Zero;
- current incentive rates are used to ensure no revenue adjustment results from the assumed 2011 performance except to bring performance back to average;
- real future revenue is assumed to be stable over the forthcoming period to enable simpler calculation of adjustments and the final payout. This embodies zero energy growth, P_0 and X_t set to 0% and a License factor set at 100%;
- banking is used to smooth revenues and maximise NPV value as would have occurred if the scheme continued to exist during the forthcoming period; and
- CPI is assumed to be 2.4% (as per the remainder of the proposal).

4.7.4 Proposed Payout

The final payout amount has been calculated to have an NPV of $7.01M (real 2010 $). For this Proposal, SP AusNet has forecast a payout in each year from 2012 to 2015 of $2.17 million a year.

The final amount as calculated above is included as a line item in the opex proposal outlined in Chapter 7.

4.7.5 Proposed Adjustment Mechanism

As 2010 performance will remain unknown until after the AER Final Decision, an adjustment mechanism will need to be incorporated into prices in the forthcoming regulatory control period.

SP AusNet is proposing that the model is rerun once 2010 performance is known. This will generate a new NPV that can be smoothed and compared with the original amount approved in the AER Final Decision.

SP AusNet proposes that a pass-through mechanism be used to adjust prices for the difference between the original and post 2010 calculations for each year from 2012 to 2015.

4.7.6 Support Documentation

SP AusNet has supplied the file SPA – Calculation of Payout of ESCV S-Factor Regime.xls, in support of its proposed reliability targets and incentive rates:

5 Demand and Energy Forecasts

This chapter outlines SP AusNet's proposed demand, energy and customer number forecasts for the forthcoming regulatory control period.

The remainder of this chapter is structured as follows:

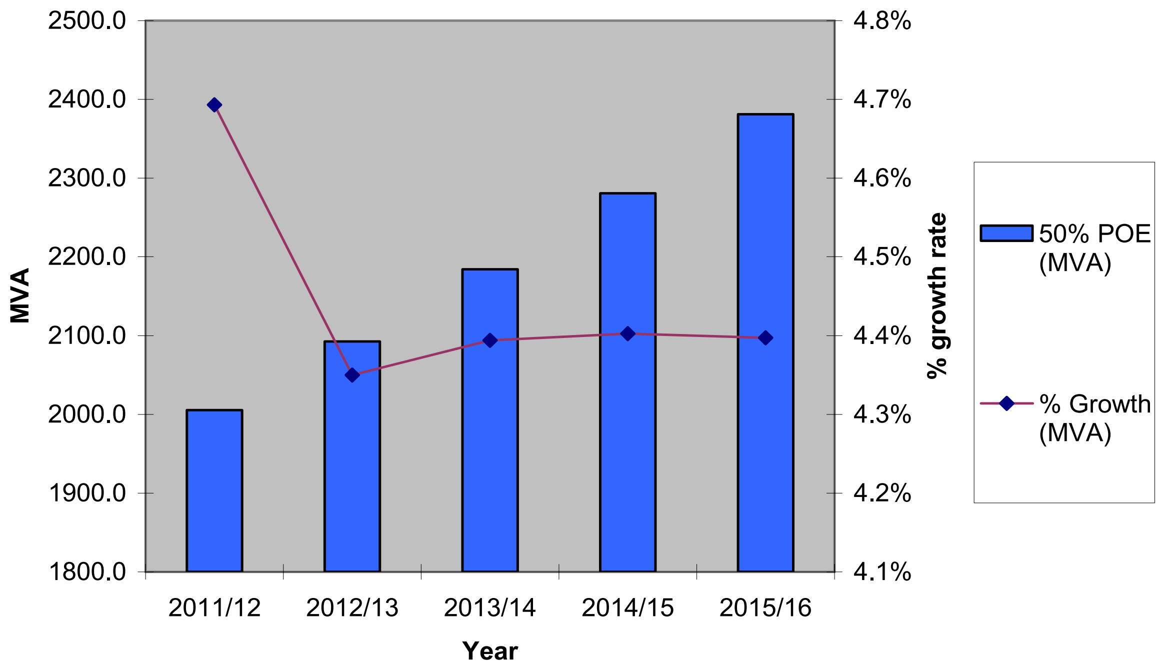
- Section 5.1 summarises SP AusNet's proposed energy, demand and customer number forecasts for the forthcoming regulatory period;
- Section 5.2 provides an overview of the regulatory information requirements underpinning the derivation and presentation of these forecasts;
- Section 5.3 provides historical and forecast maximum demand, energy and customer number forecasts; and
- Section 5.4 outlines how SP AusNet's proposed key tariff changes have been modelled and included in the forecasts.

5.1 Summary of SP AusNet's Maximum Demand, Energy and Customer Forecasts

The following figures outline SP AusNet's forecasts of:

- maximum demand;
- energy consumption; and
- average customer numbers and customer connections.

Figure 5.1: SP AusNet's Maximum Demand Forecasts (MVA)

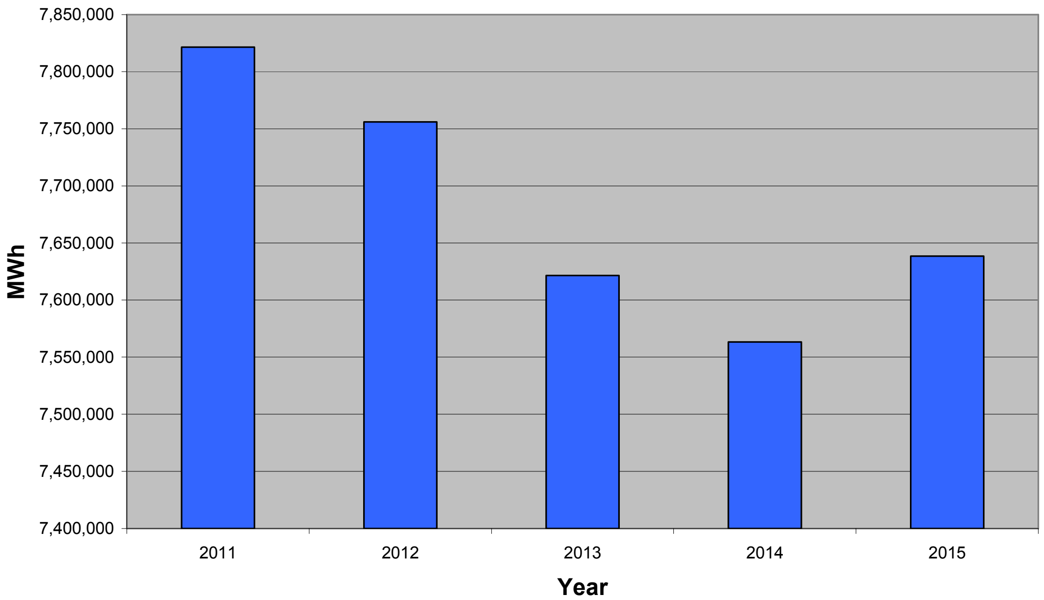


Source: SP AusNet (Growth in Peak Summer/Winter – whichever is higher)

Table 5.1: Growth In MVA

Parameter	2011	2012	2013	2014	2015
Maximum Summer or Winter (MVA)	2005.3	2092.5	2184.5	2280.6	2380.9

Figure 5.2: SP AusNet's Energy Forecasts



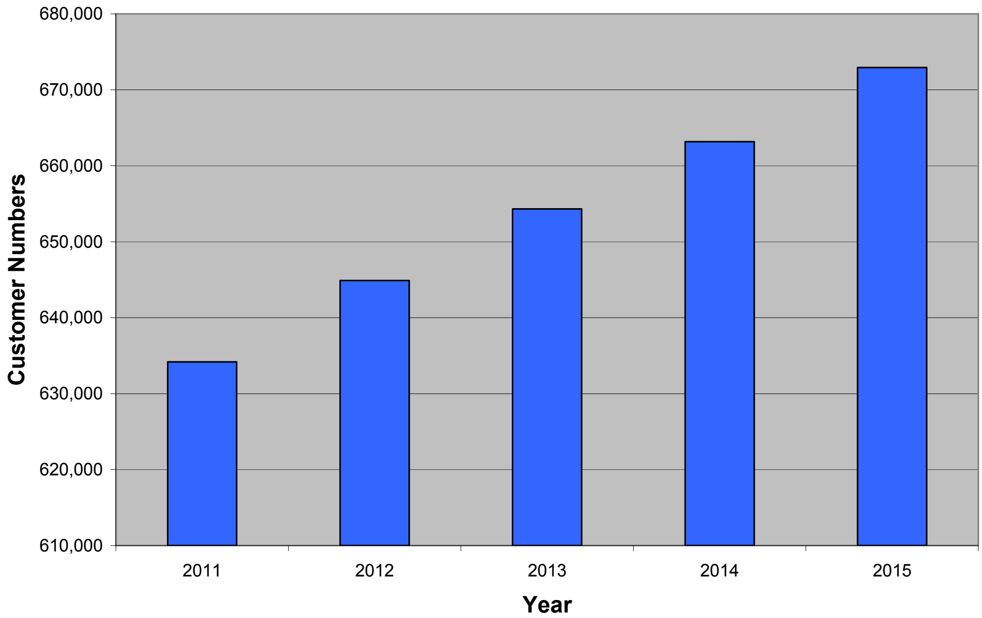
Source: RIN Template (6.3) – Table 5

Table 5.2: Forecast Energy Consumption

Parameter	2011	2012	2013	2014	2015
Energy Consumption (MWh)	7,821,431	7,756,120	7,621,548	7,563,299	7,638,345

This is a significant reduction in energy consumption, reflecting the marked impact of SP AusNet's proposed tariffs described in Chapter 15.

Figure 5.3: SP AusNet's Average Customer Number Forecasts

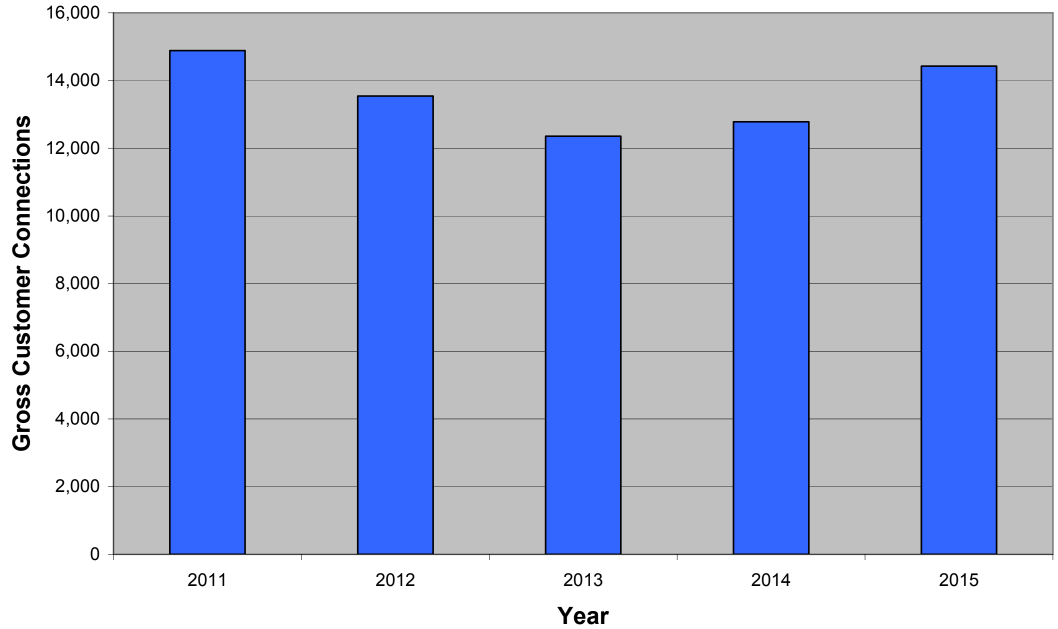


Source: RIN Template (6.3) – Table 1

Table 5.3: Forecast Average Customer Numbers

Parameter	2011	2012	2013	2014	2015
Customer Numbers	634,190	644,899	654,309	663,159	672,912

Figure 5.4: SP AusNet's Gross Customer Connection Forecasts



Source: RIN Template (6.3) – Table 2

Table 5.4: Forecast Gross Customer Connections

Parameter	2011	2012	2013	2014	2015	TOTAL
Gross Customer Connections	14,880	13,544	12,350	12,782	14,424	67,980

5.2 Regulatory Requirements

The key regulatory requirements for this chapter are set out in the NER and RIN.

5.2.1 National Electricity Rules

The principal requirements concerning forecasting are set out in Clauses 6.5.6 and 6.5.7 of the NER. In particular, a key objective that must underpin both the operating and capital expenditure forecasts is that those forecasts allow SP AusNet to "*meet or manage the expected demand for standard control services over that period*". The demand, energy and customer number forecasts contained in this Section underpin the capex and opex forecasts contained within this Proposal.

5.2.2 Regulatory Information Notice

Paragraph 11 of the RIN requires SP AusNet to:

"11.1 Provide and describe the methodology used to prepare the following forecasts:

(a) maximum demand;

(b) energy; and

(c) customer number,

11.2 For each of the methodologies provided and described in the response to paragraph 11.1, explain:

(a) the methodology;

(b) how the key assumptions and inputs have been used;

(c) which base year data forecasts are based on;

(d) which probability of exceedence has been used;

(e) the models used (including the model's key inputs and assumptions);

(f) a global (or top-down) and spatial (bottom-up) forecasting processes;

(g) the weather normalisation methodology and how weather data has been used;

(h) an outline of the treatment of spot loads and load transfers within the forecasting process; and

(i) any appliance models, where used, or assumptions relating to average customer energy usage (by customer type).

11.3 Explain:

(a) how the forecasting methodology used is consistent with and takes into account historical observations (where appropriate); and

(b) how the resulting forecast data is consistent at different levels of aggregation.

11.4 Provide evidence that the independent verifier(s) engaged has/have examined the reasonableness of the method, processes and assumptions in determining the forecasts and have sufficiently capable expertise in undertaking a verification of forecasts.

11.5 Provide independent verification of:

(a) the forecasts referred to in paragraph 11.1;

(b) why assumptions, key input data and forecasting methods used are reasonable; and

(c) how the forecasts resulting from these methods and assumptions have been used in determining the following:

(i) capital expenditure forecasts;

(ii) operating and maintenance expenditure forecasts; and

(iii) relevant inputs to the post-tax revenue model."

Detailed modelling underpinning these forecasts has primarily been undertaken by NIEIR, therefore, their report outlines the majority of information required by the AER. The NIEIR report, which is included as an Appendix to this Proposal, should be read in conjunction with this chapter when assessing SP AusNet's compliance with the RIN.

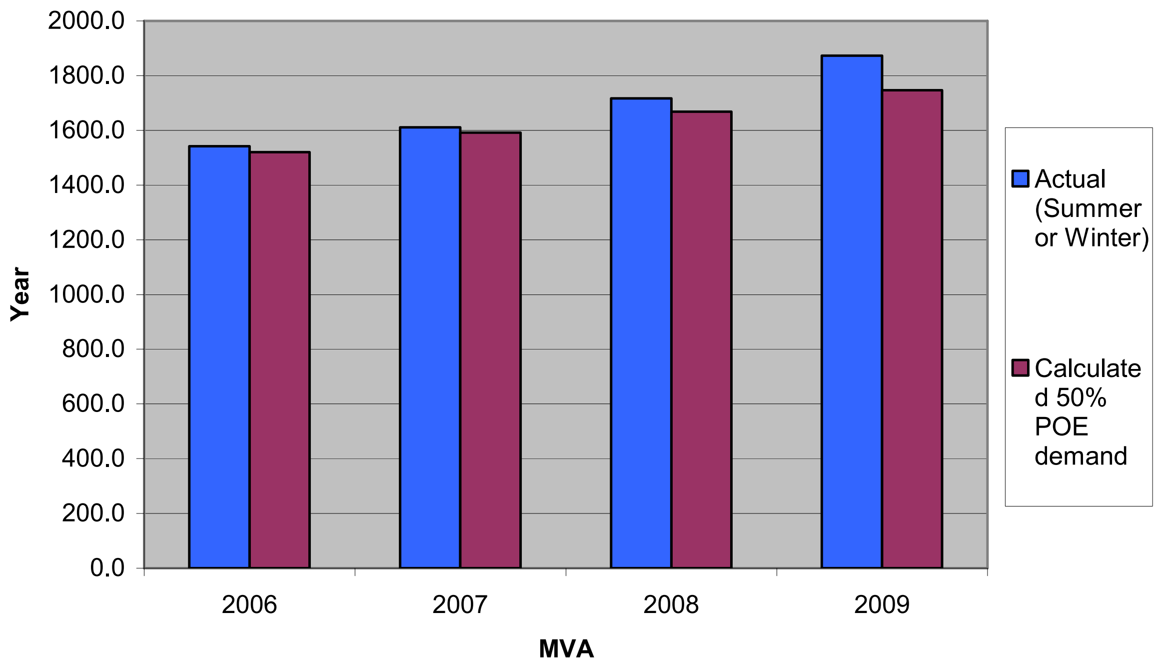
NIEIR's Report provides the independent verification required in respect of RIN clauses 11.4, 11.5a and 11.5 b.[29] The NIEIR report which is submitted an Appendix to this Proposal.[30]

5.3 Maximum Demand

5.3.1 Historical Demand

The figure below illustrates that SP AusNet's maximum demand has grown by 6.7% between the 2005/06 summer and the 2008/2009 summer. Moreover, this figure highlights the relative magnitude of the demands that were placed upon SP AusNet's system during the 2009 heatwave, which is considered to have a 10% POE, relative to SP AusNet's 50% POE forecast demand for the current regulatory period.

Figure 5.5: SP AusNet's Calculated 50% POE Demand versus Actual Demand



Source: SP AusNet

The two key factors that have driven the increase in the peak demand placed on SP AusNet's system are:

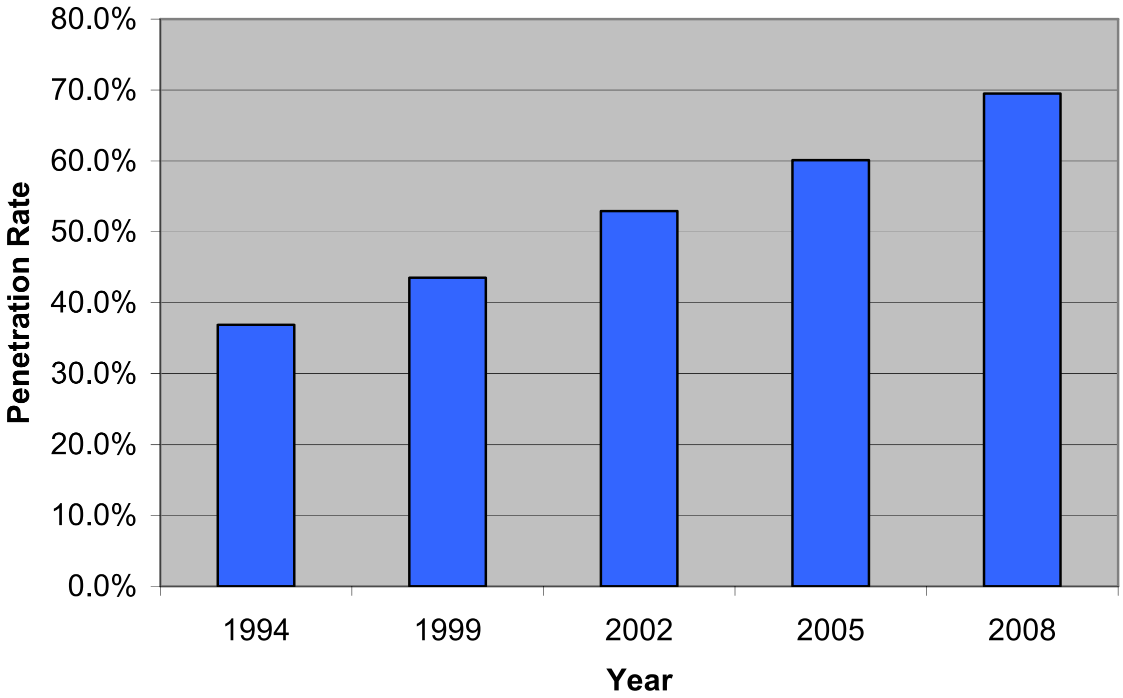
[29] 11.5 (c) is provided in other supporting documentation.

[30] NIEIR – Electricity Sales and Customer Numbers Forecasts for the SP AusNet Distribution Region to 2019.

- air conditioning penetration rates; and
- macro economic factors.

In relation to the former, the following figure derived from the Australian Bureau of Statistics (ABS) data indicates that the penetration rate of air conditioners in Victoria has increased from 36.9% in 2004 to 69.5% in 2008.

Figure 5.6: Air Conditioning Penetration in Victoria



Source: 4602.0.55.001 Environmental Issues: Energy Use and Conservation, March 2008

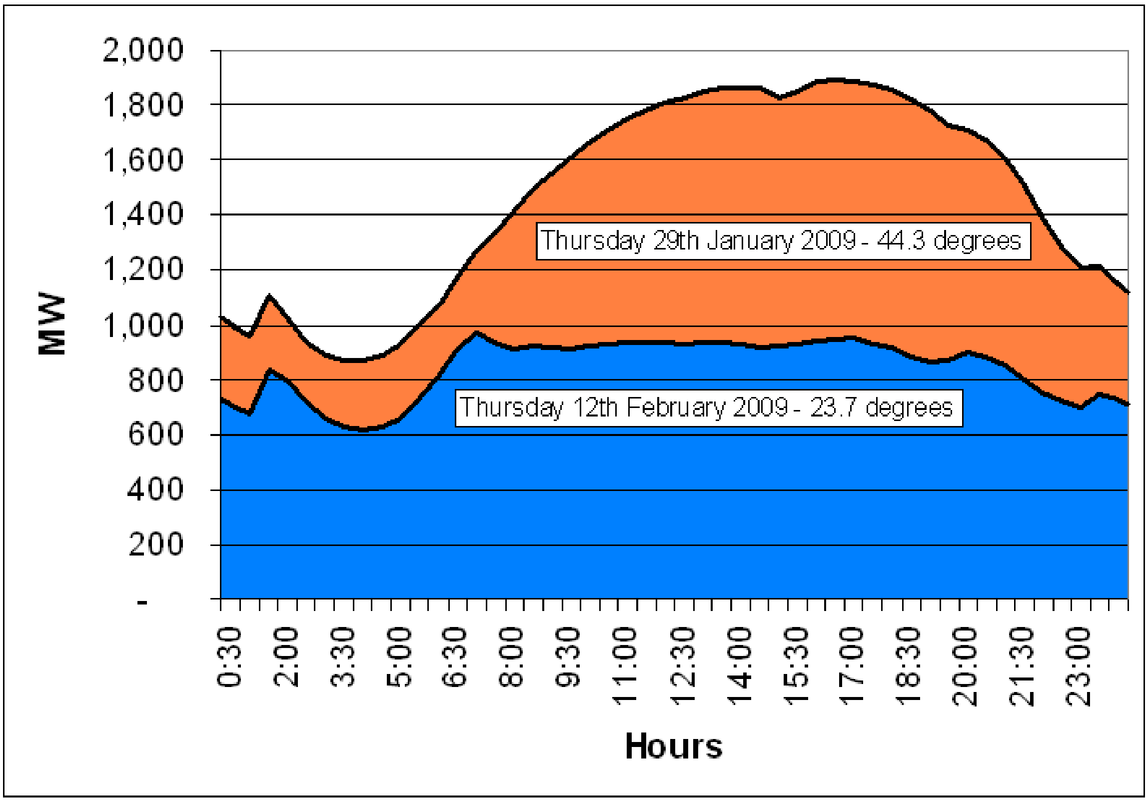
Moreover, the overall penetration rate has increased by 9.5% between 2005 and 2008.

Interestingly, observing trends in air conditioner penetration in some other jurisdictions such as South Australian, Western Australia and the Northern Territory, where penetration rates are currently at or above 80%, indicates that penetration rates in Victorian have some way to go before reaching saturation point. [31]

As illustrated in the following figure, this increase in air conditioning penetration has driven a significant increase in the temperature induced load upon the system.

[31] South Australia = 85%; WA=80% and NT=92.6%.

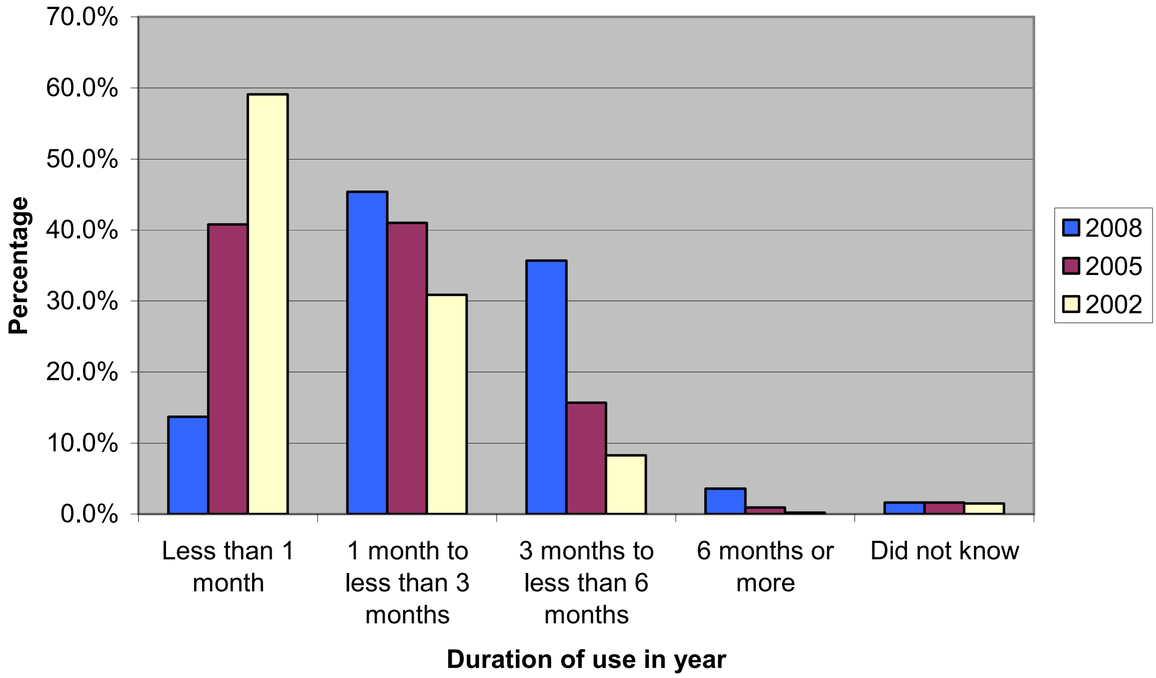
Figure 5.7 – Temperature Dependent Load



Source: Excerpt from SP AusNet' AMS – 20-01 – Electricity Distribution Network

The ABS statistics also indicate that not only has the penetration of air conditioner continued to grow, but the duration of air conditioner use has also substantially increased, as shown in the figure below.

Figure 5.8: Air Conditioning Usage in Victoria



Source: 4602.0.55.001 Environmental Issues: Energy Use and Conservation, March 2008

The increase in air conditioner penetration has been accompanied by a sustained period of economic prosperity in Victoria. Periods of above average economic growth are highly correlated with demand for electricity, particularly as they generally lead to an increased level of household formation.

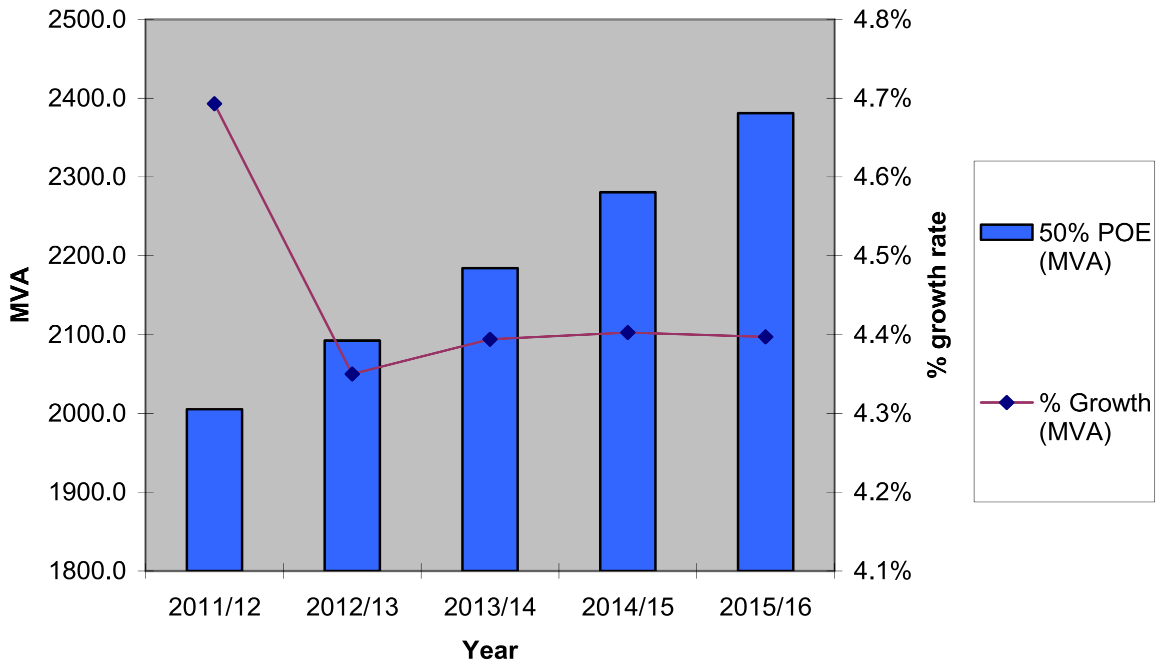
5.3.2 Forecast Demand

SP AusNet has used independent demand forecasts and then considered the diversity of load at substation level to derive a non-coincident load growth at substation level.

Aggregate non-coincident zone substation forecast growth is expected to be a little higher than those forecasts at the network level due to diversity in the timing of peak demand at zone substations.

SP AusNet forecasts demand growth of 4.4% per annum at zone substation level, which equates to NIEIR's forecast growth of 4.2% per annum at terminal station level for the next period. As a result, SP AusNet's forecast maximum demand with a 50% POE will increase from an estimated 2005MVA in 2011 to 2380MVA in 2015. This expected growth in demand is substantially lower than actual growth rates in demand over the current regulatory period of 6.7%.

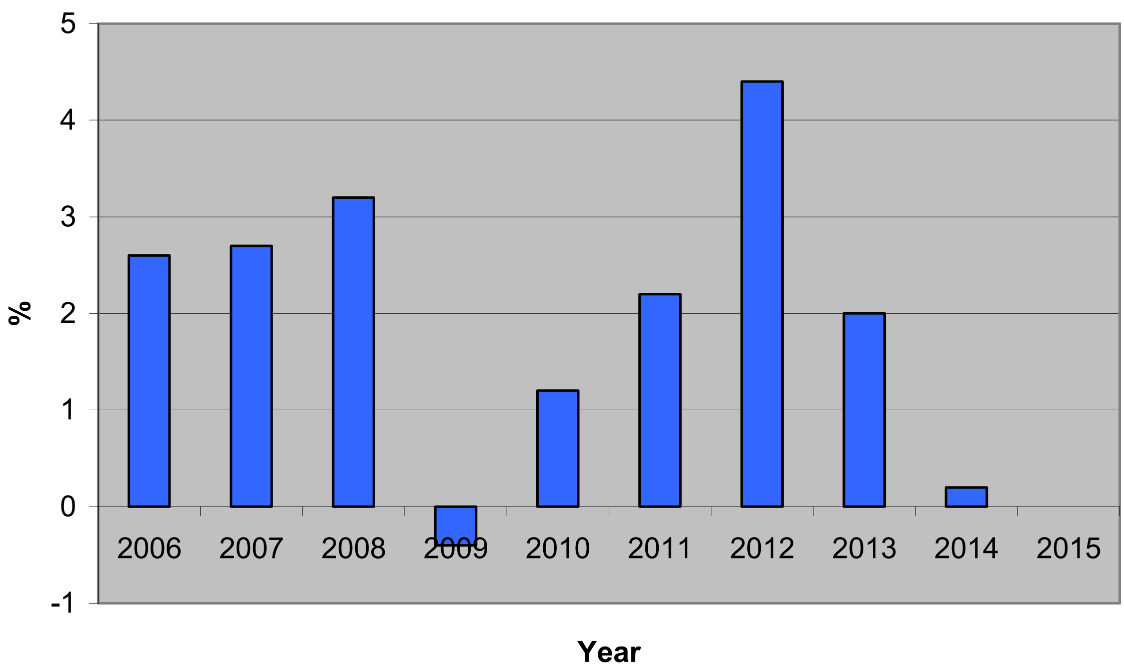
Figure 5.9: SP AusNet's Demand Forecasts



Source: SP AusNet (Growth in Peak Summer/Winter – whichever is higher)

A key underlying driver of this lower demand forecast, relative to historical outcomes, is the expected tapering off in Victorian economic activity.

Figure 5.10: GSP for Victoria



Source: NIEIR - Electricity sales and customer number forecasts for the SP AusNet distribution region to 2019

As can be seen from the above figure, average growth in Gross State Product (GSP) is expected to decline marginally from 1.86% over the current regulatory period to 1.76% over the forthcoming regulatory control period.

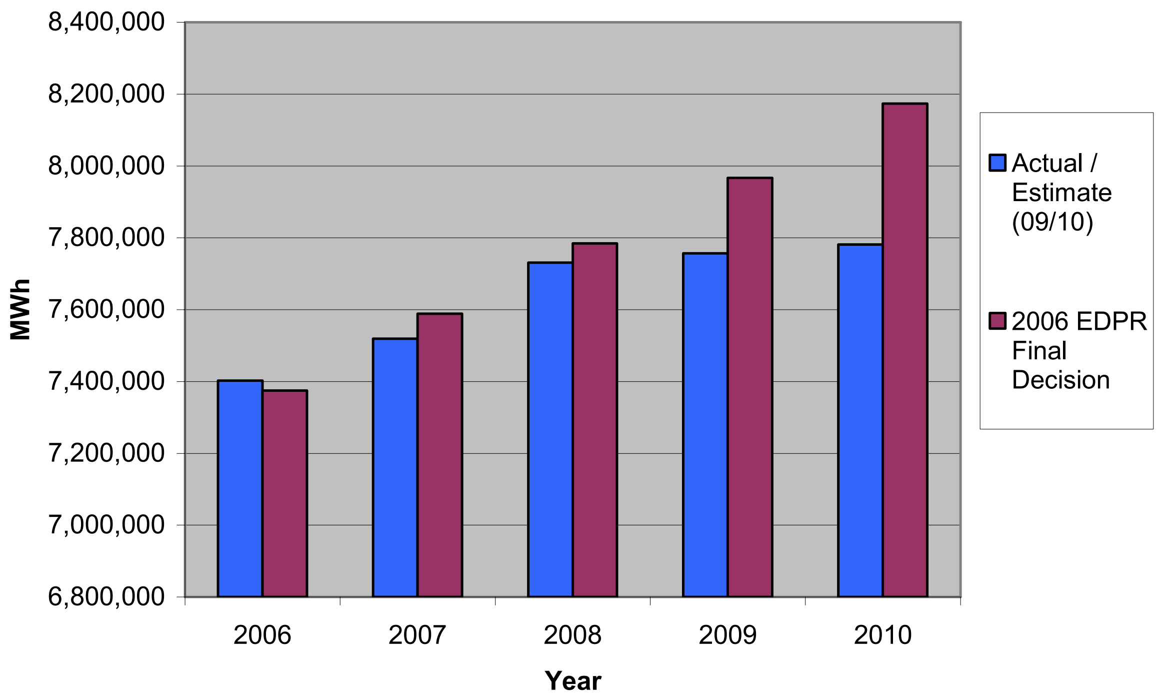
The key assumptions underpinning these forecasts and the source of these assumptions are outlined in detail in the NIEIR Report attached to this Proposal.

5.4 Energy

5.4.1 Historical Energy Consumption

The figure below illustrates that whilst the 2006 EDPR Final Decision assumed that SP AusNet would increase it energy sales by 2.61% per annum over the current regulatory control period, SP AusNet's expected growth rate it energy sales over the current regulatory control is 1.25%.

Figure 5.11: Forecast versus Actual Energy Consumption



Source: 2006 EDPR Determination and RIN Template (6.3) – Table 5

Other things being equal, this leads to SP AusNet earning lower revenues for this pricing variable than assumed in the benchmark revenue requirement. It is noted that in the absence of AMI meters, there is a disconnect between SP AusNet's marginal price signal and its marginal cost, which has limited SP AusNet's ability to manage the risk of lower than forecast energy consumption during the current regulatory control period.

5.4.2 Forecast Energy Consumption

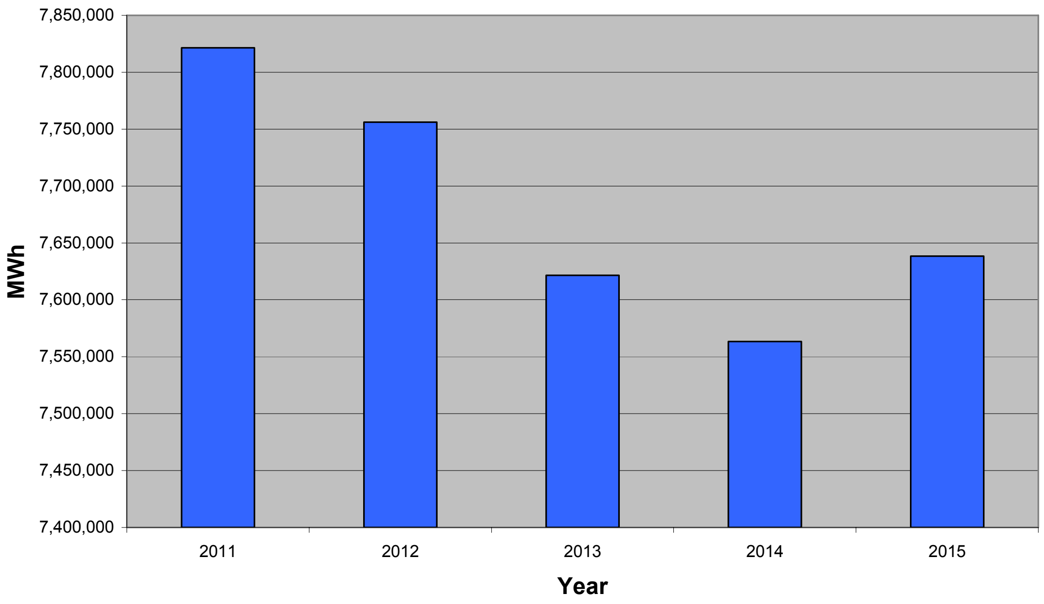
Consumption of energy on SP AusNet's network is forecast to fall from 7,821 GWh in 2011 to 7,638 GWh in 2015. This equates to an average year on year decrease of 0.59% per annum.

This negative growth rate contrasts to the 1.25% per annum over the current regulatory control period. This primarily reflects the impacts of a number of policy-related issues, for example, the introduction of a Premium Feed In Tariff, on energy consumption. The detailed assumptions underlying the Business as Usual energy forecasts are outlined in the NIEIR report.

In addition to the policy and customer growth-related impacts on energy under Business as Usual conditions, SP AusNet has incorporated the expected impact of SP AusNet's new Time of Use tariff into these energy forecasts. Whist the primary objective of this tariff is to reduce peak and shoulder energy consumption, SP AusNet's modelling indicates that it will also lead to a marginal reduction in overall energy consumption. This is the primary reason underpinning the profile of energy consumption, with the AMI roll out leading to energy reductions early in the forthcoming regulatory control period, with positive consumption growth of around 1% returning in the final year of the forthcoming regulatory period. A more detailed discussion of this tariff related impact is contained in later sections of this chapter.

SP AusNet's energy forecasts for the forthcoming regulatory period are shown in the figure below.

Figure 5.12: Energy Forecasts



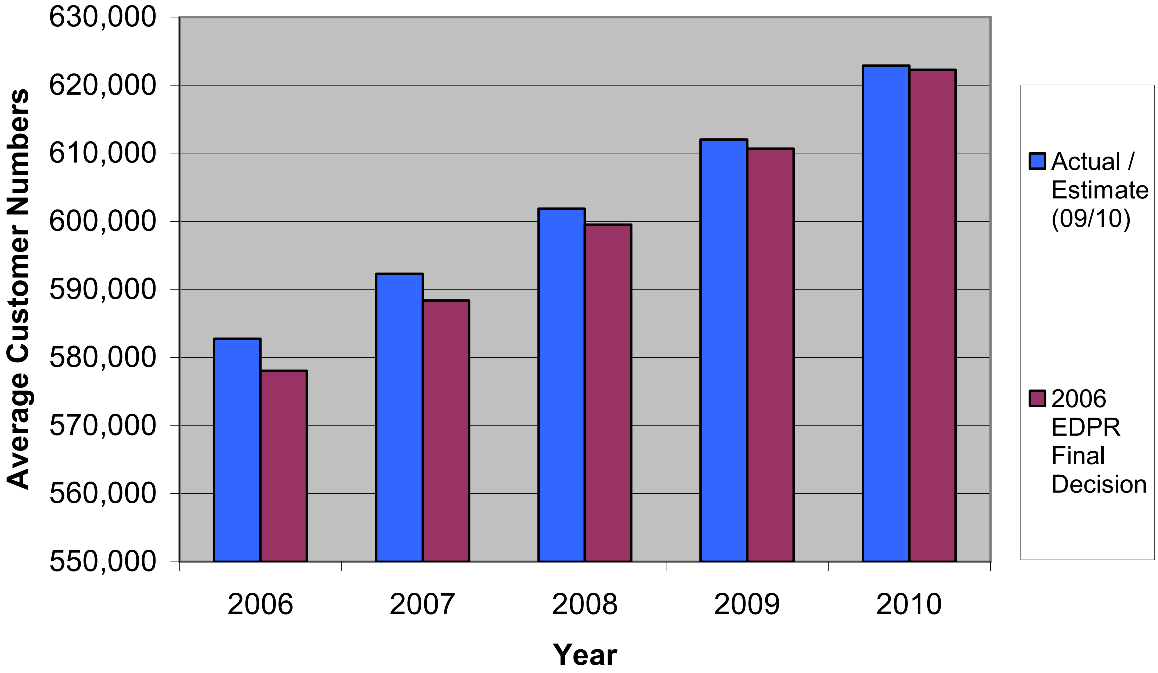
Source: NIEIR and SP AusNet

5.5 Customers

5.5.1 Historical Customer Numbers

The figure below illustrates that the actual number of customers that have connected to SP AusNet's electricity distribution system has been broadly consistent with the forecasts underpinning the 2006 EDPR submission.

Figure 5.13: Forecast versus Actual Customer Numbers



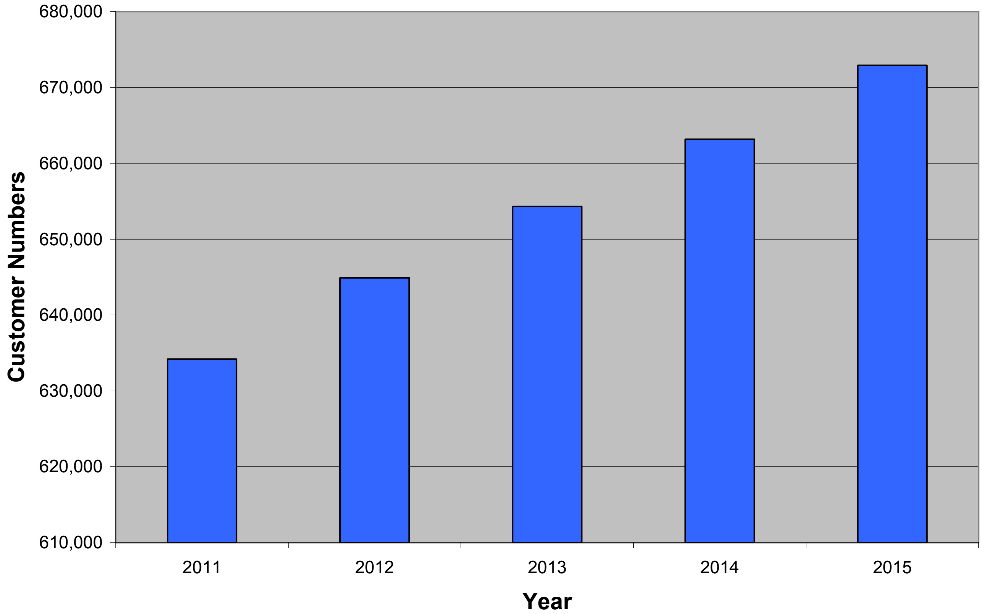
Source: 2006 EDPR Final Decision and RIN Template (6.3) Table 1

SP AusNet's actual growth in customers over this period has been 1.68% per annum since 2006, compared to the 2006 EDPR Determination of 1.86% per annum.

5.5.2 Forecast Customer Numbers

SP AusNet's average customer numbers are forecast to grow from 634,191 in 2011 to 672,912 in 2015, which is a growth rate of 1.49% per annum. This expected growth rate is lower than historical growth rates.

Figure 5.14: Forecast Average Customer Numbers

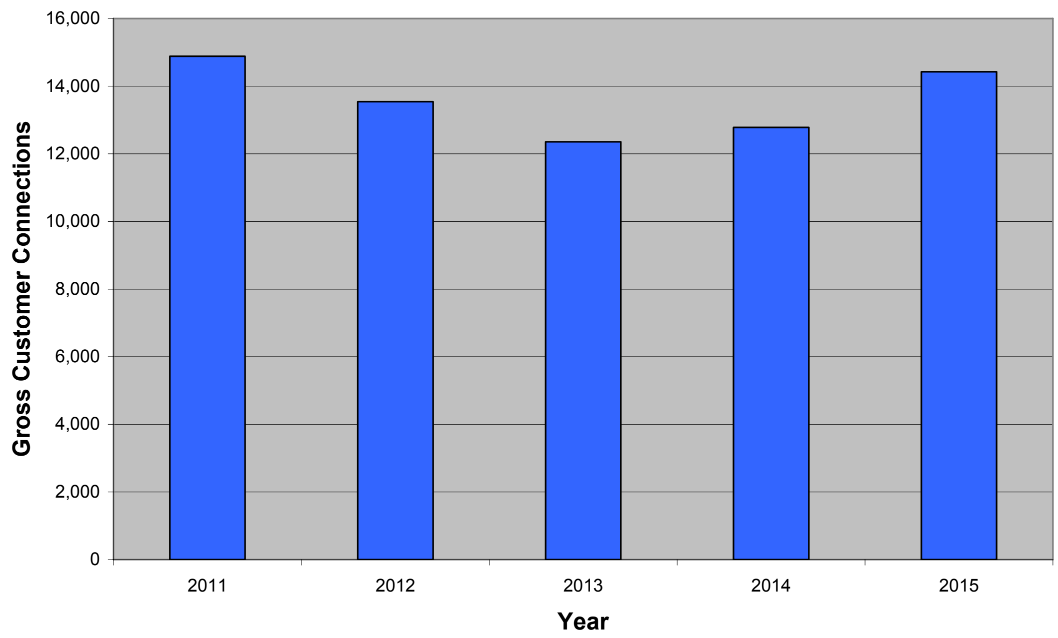


Source: RIN Template (6.3) – Table 1

In addition, a differentiation needs to be made between the growth in average customer numbers, as outlined above, and the growth in total customer connections. The difference between the two relates to abolishment of connections.

SP AusNet forecasts gross customer connections for the forthcoming regulatory control period to average 13,596, or 2.1% per annum increase in the number of customers connecting to SP AusNet's electricity distribution system.

Figure 5.15: SP AusNet's Forecast Customer Connections



Source: RIN Template (6.3) – Table 2

5.6 Tariff Impacts

SP AusNet's energy and demand forecasts take account of SP AusNet's principal tariff changes, namely the introduction of a:

- Time of Use tariff for residential and small commercial customers; and
- A 'Critical Peak Demand Price' for customers consuming >160MWh per annum.

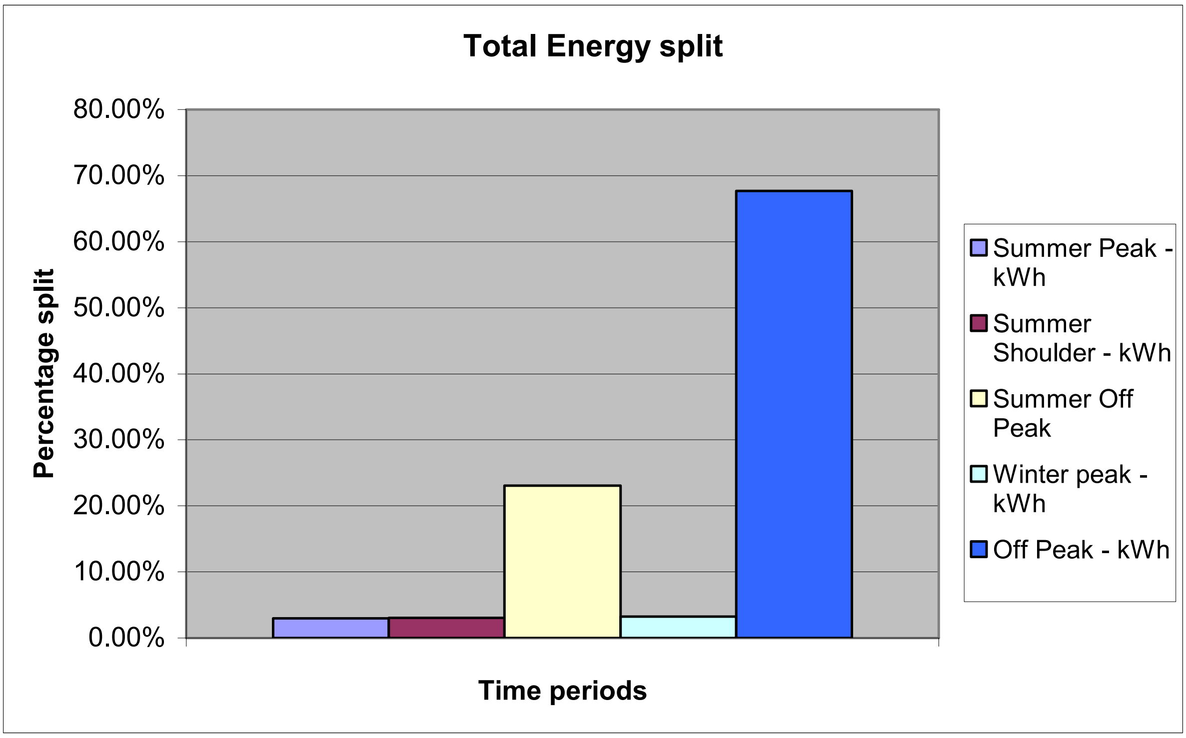
The methodology used to determine the impact of these tariff changes is detailed below.

5.6.1 Time of Use Tariff Impacts

As outlined in Chapter 15, SP AusNet will roll out its Time of Use tariffs to its residential and small commercial customers as AMI meters are progressively provided to these customers between 2010 to 2013.

Based on SP AusNet's Net System Load Profile (NSLP), SP AusNet has calculated the energy splits shown in the figure below.

Figure 5.16: Energy Split between Tariff Components



Source: SP AusNet

The above figure illustrates that SP AusNet's peak tariff components are only focused on a small proportion of total energy usage. More specifically, SP AusNet's peak price will only affect 4.5% of all usage, which would reduce to around 3% of all energy consumed once the tariff impact is included. The shoulder period and winter peak price period will only impact 3.2% and 3.3% of energy use respectively. This is discussed in more detail in Chapter 15.

SP AusNet has modelled the impact that this Time of Use tariff structure will have on overall energy consumed in each pricing period. This impact includes both the:

- own price elasticity of demand effect, which measures the amount that consumption will reduce as a result of a price rise being applied to that product, and
- the cross price elasticity of demand effect, which measures the responsiveness of the demand of a certain energy component (eg: off peak energy) to a change in the price of another energy component (eg: peak energy).

SP AusNet has developed an in-house model to estimate the impact that its proposed Time of Use tariff will have on its energy forecasts. The model adopts the following methodology:

- SP AusNet's 2008 Net-System Load Profile (NSLP) is used to determine the percentage of usage that occurs in each time band for all residential and small commercial customers (NOTE: The NSLP is utilised as SP AusNet does not have any reliable interval metering data, stratified across the various customer classes that make up 'residential and small commercial' customers);
- utilising the NSLP for each tariff class, SP AusNet has modelled the specific impact that price is expected to have on energy consumed, with this being based on the difference

between existing prices and the indicative new prices that will apply to those customers in 2010, along with an assumed own price and cross price elasticity of demand;

- the expected percentage impact for each customer class for each tariff component, utilising the NSLP, is then overlayed on the average usage forecast by NIEIR for that tariff class (eg: the impact is scaled up/down, depending on the average usage for that customer class, relative to the NSLP), to estimate the amount of energy that each class would consume in each tariff band (peak, shoulder etc) post the introduction of an AMI meter;
- New energy forecasts were quantified for all existing tariffs, by reducing the remaining energy allocated to those existing tariffs by the average consumption per customer for that customer class (as calculated by NIEIR) multiplied by the number of customers in that customer class assumed to transfer to an AMI tariff in that year; and
- New energy forecasts were quantified for all new AMI tariffs, based on the post AMI average consumption for that customer class multiplied by the number of customers in that customer class assumed to migrate to that new Time of Use tariff, adjusted down for NIEIR's policy impacts.

Two key parameters underpinning the above approach are the tariff migration schedule and estimates of the elasticity of demand. With regard to the tariff migration schedule, SP AusNet:

- calculated the number of existing customers that would move to an AMI meter and be eligible to be charged a Time of Use tariff each year, based on:
- the numbers underpinning the AMI roll out program for 2010 (ie: the number included in SP AusNet's latest AMI submission);
- the AMI roll out percentages from 2011-2013 multiplied by the forecast customer numbers from NIEIR; and
- allocated these customers across each tariff type moving to an AMI meter by allocating them to a new AMI tariff based on current proportion of the customer base.

With regard to the elasticity of demand estimates, there is limited data available on the response of customers to such a tariff in Australia. Moreover, even after assessing overseas studies, it is clear that there is no correct or common 'point estimate' in relation to the impact that these tariffs will have on the amount of energy that customers consume. This is further complicated by the significant change in both price level and structure proposed by SP AusNet, which limits the ability to translate the results from other jurisdictions to SP AusNet.

Notwithstanding this, the literature on this issue commonly indicates that the elasticity of demand ranges between -0.15 to -0.5. Examples include:

- The NIEIR 2007 report, which estimates a price elasticity of -0.25 for residential customers, -0.35 for commercial customers and -0.38 for industrial customers[32];
- The Monash University report into the price elasticity of electricity demand in South Australia and Victoria, which, at a summary level, suggests an elasticity of demand during the summer period at 4pm of -0.355[33]; and

[32]The own price elasticity of demand for electricity in NEM regions – NIEIR – June 2007

[33]The price elasticity of electricity demand in South Australia and Victoria – Table 10, page 36.

- A study by Faruqui and George, which examined the price elasticity associated with coincident peak demand, not just peak period energy consumption. This study determined a value of –0.28 of peak demand based on Time Of Use prices applied across 100,000 customers[34].

Having regard to these studies, SP AusNet's modelling includes the following conservative elasticity of demand estimates:

- Own-price elasticity of peak summer, shoulder and winder peak demand of -0.15;
- Cross-price elasticity demand between 0.005 to 0.1; and
- Own-price elasticity of off-peak demand of 0.

In addition to the above, SP AusNet has:

- Estimated that on average, network tariffs make up 40% of a customers' overall bill, therefore, all elasticity of demand impacts are 'discounted' by this amount; and
- Not included the impact of the P0 price rise proposed in this Proposal into these energy forecasts, due to the circularity that this would cause. Rather, SP AusNet proposes to include this in response to the Draft Decision.

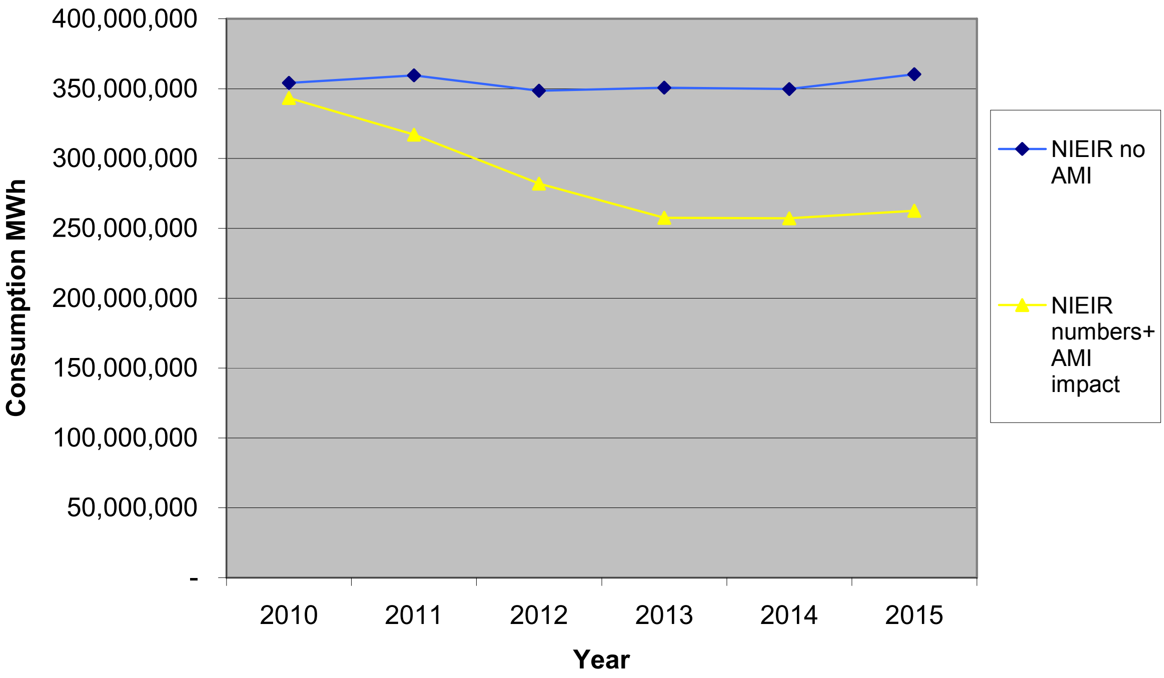
It is noted that on average, by the end of 2013, when AMI will be fully rolled out, the adoption of SP AusNet's proposed Time of Use tariff is estimated to lead to an:

- 26.5% reduction in energy that SP AusNet classifies as peak energy (2-6pm between December and March on weekdays), relative to the BAU figures provided by NIEIR;
- 21.7% reduction in energy that SP AusNet classifies as shoulder energy, relative to the BAU figures provided by NIEIR; and
- 1.21% increase in the off peak usage, relative to the BAU figures provided by NIEIR.

These are illustrated in the following figures.

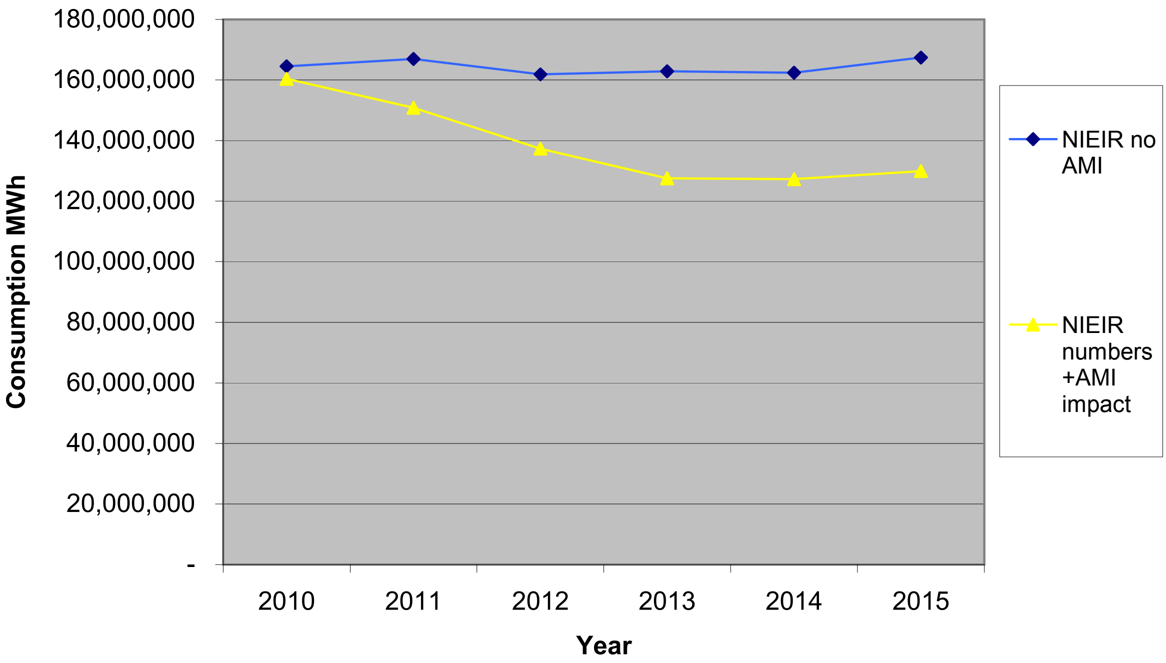
[34] Faruqui, A & George, S 2002, 'The value of dynamic pricing in mass markets', The Electricity Journal, July, p. 48.

Figure 5.17: Forecast Peak Energy Consumption relative to BAU case



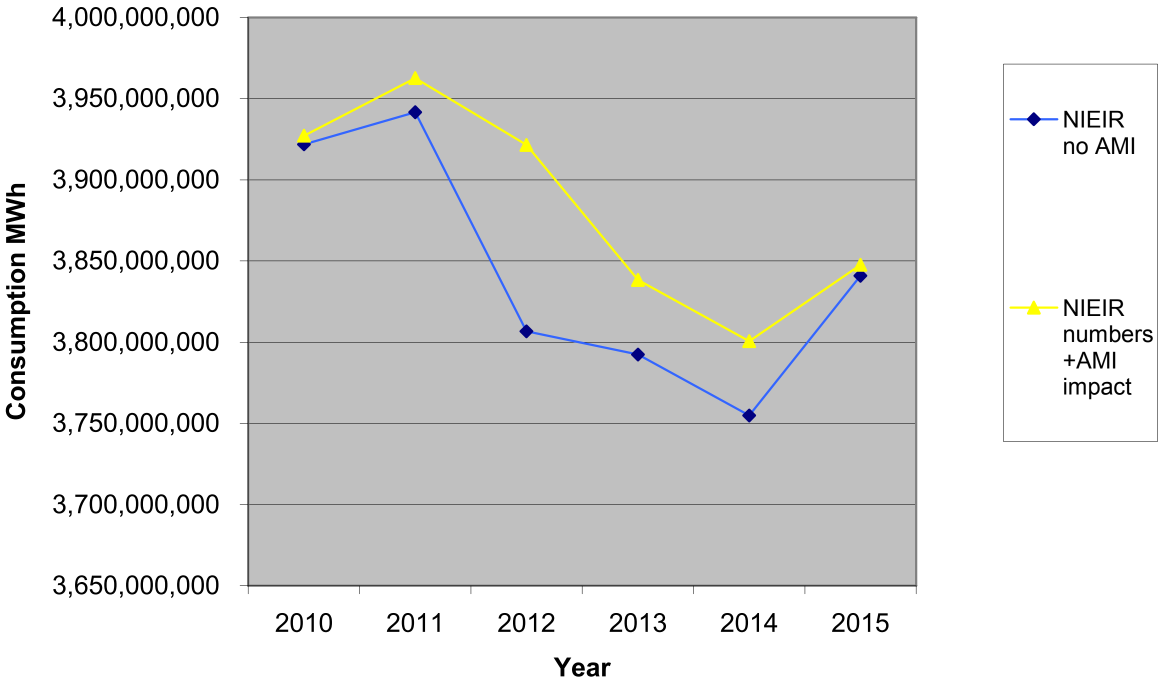
Source: SP AusNet

Figure 5.18: Forecast Shoulder Energy Consumption relative to BAU case



Source: SP AusNet

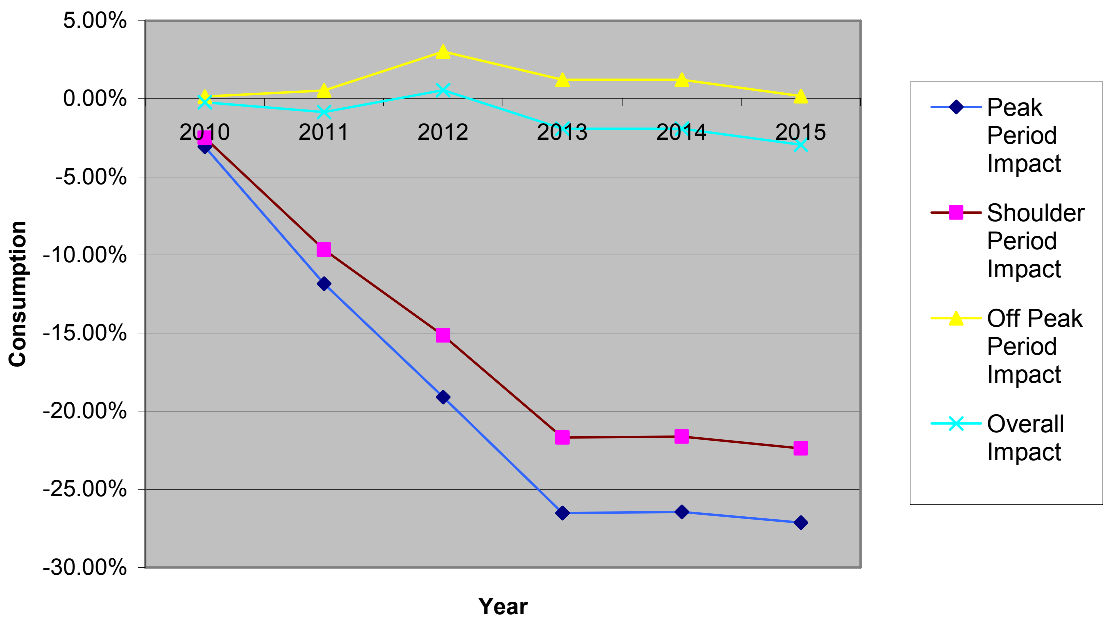
Figure 5.19: Forecast Off Peak Energy Consumption relative to BAU case



Source: SP AusNet

Overall, this leads to around a 2.9% reduction in the overall energy consumed by residential and small commercial customers by 2015.

Figure 5.20: Overall Change in Energy Consumption relative to BAU case



Source: SP AusNet

The overall reduction in energy is moderate. This is consistent with the overall objectives underpinning the development of the tariff, which is to:

- primarily focus on peak and shoulder energy consumption, as opposed to anytime energy consumption; and
- provide incentives for customers to shift load to off peak periods, as opposed to just reducing overall load.

SP AusNet's estimated impact on peak energy usage of 26% is broadly consistent with some overseas trials, for example:

- Ontario Energy Board's Regulated Price Plan (RPP)[35] Time of Use rates – which lead to a energy savings on average of 22% - although it is noted that this involved the application of Time of Use rates, in conjunction with a move away from bulk metering; and
- The Caves and Christensen study,[36] which evaluated how customers altered their loads in response to a retail peak-load pricing program in Wisconsin, with this showing that Customers facing a 2:1 peak/off-peak ratio reduced their consumption of electricity during summer months by 11 percent to 13 percent, while those customers facing an 8:1 price ratio reduced their consumption by 15 percent to 20 percent during the summer peak periods.

Overall, SP AusNet's elasticity of demand estimates reasonably reflect the impact that its proposed tariff structure is likely to have on its customers' energy consumption.

5.6.2 Critical Peak Demand Price Impacts

SP AusNet has developed an in-house model to estimate the impact that its proposed Critical Peak Demand Price will have on its demand forecasts. The key components of this model are:

- for each customer that is currently on a KVA (demand) tariff, SP AusNet attained data on their demands for the 5 system peak days for the period January 2006-March 2008;
- SP AusNet utilised this data to set a new baseline level of demand which would be charged under SP AusNet's proposed new Critical Peak Demand Price; and
- SP AusNet utilised estimates of its LRMC at Sub transmission, HV and LV categories, to define indicative prices that would apply to each of these customer classes;

SP AusNet estimated the impact that these price rises might have on the demand of these customers, through:

- estimating the elasticity of demand for each tariff class (ranging from -0.05 to -0.25); and
- assessing the individual consumption characteristics of a number of its largest customers to assess their likely ability to change consumption behaviour in response to this price rise;
- using the information outlined above, SP AusNet calculated a new set of demands for each customer, and then aggregated these demands to the tariff level; and

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[35] http://www.oakvillehydro.com/pdf/SmartMeters-TOU-Project.pdf.

[36] Douglas W. Caves and Laurits Christensen, "Time-of-use Rates for Residential Electric Service: Results from the Wisconsin Experiment," Public Utilities Fortnightly, Vol. 111(March 17, 1983), pp. 30-35.

- SP AusNet mapped these estimated demand reductions to feeder and zone substation level to determine the impact that they will have on the capex program.

The effect on peak demand at each zone substation has been estimated and this is accounted for in energy at risk projections. The aggregate estimated effect is a saving in the peak summer demand of 90.22MVA, however, 76MVA of this reduction pertains to the sub station and feeder levels, with the remainder being attributable to the 66KV system.

6 Capital Expenditure

This chapter outlines SP AusNet's proposed capex for the forthcoming regulatory control period. The chapter is structured as follows:

- Section 6.1 provides a summary of the capex proposal;
- Section 6.2 sets out the regulatory requirements relating to the capex proposal;
- Section 6.3. sets out the key assumptions underlying the capex proposal;
- Section 6.4 summarises the aims and objectives of the capex proposal;
- Section 6.5 explains how SP AusNet classifies the key categories of capex;
- Section 6.6 describes the reinforcement capex proposal;
- Section 6.7 describes the load movement capex proposal;
- Section 6.8 describes the reliability and quality maintained capex proposal;
- Section 6.9 describes the reliability and quality improved capex proposal;
- Section 6.10 describes the environmental, safety and legal capex proposal;
- Section 6.11 describes the SCADA capex proposal;
- Section 6.12 describes the non-network IT capex proposal;
- Section 6.13 describes the non-network general capex proposal;
- Section 6.14 describes the customer connections capex proposal;
- Section 6.15 explains how SP AusNet has estimated costs and unit rates for its forecast capex program;
- Section 6.16 describes the interaction of between the capex program, opex and service standards;
- Section 6.17 explains the steps SP AusNet has put in place to ensure the proposed capex program is deliverable; and
- Section 6.18 concludes the chapter by presenting cost and service benchmarking information that confirms SP AusNet's strong operational performance and efficiency, thereby providing further evidence of the company's prudent and efficient asset management and operational practices.

6.1 Summary of Capital Expenditure Proposal

6.1.1 Overview of Total Forecast Capital Expenditure

Total forecast capex for the forthcoming regulatory control period is $1,372 million (real $2010). The total forecast capex for the forthcoming regulatory period averages $274 million per annum. This is 48% higher than the average annual expenditure from the current regulatory control period (see figure below). This increase is driven by:

- higher unit costs, with unit rates predicted to increase by around 9.5% in real terms over the forthcoming regulatory control period;

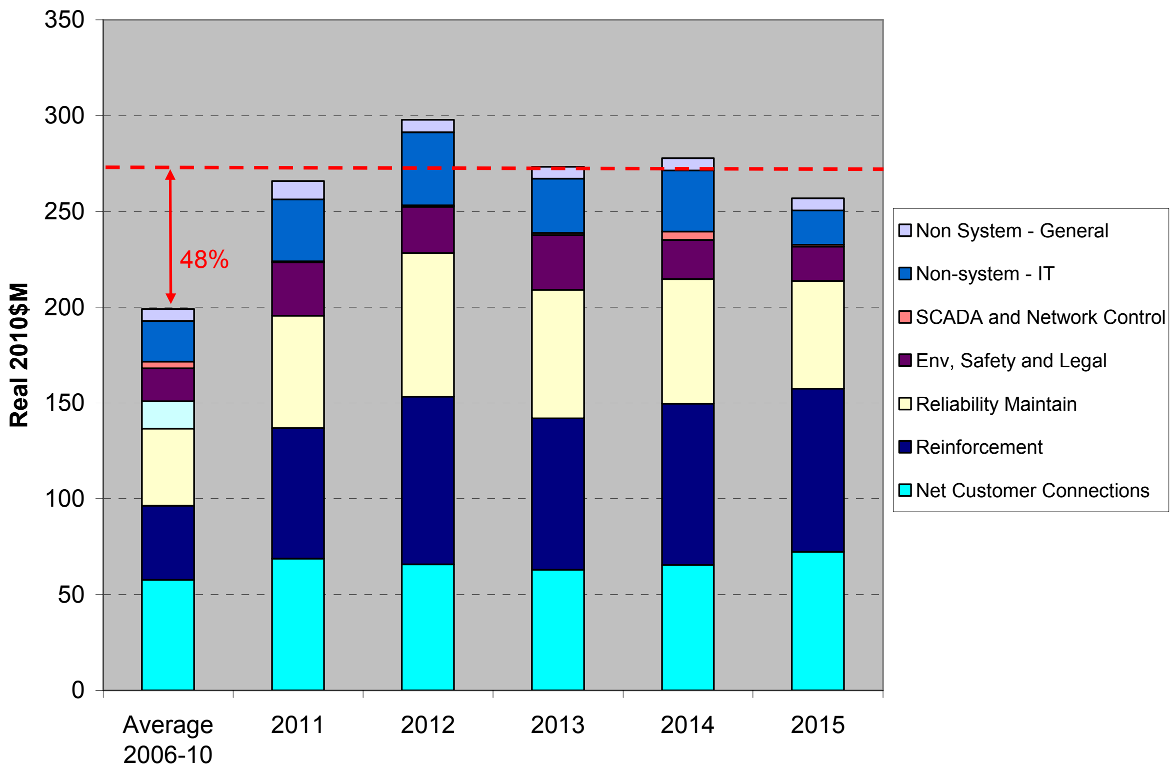
- an increase in the volume of asset replacement works, to ensure that in spite of the ageing of SP AusNet's asset base, public safety and network reliability and quality are maintained;
- an increase in the amount of augmentation and customer connection capex, to provide sufficient new capacity to meet the forecast high maximum demand growth, and to meet the forecast growth in customers; and
- IT expenditure that will provide the business system infrastructure needed to facilitate the achievement of SP AusNet's asset management and operational efficiency objectives, and planned customer service standards.

A comparison between total capex over 2006 to 2010 and that forecast over the forthcoming regulatory control period is provided in the figure below and a detailed category breakdown in the table below.

SP AusNet's capex forecasts have been developed to enable the company to meet the capital expenditure objectives set out in Clause 6.5.7(a) of the NER efficiently and prudently. The information set out in this Proposal and the supporting documentation demonstrates that::

- SP AusNet's capex forecast complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN; and therefore
- the AER should accept the total capex forecast in accordance with the provisions set out in clause 6.5.7(c) of the NER.

Figure 6.1: Total Forecast Expenditure versus Historical Expenditure



Source: SP AusNet

Table 6.1: Total Forecast Expenditure

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Environmental, safety and legal	27.8	24.2	28.6	20.5	18.0	119.0
New customer connections (gross)	87.1	83.3	79.7	82.8	91.3	424.1
Reinforcement	68.2	87.6	78.9	84.2	85.3	404.2
Reliability and quality maintained	58.7	74.9	67.2	65.0	56.2	321.9
Reliability and Quality improve	0.0	0.0	0.0	0.0	0.0	0.0
SCADA and network control	0.6	0.8	1.2	4.3	1.0	7.8
Non-system – IT	32.3	38.1	28.2	31.9	17.9	148.4
Non-system – Other	9.6	6.5	6.2	6.4	6.3	35.0
Total (gross)	**284.2**	**315.4**	**290.0**	**295.1**	**275.8**	**1460.5**
Customer contributions	18.3	17.5	16.8	17.3	19.0	89.0
Total (net)	**265.9**	**297.8**	**273.3**	**277.8**	**256.8**	**1371.5**

Source: SP AusNet

6.1.2 Overview of Total Historical Capital Expenditure

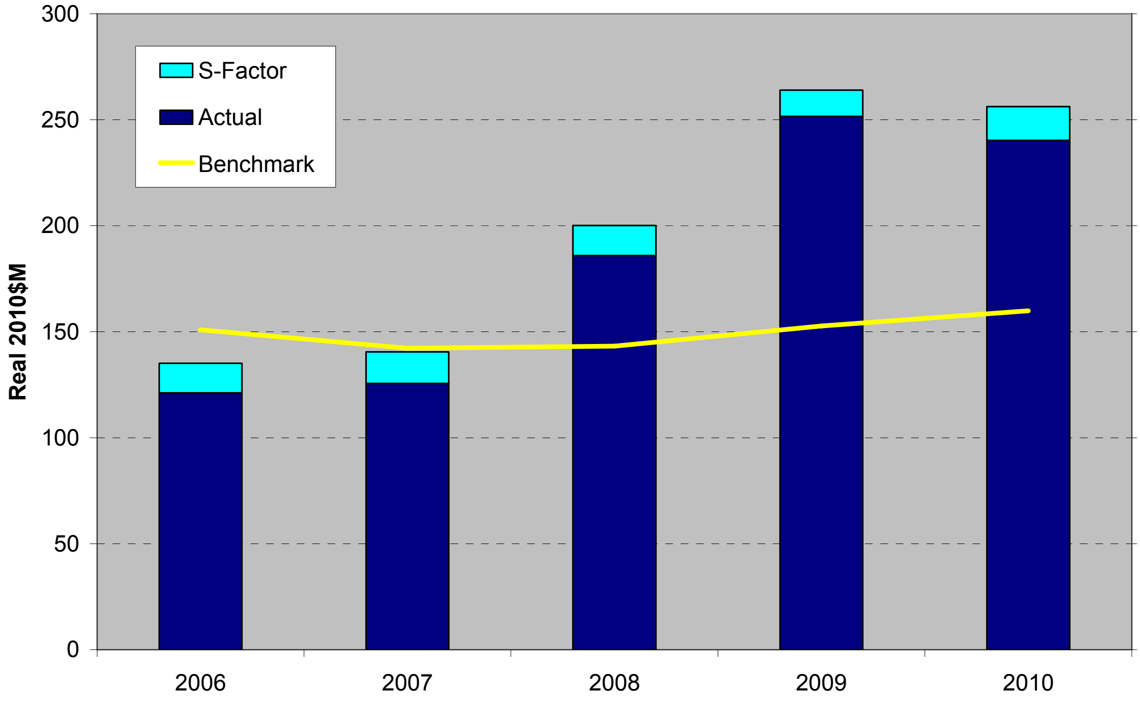
Historical capex on SP AusNet's distribution network is forecast to be $996 million (real 2010 $, net of customer contributions). This is $176 million or 23% higher than the allowance set in the 2006 EDPR Determination exclusive of S Factor capex. Including S Factor expenditure the business is expected to have spent $247 million or 33% over the regulatory allowance. This increase has been driven by the following factors:

- in spite of the incentives for SP AusNet to deliver efficient levels of capital investment over the course of the current regulatory period, project costs have turned out to be considerably higher than allowed for in the 2006 EDPR Determination. For example, a sample of reinforcement projects showed costs were 37.5% higher then that assumed in the 2006 EDPR Determination on a like for like basis;
- the rate of increase in actual demand from 05/06 summer to the 2008/09 summer (6.7% per year) has been significantly higher than forecast (3.7% per year). Actual customer connections (69,822) have been higher than forecast (65,548); and

- during the course of the current regulatory period, SP AusNet made a decision to own and capitalise IT and fleet assets rather than leasing and expensing them.

A comparison between total capex over 2006 to 2010 and that forecast in the 2006 EDPR Determination is provided in the figure below.

Figure 6.2: Historical Expenditure versus Benchmark



Source: SP AusNet

6.2 Regulatory Requirements

The key regulatory requirements governing SP AusNet's capex proposal are set out in the National Electricity Law, NER and RIN. These are discussed in more detail below.

6.2.1 National Electricity Law

Section 7 of the NEL defines the National Electricity Objective (NEO) as follows:

> *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to —*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system."*

In accordance with the NEO, SP AusNet's capex forecasts are focused on ensuring that the company's expenditure plans are efficient in terms of the resulting price, quality, safety, reliability and security of supply of electricity. SP AusNet is especially conscious of the need to balance the growing customer expectations of service and reliability improvements against the competing pressure to keep price increases to a minimum. In balancing these objectives, SP AusNet has addressed the NER requirements, which are set out below.

6.2.2 National Electricity Rules

SP AusNet has developed its capex proposal so that it meets the capex objectives set out in out in Clause 6.5.7 (a) of the NER, namely that:

> *"A building block proposal must include the total forecast capital expenditure for the relevant regulatory control period which the Distribution Network Service Provider considers is required in order to achieve each of the following (the capital expenditure objectives):*
>
> *(1) meet or manage the expected demand for standard control services over that period;*
>
> *(2) comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;*
>
> *(3) maintain the quality, reliability and security of supply of standard control services;*
>
> *(4) maintain the reliability, safety and security of the distribution system through the supply of standard control services".*

In addition, Clause 6.5.7 (c) of the NER states that:

> *"The AER must accept the forecast of required capital expenditure of a Distribution Network Service Provider that is included in a building block proposal if the AER is satisfied that the total of the forecast operating expenditure for the regulatory control period reasonably reflects:*
>
> *(1) the efficient costs of achieving the capital expenditure objectives; and*
>
> *(2) the costs that a prudent operator in the circumstances of the relevant Distribution Network Service Provider would require to achieve the capital expenditure objectives; and*
>
> *(3) a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objectives.*
>
> *(the capital expenditure criteria)."*

The final matters that SP AusNet has had regard to when developing its capex forecasts are the requirements of Clause 6.5.7 (e), which are as follows:

> *"(e) In deciding whether or not the AER is satisfied as referred to in paragraph (c), the AER must have regard to the following (the capital expenditure factors):*
>
> *(1) the information included in or accompanying the building block proposal;*
>
> *(2) submissions received in the course of consulting on the building block proposal;*
>
> *(3) analysis undertaken by or for the AER and published before the distribution determination is made in its final form;*
>
> *(4) benchmark capital expenditure that would be incurred by an efficient Distribution Network Service Provider over the regulatory control period;*

(5) the actual and expected capital expenditure of the Distribution Network Service Provider during any preceding regulatory control periods;

(6) the relative prices of operating and capital inputs;

(7) the substitution possibilities between operating and capital expenditure;

(8) whether the total labour costs included in the capital and operating expenditure forecasts for the regulatory control period are consistent with the incentives provided by the applicable service target performance incentive scheme in respect of the regulatory control period;

(9) the extent the forecast of required capital expenditure of the Distribution Network Service Provider is referable to arrangements with a person other than the provider that, in the opinion of the AER, do not reflect arm's length terms;

(10) the extent the Distribution Network Service Provider has considered, and made provision for, efficient non-network alternatives."

Information provision

To support the capex proposal, under Clause S6.1.2 of the NER, the Proposal must also provide:

"(1) a forecast of the required capital expenditure that complies with the requirements of clause 6.5.7 of the Rules and identifies the forecast capital expenditure by reference to well accepted categories such as:

(i) asset class (eg. distribution lines, substations etc); or

(ii) category driver (eg. regulatory obligation or requirement, replacement, reliability, net market benefit, business support etc), and identifies, in respect of proposed material assets:

(iii) the location of the proposed asset; and

(iv) the anticipated or known cost of the proposed asset; and

(v) the categories of distribution services which are to be provided by the proposed asset;

(2) the method used for developing the capital expenditure forecast;

(3) the forecasts of load growth relied upon to derive the capital expenditure forecasts and the method used for developing those forecasts of load growth;

(4) the key assumptions that underlie the capital expenditure forecast;

(5) a certification of the reasonableness of the key assumptions by the directors of the Distribution Network Service Provider;

(6) capital expenditure for each of the past regulatory years of the previous and current regulatory control period, and the expected capital expenditure for each of the last two regulatory years of the current regulatory control period, categorised in the same way as for the capital expenditure forecast;

(7) an explanation of any significant variations in the forecast capital expenditure from historical capital expenditure."

6.2.3 Regulatory Information Notice

In addition to the requirements noted above, SP AusNet's capex forecast is required to comply with the detailed requirements of the RIN.

Where applicable to the discussion presented in this chapter, specific RIN clauses have been referred to. Further detailed information addressing all of the RIN requirements has been provided separately in support of this Proposal.

6.3 Key Assumptions

The following key assumptions underlie SP AusNet's capex proposal.

Table 6.2: Key Assumptions

Capex Input	Assumption
Demand Forecasts	Maximum average non-coincident demand is forecast to grow at 4.4% per annum.
Customer Forecasts	Customer numbers are forecast to grow an average of 1.56% per annum.
VCR	Value of Customer Reliability is $55,000/MWh for reinforcement capex, otherwise as per AER STPIS.
Planning Standards	SP AusNet's existing probabilistic standards will be maintained.
Base Unit Costs and Rates	SP AusNet unit costs and rates from 2009
Cost Escalators	SP AusNet has applied labour and materials cost escalators in this capex proposal based on estimates provided by BIS Shrapnel and SKM.
Allocation of Costs and Overheads	Consistent with SP AusNet's proposed CAM.
Safety	The forecast capex aligns with SP AusNet's new ESMS to be submitted to ESV in December 2009.
Tariff Strategy	The effects of SP AusNet's proposed new tariffs have been incorporated.
DM / Non-network Costs	The effects of SP AusNet's demand management and non network initiatives have been incorporated.

6.4 Aims and Objectives

SP AusNet's capex proposal is constructed in accordance with the capex objectives and criteria set out in Chapter 6 of the Rules.

The capex proposal supports the asset management objectives outlined in Chapter 3. These objectives are to:

- enhance network safety in accordance with statutory obligations and industry best practice;
- increase network capacity to satisfy future projections for energy supply and peak demand;
- achieve supply reliability targets taking account of risk, costs and customer expectations;
- enhance supply quality; and
- manage network risk in an efficient manner.

6.5 Capex Classification

The following sections provide a description of each capex category adopted in this Proposal in accordance with definitions set out in Guideline 3[37] or the RIN, as applicable. As required by the RIN, SP AusNet has also supplied a working paper entitled *SPA Workpaper - Historical O&M & Capex* with reconciliations in support of the RIN Templates.

6.5.1 Reinforcement and Load Movement

The load movement category of capex is not relevant to SP AusNet's network and, therefore, is not addressed in this proposal. Only Citipower had capex in this category for the 2006 EDPR Determination.

Therefore, while load movement opportunities are considered in assessing reinforcement capex solutions, the costs of load movement are not separable from the costs of reinforcement works. Therefore, SP AusNet has not distinguished between reinforcement and load movement in its historical accounts or expenditure forecasts.

6.5.2 Reinforcement and reliability and quality maintained

Historical reinforcement projects and asset replacement programs are generally reported against separate work codes in SP AusNet's accounting systems. With some minor exceptions where there is works overlap between the two categories, and the costs of these activities are allocated accordingly in the regulatory accounts. In addition, before the allocation is finalised, a review is undertaken by the asset engineers to ensure expenditure levels by category reflect the key drivers of company expenditure.

Forecast expenditure for these categories is generated from separate forecasting processes.

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[37] Guideline 3 means the Electricity Industry Guideline No. 3: Regulatory Information Requirements—Issue No. 6 dated December 2006 published by the ESC.

In accordance with the requirements of the RIN and Clause S6.1.1(6) of the NER, SP AusNet has allocated capex to these programs consistently over the historical and forecast periods except where indicated.

6.5.3 Reliability and quality maintained, and environmental, safety and legal

Asset replacement is undertaken primarily for public safety, system security and reliability reasons. A particular asset replacement program will almost certainly have all these factors as a driver to some extent. Therefore, asset replacement capex is subject to a single analytical approach before being allocated into the appropriate category.

The resulting asset replacement capex programs are allocated to both reliability and quality maintained, and environmental, safety and legal categories according to the weighting of various factors as follows:

- where the major driver of an asset replacement program is safety, environment or security (legal), the capex is allocated into the environmental, safety and legal category.
- where the major driver of asset replacement expenditure is not related to these factors, the expenditure is allocated to the reliability and quality maintained category.

The categorization of the asset replacement programs into environmental, safety and legal for the current and forthcoming regulatory period is set out in the table below. This has been cross referenced to the basis of SP AusNet's proposal underlying the 2006 EDPR Determination where possible.

In relation to the programs that are changing between periods or are split between more than one category the following points are noted:

- The cross arm replacement program – the large step change in the volume of replacements forecast for the 2006 EDRP Determination was allocated into the safety category. The existing volume of replacement was allocated into the reliability and quality maintained category. For the purposes of this Proposal we have followed this allocation for expenditure in the current regulatory control period. Consistent with past practice, for the forthcoming regulatory control period, the step change in the volume of replacement has been allocated into the safety category, the existing replacement volumes being allocated into reliability and quality maintained.
- Animal proofing – the works forecast for this program were allocated into the safety category in the 2006 EDPR Determination. For the purposes of this Proposal we have allocated this expenditure into the reliability and quality improved category as the program was subsumed into our S Factor improvement works for the current regulatory period.

This presentation may differ from historical regulatory accounts where splits between these two categories were undertaken in accordance with a high level allocator.

Table 6.3: Categorization of Asset Replacement Programs

Replacement Program	Assumed in 2006 EDPR Determination	Allocation: 2006-10 Regulatory Control Period	Allocation: 2011-15 Regulatory Control Period
Conductor replacement program	Safety	Safety	Safety
Insulator replacement program	Safety	Safety	Safety
Cross-arm replacement program	Reliability Maintained Safety (Increase in volumes)	Reliability Maintained Safety (Increase in volumes)	Reliability Maintained Safety (Increase in volumes)
Animal proofing	Safety	Reliability Improved	Not applicable
HV Fuses	Safety	Safety	Safety
Service cables	Safety	Safety	Safety
Asbestos removal	Safety	Safety	Safety
Oil containment program	Environmental	Reliability Maintained	Environmental
Zone Substation security	Legal (Compliance)	Reliability Maintained	Legal (Compliance)

Source: SP AusNet

In accordance with the requirements of the RIN and Clause S6.1.1(6) of the NER, SP AusNet has allocated capex to these programs consistently over the historical and forecast periods except where indicated in this section.

6.5.4 Reliability and quality maintained, and reliability and quality improved

The costs of these activities are split using allocators in the regulatory accounts. Before the allocation is finalised, a review is undertaken by the asset engineers to ensure expenditure levels by category reflect the key drivers of company expenditure.

For forecasting purposes only, SP AusNet has departed from the previous approach taken in 2006 EDPR Determination which was to categorise projects with the aim of complying with the Distribution Code as 'quality improved' expenditure. This expenditure is better categorised as investment to 'maintain' the network to required quality standards. Therefore, for the forthcoming regulatory control period SP AusNet has categorised expenditure to comply with the Distribution Code as 'quality maintained' capex.

In accordance with the requirements of Clause 6.5.7(a) of the NER and the intent of the STPIS as applied in Victoria, the forecasts do not include capex that improves reliability or quality.

6.5.5 Remote SCADA, SCADA (IT) and IT

SP AusNet has historically allocated SCADA and IT capex in the following manner:

- the installation and replacement of remote SCADA assets on the network (RTUs, SCs, DFDs, communication network etc.) has been allocated into the system sub-transmission and distribution categories (in effect, these assets will be in reinforcement and reliability and quality maintained capex);
- network control hardware, software and associated IT systems have been allocated into the Guideline 3 SCADA category; and
- all other IT into non-network – IT capex as defined by Guideline 3.

This allocation underlies SP AusNet's historical regulatory accounts. SP AusNet is proposing to continue this allocation for the forthcoming regulatory period. Therefore, in accordance with the requirements of the RIN and Clause S6.1.1(6) of the NER, SP AusNet has allocated SCADA costs consistently over the historical and forecast periods.

6.5.6 Customer connection and reinforcement

Historical customer connection and reinforcement projects have separate work codes in SP AusNet's accounting systems and the costs of these works are allocated accordingly in the regulatory accounts. Guideline 3 defines customer connections capex as expenditure to establish new customer connections to the network including that part of the cost recovered through customer contributions, those being all customer contributions towards connection/augmentation work (net of standard service charges).

6.6 Reinforcement Capex

This capex category includes expenditure associated with deep seated additions to the capacity of the distribution network - that is, excluding load movement expenditure and customer service connections.

The primary but not exclusive purpose of the reinforcement capex program is to meet the requirements of Clause 6.5.7(a)(1) of the NER. Nonetheless, Clauses 6.5.7(a)(2), (3) and (4) also remain relevant. For the reinforcement capex category, these clauses have been interpreted to mean meeting the forecast demand growth on the network over the period from 2011 to 2015 (Clause 6.5.7(a)(1)) such that;

- the requirements of all health, safety, security, environmental, technical (including the NER and Distribution Code) and other regulatory obligations associated with the provision of standard control services are met (Clause 6.5.7(a)(2));
- SP AusNet's published planning standards are met (Clause 6.5.7(a)(2)); and
- reliability is maintained at levels consistent with historical performance as expressed in the STPIS targets (Clauses 6.5.7(a)(3) and (4)).

This section of the proposal and the accompanying supporting information complies with the requirements of:

- Section 3.3 of the RIN and Sections 3.1 and 3.2 where these apply to reinforcement capex; and
- Clause S6.1.1 of the NER.

6.6.1 Scene setting

Peak demand is the primary driver for reinforcement capex. During the current regulatory control period, SP AusNet's load has become peakier, meaning maximum demand has risen faster than the average demand and energy. Demand has also risen much faster than forecast in the 2006 EDPR Determination. This is a consequence of significant unexpectedly high rates of growth in air-conditioner load coupled with new housing development on the outskirts of Melbourne.

Towards the end of the current regulatory control period, observed demand growth has been particularly pronounced (7.8% per annum) due to very hot summers (2009 demand was approximately a 10% POE[38] year while planning is undertaken on a 50% POE). A prudent and efficient initial planning response to these outlier years has been to increase utilisation of assets and load at risk rather than investing immediately in additional capacity. If utilisation is increased (while planning standards are still met) then demand can be met by load shifting between feeders and zone substations, and new feeders or zone substations can be deferred (but not avoided). Nonetheless, augmentation cannot be prudently deferred indefinitely and significant capex ($45 million) has been invested in capacity over and above the benchmark set in the 2006 EDPR Determination.

For the forthcoming regulatory control period a maximum demand growth forecast of 4.4% p.a. has been used. To ensure that reinforcement capex forecasts are based on robust demand forecasts, an independent forecaster, has been engaged to provide forecasts for energy and maximum demand growth over the period 2010 to 2015 (see discussion in Chapter 5). These maximum demand forecasts provide the basis of the reinforcement expenditure forecast for the next review period. An independent forecaster has provided forecasts at the transmission connection point (terminal station) level. SP AusNet develops its peak demand forecasts at both zone substation and feeder level. SP AusNet's peak demand forecasts are considered consistent with the independent forecasts taking into account the non-coincident nature of peak demands at distribution feeder and zone substation levels.

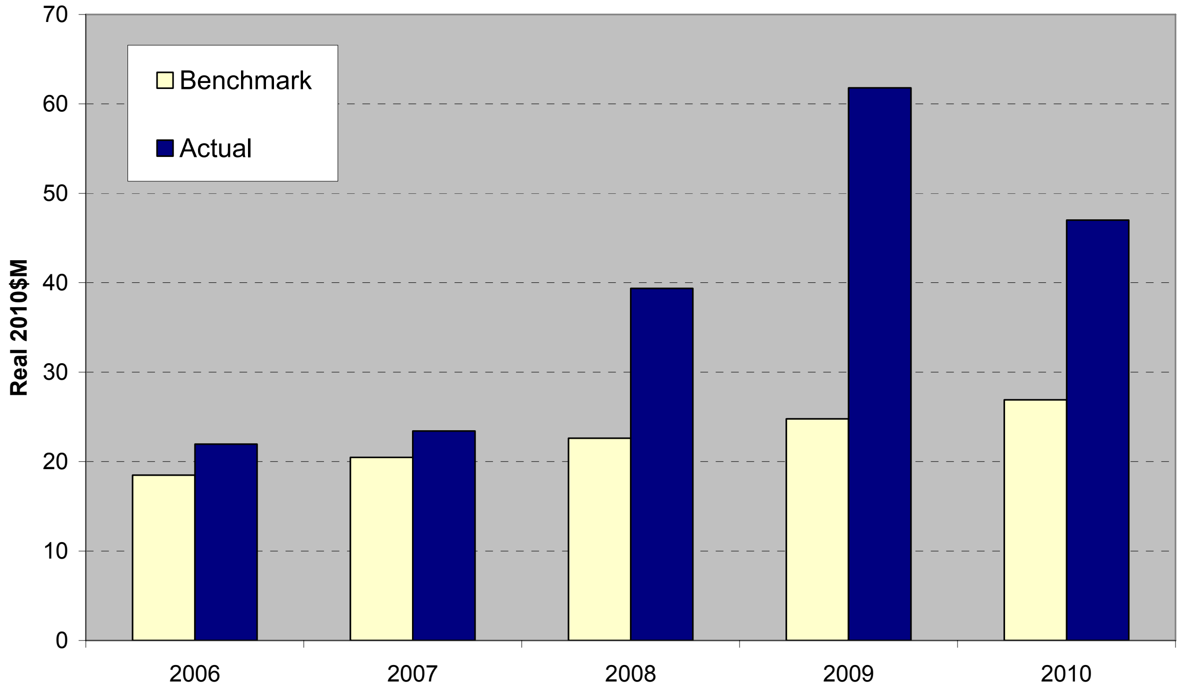
A probabilistic planning model incorporating SP AusNet's planning standards and the forecast growth in maximum demand has been used to determine the network augmentation requirements. This enables SP AusNet's planning to also consider the economic cost of energy at risk. The model identifies the time at which the expected present value (PV) of customer interruption costs ("unreliability") exceeds the PV of the cost for the augmentation, at all points on the network. The application of probabilistic planning to the SP AusNet network demand profile is discussed in section 6.6.3.

6.6.2 Historical Performance

Historical expenditure on reinforcement of the network is forecast to be $80 million (real 2010 $) higher than the allowance set in the 2006 EDPR Determination. As shown in the figure below, SP AusNet's actual reinforcement capex in the current period is expected to be 71% higher than the regulatory allowance for the period.

[38] Probability of Exceedence.

Figure 6.3: Reinforcement Historical Expenditure versus Benchmark



Source: SP AusNet

Reasons for historical performance

Clause 3.10 of the RIN requires SP AusNet to explain the reasons for the historic performance compared to the ESC's forecast in the 2006 EDPR. In broad terms, the reasons for the higher expenditure are:

- demand growth was considerably higher than forecast, the rate of increase in actual demand from 05/06 summer to the 2008/09 summer has been 6.7% per year, significantly higher than the 3.7% per year forecast in the 2006 EDPR Determination; and
- project costs were 37.5% higher than forecast.

To calculate the indicative contribution of each of these factors to the total variance, SP AusNet has compared the actual works program being undertaken in the current regulatory control period with the project list underlying the 2006 EDPR Determination expenditure benchmarks. The cost of projects forecast and not undertaken was netted off from the cost of projects where the scope was expanded (that is greater capacity was added) or new work has been advanced into the current regulatory control period. The net additional expenditure due to reinforcement amounted to $45 million accounting for approximately 56% of the difference between actual and benchmark reinforcement capex.

The remainder of the difference is due to increases in input costs which have far exceeded those underlying the 2006 EDPR Determination benchmarks. This means that higher input costs amount to 44% of the difference between actual and benchmark reinforcement capex. Input cost escalation affects all capex categories and is discussed further below in this chapter.

6.6.3 Reinforcement Capex Drivers, Inputs and Forecasting Assumptions

The key drivers or inputs of reinforcement capex, as required by Clause 3.1(b)(ii) and Clause 3.3(a)(i) of the RIN are:

- forecasts of peak demand;
- forecasts of customer numbers;
- unit costs and labour and materials escalators;
- equipment ratings and standards; and
- network planning standards.

These drivers are discussed below. Where applicable, details of assumptions underpinning SP AusNet's reinforcement capex forecasts are also set out below. This information is provided in accordance with the requirements of Clauses S6.1.1(3) and (4) of the NER.

Following the description of the reinforcement capex drivers, an explanation of the methodology used to develop the capex forecast is provided, in accordance with the requirements of Clause S6.1.1(2).

Forecasts of Peak Demand

Peak demand on SP AusNet's network occurs when ambient temperatures are at their highest in summer due to air-conditioner usage. Winter loading peaks occur on a small part of the SP AusNet network, notably those associated with the ski resorts in north-east Victoria.

As already noted, SP AusNet engaged NIEIR to prepare demand forecasts at terminal station level (the connection points to the transmission system). SP AusNet used these forecasts and then considered the diversity of load at substation level to derive a non-coincident load growth forecast at substation level.

SP AusNet is forecasting a growth rate of 4.4% at zone substation level, which is consistent with independent forecasting of 4.2% at terminal station level, taking into account diversity at the zone substation level. The maximum demand forecasts are discussed in detail in Chapter 5.

Demand Management Solutions

Demand side management initiatives are not expected to significantly reduce network peak demands within the forthcoming regulatory control period. However, at the margin, particularly on the rural network, several non-network initiatives are expected to allow capex to be deferred.

Information on capex-deferring non-network initiatives is provided in detail in Chapter 8. The table below provides a summary of these initiatives.

Table 6.4: Capex projects to be deferred by non-network solutions

Program	Non-network solution	Benefit	Capex deferral (2010 $ million)	Deferral period
Feeder Upgrade on Benalla-Euroa 22 kV line	Distributed Generation at Euroa	Network support to manage demand	7.5	3 years
Feeder deferral at identified sites: • New WN8 • New SMR7 • New WYK13 • New BDL10 • New WN9	Generation support / embedded generation / voluntary load curtailment	Network support/ load shifting to manage peak demand	14.5	2 years
Reconductor the Wangaratta-Myrtleford line	Adjust hot water time clocks and meters across constrained regions.	Load shifting to manage peak demand	6.1	5 years
Total			**28.1**	

Where a non-network solution for a particular location has been identified, this has been explicitly taken into account in SP AusNet's forecasts of reinforcement capex. If the necessary non-network expenditure is disallowed, this capex will need to be added back into the total capex forecast. The operational expenditure costs associated with the non-network solutions are discussed in Chapter 7.

Time of use Tariffs

The following two major changes to SP AusNet's existing tariff structure are be introduced during 2010 and 2011 respectively:

- a Time of Use tariff for residential and small commercial customers (rolled out concurrently with the AMI meters); and
- a 'Critical Peak Demand Price' for customers consuming more than 160 MWh per annum.

In combination, these new tariffs are expected to have a material effect on demand growth on SP AusNet's network. The Critical Peak Demand Price will have an immediate impact on peak demand. However, it should be emphasised that the effects from the Time of Use tariff for residential and small commercial customers will be felt more heavily towards the end of the forthcoming regulatory control period as the penetration of AMI meters becomes significant.

The demand forecasts have taken into account the effect of time of use tariffs on peak demand. The tariffs have the potential to reduce peak demand quite substantially, saving SP AusNet network peak summer demand 16.8 MW by 2019.

SP AusNet has assessed the effect of introducing a Critical Peak Demand Price, and this is discussed in Chapter 5. The effect on peak demand at each zone substation has been estimated and this is accounted for in energy at risk projections. The aggregate estimated effect is a saving in the peak summer demand of 76 MVA per annum from the commencement of the forthcoming regulatory control period.

No capex deferral savings have been identified in relation to time of use tariffs for the forthcoming regulatory control period. This is because the reduction in peak demand at each zone substation is small relative to the load at risk and so all augmentation proposals will still need to be implemented.

Forecasts of Customer Connections

Customer connections to SP AusNet's network are most significantly associated with the development of the urban growth corridors on the northern and eastern fringes of Melbourne. Accordingly disaggregation of customer connections forecasts on a locational basis is necessary.

For the forthcoming regulatory control period, customer connections are forecast to average 13,596 per year (or 2.1% per year). The forecasts have been provided by NIEIR, in conjunction with the provision of peak demand and energy consumption forecasts.

The customer connections forecast is discussed in detail in Chapter 5.

Unit Costs and Labour and Materials Escalators

Input costs (i.e. unit costs and labour and materials escalators) have been a significant contributor to the variance between forecast and actual reinforcement capex in the current regulatory control period, as discussed in section 6.6.2.

For the forthcoming regulatory control period SP AusNet has forecast input cost escalation based on a study conducted by SKM on materials and equipment costs and a report provided by BIS Shrapnel in relation to labour costs for the Victorian distributors.[39]

Input cost increases are discussed in more detail below in section 6.15 of this chapter.

Equipment Ratings and Standards

The network's capacity to deliver electricity is based on:

- the maximum permissible operating temperatures of the network assets, as determined by the various ratings and standards; and
- the assumed ambient temperatures at which the assets are operating at peak load. As such, network capacity is lowest during high ambient temperatures.

An important aspect of ratings is the ambient temperature assumption.

[39] SKM, Victorian Distribution Network Service Providers Annual Material Cost Escalators 2010 – 2015. 11 November 2009.

The design rating for plant and equipment is based on a reference maximum ambient temperature. For most of the network, which is summer peaking, this is a summer maximum ambient temperature assumed to be 35°C for planning purposes. This value has been based on long term historical temperature data. SP AusNet has not altered this assumption for the development of reinforcement capex in the forthcoming regulatory control period.

However SP AusNet notes that if the predicted effects of climate change occur over the forthcoming regulatory control period, a change to the maximum ambient temperature assumptions for equipment ratings may become necessary in the future.

SP AusNet is proposing several studies to investigate this issue as part of its opex proposal in response to recommendations in the AECOM report on the impacts of climate change.[40]

SP AusNet presently bases its equipment rating on:

- established standards such as AS2374.7 – 1997 'Loading Guide for Oil Immersed Power Transformers';
- legislative standards such as Electricity Safety (Network Asset) Regulations 1999, regulation 13 covering minimum ground clearance and the associated maximum thermal operating temperatures;
- equipment manufacturer recommendations; and
- collective industry experience.

Detailed discussion of SP AusNet's equipment ratings is provided in the engineering support document *AMS 20-12 Capacity* submitted with this proposal.

Network Planning Standards

SP AusNet has established planning standards based on a probabilistic planning approach. For the SP AusNet network load profile, probabilistic planning techniques provide a risk management approach that facilitates the delivery of the best economic outcome to customers.

At many locations in the network the extreme peak summer demand occurs for only about 50 hours annually during the afternoon and evening of five to ten very hot days each summer, which is less than 1% of time per year. It is efficient to adopt a risk management approach to network loading and capacity given the extremely 'peaky' load profile.

Description of Planning Approaches

The sub-transmission system is designed to provide built in redundancy. Therefore, most of the 66 kV sub-transmission lines are arranged in loops where both ends of the line are connected to transmission connection assets at a terminal station. Zone substations within the loop supply distribution feeders (typically 22 kV) and have multiple transformers.

The N-1 rating is the capability of the substation or loop upon an outage of the most critical item. If an underlying N-1 rating design is maintained, overloading is only possible if an outage occurs at an inopportune time (for example, at higher than 50% POE maximum demand day or where there are already other plant outages).

[40] AECOM, *Assessment of Climate change Impacts on SP AusNet Electricity Network for 2011-2015*, summary of recommendations on pp. x-xviii.

22 kV feeders and distribution substations are not designed with redundancy features. Overloading of substations can occur with system normal (N rating) configuration for short periods during hot weather conditions and when planned or unplanned maintenance in being undertaken.

Under a deterministic planning approach, forecast demand growth resulting in N-1 and N ratings being exceeded is considered a trigger for an augmentation. In contrast, a probabilistic planning approach allows the risks of exceeding the N-1 rating on the sub-transmission network and the N rating for distribution network transformers to be balanced against the costs of augmenting to ensure those ratings are maintained.

How SP AusNet Applies Probabilistic Planning

Where redundancy is limited at 22 kV feeder level, a more deterministic planning standard is applied, but this approach considers management of outages and load transfers between 22 kV feeders. At distribution substations and downstream, investment is determined by maximum permissible loadings on distribution substations, and quality of supply for customers.

The key calculation underlying probabilistic planning is to determine when the cost to customers of unserved energy exceeds the cost of a capacity augmentation to enable the unserved energy to be supplied. The cost to customers is determined by the following process:

- the amount of energy at risk (that is, the energy that would not be supplied) in the event of an outage is identified;
- the expected unserved energy (in MWh) is calculated by multiplying the amount of energy at risk by the probability of the outage occurring; then
- the cost is calculated by multiplying the expected unserved energy by the Value of Customer Reliability (VCR) of $55,000/MWh, as determined by AEMO (formerly VENCorp)[41]. This is an average figure, therefore, for planning purposes SP AusNet uses the VCR specific to each terminal station based on the customer mix.

The cost of the expected unserved energy can then be compared with the cost of additional capacity (or other options that would reduce or eliminate the expected unserved energy) to provide an economic cost - benefit analysis.

SP AusNet applies the following planning standards.

66 kV Lines Planning Standards

The 66 kV network is mostly configured as loops with two (or sometimes three) supplies to individual zone substations. A 66 kV line trip (resulting in N-1 system condition) will result in increased loading on the remaining line/s. An augmentation is warranted when one of following two criteria is met:

- if loading on a 66 kV line would be above 110% of the line rating under an outage condition (N-1) at peak demand. The 10% over-rating capacity is assumed available due to the influence of wind speeds typically experienced on extreme demand days. Higher utilisation would result in an unacceptable risk of further failure and loss of the whole 66 kV loop. The augmentation is triggered when potential loading is forecast to exceed 110% of the N-1 rating. Supporting economic justification is developed; or

[41] VENCorp *Annual Planning Report 2009*, June 2009, section 6.2.1, page 113.

- if a 66 kV loop would undergo voltage collapse resulting in loss of supply to the whole loop under an outage condition (N-1) at peak demand.

In summary therefore, SP AusNet plans to augment 66 kV lines when potential loading is forecast to exceed 110% of the N-1 rating, or where augmentation will prevent voltage collapse.

Zone Substations Planning Standards

Most zone substations have multiple transformers to allow the station to operate at or close to an N-1 rating at times of peak demand. A transformer outage will result in increased loading on the remaining transformers. If the loading of the transformers exceeds the N-1 rating, load is shed to restore the system to an N-1 condition. In some circumstances, including those situations where the zone substations have only one or two transformers, load can also be transferred between zone substations in the event of an outage.

Therefore, planning of zone substations considers the expected value of lost load under outage conditions. The augmentation is triggered when the expected value of lost load due to the second outage (determined as per the preceding section) is forecast to exceed the cost of the augmentation to capacity.

SP AusNet plans to augment zone substations when the expected value of lost load is forecast to exceed the cost of the augmentation to capacity.

22 kV Feeders Planning Standards

SP AusNet's 22 kV feeders are not designed with built-in redundancy as they operate in a radial configuration. Nonetheless, the 22 kV network in urban areas is generally able to be reconfigured, and load transfers between feeders can be performed to successfully manage the network during outages. 22 kV feeders have a defined line rating, and loading at times of peak demand should be kept below this value. The rating is based on the safe operation of the network (most notably minimum line clearances). Overloads will rapidly cause safe operation standards to be breached and increase the risk of failure.

SP AusNet plans to augment 22 kV feeders when demand is forecast to result in feeders operating above 100% of their rating.

Distribution Transformers Planning Standards

Australian Standard AS 2374.7 – 1997 "Loading Guide for Oil Immersed Power Transformers" recommends that distribution transformers should not be operated above 150% of nameplate rating. SP AusNet monitors distribution transformer loading through a number of methods including load recorder evidence (which have confirmed that loadings above 180% of nameplate rating will cause the failure of the transformers).

SP AusNet plans to augment distribution transformers when demand is forecast to result in transformer loading exceeding 150% of nameplate rating.

Other considerations

In addition to the drivers and inputs of reinforcement capex discussed above other factors are monitored as indicators of the operating margin available within the network. These factors include:

- energy at risk;
- network utilisation; and

- loading-related failures.

The energy at risk at zone substation level (energy passed through the 66/22 kV zone substation which is above the firm or N-1 rating of the transformers) is an indicator of the level of risk across the distribution network. Energy at risk is an important consideration in probabilistic planning.

The utilisation of the network is an indicator of the operating flexibility available within the network. Overall network utilisation is taken into account in planning as maintaining some operating margin to substation and feeder rating is desirable to ensure the operability of the system can be maintained (through the use of load transfers between feeders and substations when required due to outages).

Customer reliability is linked to the utilisation of the 22 kV network. Feeder faults may be managed by transferring the 'healthy' part of a faulted feeder to an adjacent feeder. As well as proximity, the ability to transfer is dependent on the loading of adjacent feeders. If an adjacent feeder is already 100% loaded, such a transfer cannot be carried out and customers will remain off supply until any necessary repairs are completed. Therefore, the level of USAIDI directly attributable to high loading or overloading is also an indicator of the operational flexibility of the network.

Detailed discussion of these indicators, including presentation of trends, is provided in the engineering support document *AMS 20-12 Capacity*. The indicators support SP AusNet's assessment that in key areas of the network there is no longer the capacity to:

- meet projected demand growth through the deployment of short term solutions (such as increased asset utilisation);. or
- ensure planning standards are met in a reasonable time frame.

Given the rate of growth of forecast peak demand, further significant growth in energy at risk and utilisation is forecast over the forthcoming unless substantial reinforcement investment is undertaken.

SP AusNet notes that the proposed reinforcement investment program also takes into account environmental obligations such as noise abatement, management of hazardous materials, bunding and land use restrictions.

6.6.4 Methodology Used to Develop Capital Expenditure Forecast

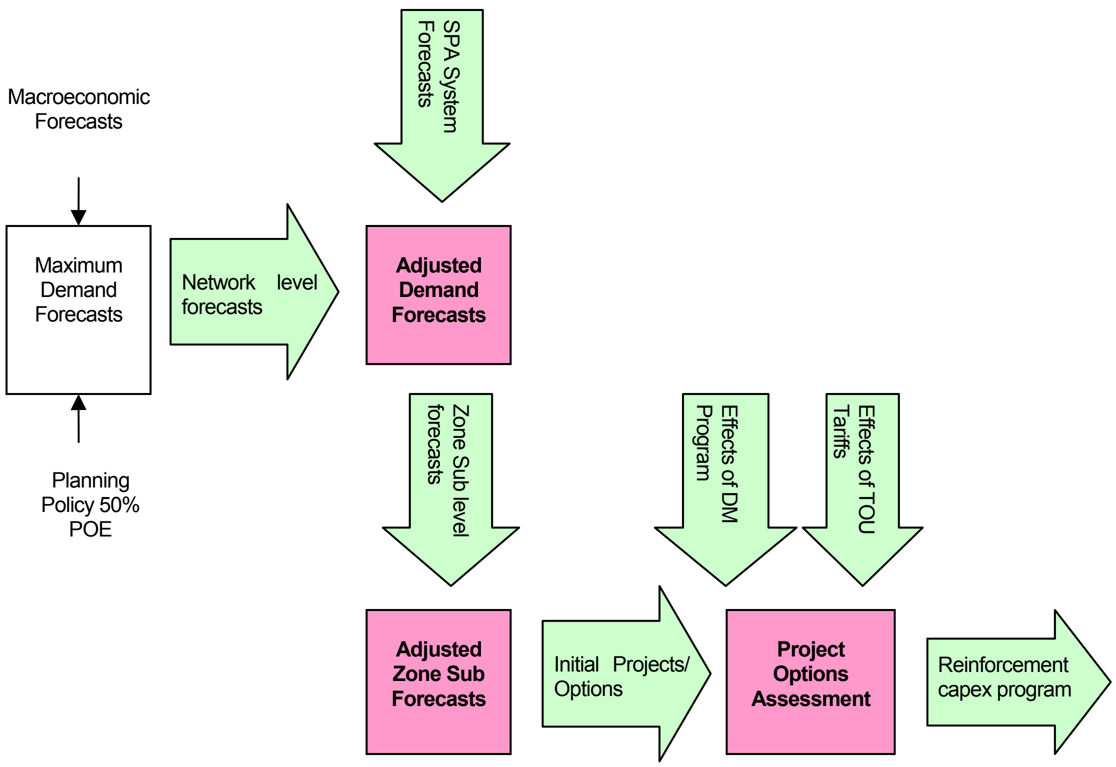
SP AusNet's approach to planning for network reinforcement is documented in the Distribution Network Planning Guide. As described in the planning guide, SP AusNet develops its forecast of reinforcement capital expenditure by:

- determining the capacity of the network using the ambient temperature assumptions and equipment ratings and standards outlined in section 6.6.2;
- forecasting demand at both the zone substation and individual feeder level over a 10 year horizon. These forecasts include normalisation for weather (to determine an appropriate starting point for forecasting future growth by using 50% POE forecasts), the effects on demand of the demand management solutions (outlined in Chapter 8 and section 6.6.3) and the effects on demand of time of use tariffs;
- applying these forecasts, determining for each zone substation and individual feeder when the existing rating is no longer sufficient to meet SP AusNet's planning standards;

- conducting analysis to determine the most appropriate solution to be implemented to ensure planning standards are met. As a general principle, projects are justified when capital costs are exceeded by the value of unserved energy.

The figure below depicts SP AusNet's methodology for developing reinforcement capex forecasts.

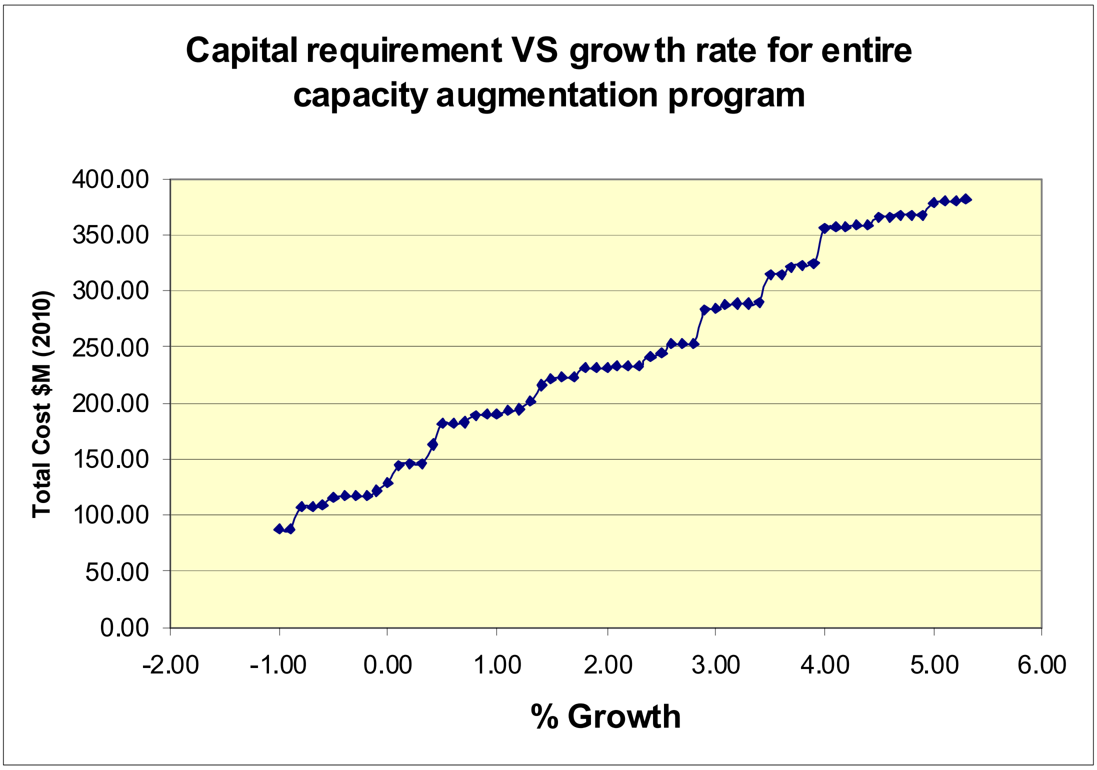
Figure 6.4: Methodology for Developing Reinforcement Capex Forecasts



Source: SP AusNet

The analysis undertaken in accordance with this methodology can also be repeated for alternative demand growth scenarios to generate capex requirements for a range of demand growth scenarios. The figure below illustrates the capex required over a range of demand growth scenarios. From this, it can be observed that considerable capex is justified in response to growth experienced in 2009 and forecast for 2010 regardless of the demand growth forecast for the forthcoming regulatory control period.

Figure 6.5: Capex forecasts in relation to demand growth scenarios



Source: SP AusNet

6.6.5 Forecast Reinforcement Capex

In total, the proposed reinforcement capex is $404 million over the forthcoming regulatory control period. This represents a 109% ($210 million) increase on the current regulatory control period's forecast expenditure. It is also noted that SP AusNet's actual reinforcement capex in the current regulatory control period exceeded the allowances provided in the 2006 EDPR Determination by approximately $80 million. The increase in reinforcement capex requirements in the forthcoming period is driven by the following key factors:

- peak demand growth has been greater than expected in the current regulatory control period. The rate of increase in actual demand from 05/06 summer to the 2008/09 summer of 6.7% per year has been significantly higher than the 3.7% per year forecast;
- peak demand growth is expected to continue at a rate of 4.4% per year (50% POE) for the forthcoming regulatory control period;
- the growing levels of energy at risk and network utilisation are unsustainable and require stabilisation;
- unavoidable cost escalation for augmentation works has resulted in higher project costs in the current regulatory period, and these costs are expected to continue to increase in real terms (as noted in further detail in section 6.15); and

- reduced capacity being available within the network due to peak demand shifting from overnight hot water to summer afternoon in certain areas.

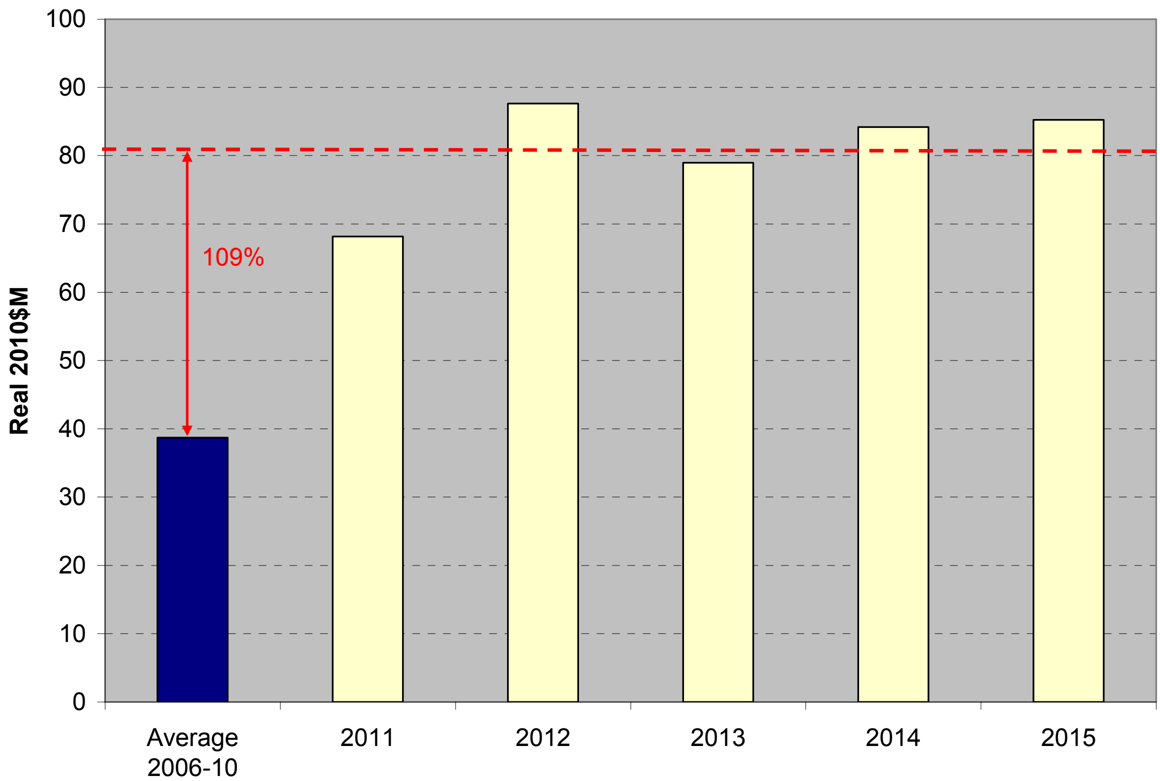
The reasons for the required increase in reinforcement capex from the current regulatory control period to the forthcoming period are set out in the discussion of investment drivers in section 6.6.3 above. This information is provided in accordance with the requirements of Clause S6.1.1(7).

The table and figure below show SP AusNet's forecast reinforcement capex.

Table 6.5: Forecast Reinforcement Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	68.2	87.6	78.9	84.2	85.3	404.2

Figure 6.6: Forecast Reinforcement Capex Annual Average



Source: SP AusNet

6.6.6 Key Support Documentation

In accordance with the requirements of the RIN, and Clause S6.1.1 of the NER, SP AusNet has supplied the AER with:

- A Report on demand forecasts;

- SP AusNet AMS 20-01 Asset Management Strategy together with all detailed documents referenced in AMS 20-01';
- SP AusNet support document AMS 20-12 Capacity;
- SP AusNet Distribution Network Planning Planning Standards and Guidelines';
- SP AusNet business cases for projects above the $5 million threshold in accordance with the provisions set out in the RIN and clause 6.5.7(b)(4) of the NER;
- RIN Templates setting out detailed historic and forecast demand information; and
- all relevant support material referenced in SP AusNet's Support Document Register.

6.6.7 Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the forecast of reinforcement capex complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.7 Load Movement Capex

As already noted, this category of capex is not relevant to SP AusNet's network and, therefore, is not addressed in this proposal. Only Citipower proposed and had approved capex in this category for the 2006 EDPR Determination.

Accordingly, Section 3.4 of the RIN is not applicable to SP AusNet.

6.8 Reliability and Quality Maintained Capex

This capex category includes expenditure relating to the replacement of distribution network assets that have reached the end of their economic lives, the primary purpose of which is to maintain network reliability.

The primary purpose of SP AusNet's reliability and quality maintained (asset replacement) capex program is to meet the requirements of Clauses 6.5.7(a)(3) and (4) of the NER. Nonetheless, as already noted, because of the impact of this program on public safety, Clause 6.5.7(a)(2) is also relevant. For the reliability and quality maintained capex category, these clauses have been interpreted to mean:

- maintaining system security consistent with historical performance achieved in the current regulatory control period (Clauses 6.5.7(a)(3) and (4));
- maintaining system quality consistent with historical performance achieved in the current regulatory control period (Clauses 6.5.7(a)(3) and (4));
- maintaining public safety consistent with all regulatory obligations (Clauses 6.5.7(a)(2), (3) and (4)); and
- maintaining reliability at levels consistent with historical performance as expressed in the proposed STPIS targets (Clauses 6.5.7(a)(3) and (4)).

This section of the proposal and the accompanying supporting information complies with the requirements of:

- Section 3.5 of the RIN and Sections 3.1 and 3.2 where these apply to reliability and quality maintained capex; and
- Clause S6.1.1 of the NER.

As explained above, asset replacement is undertaken primarily for public and worker safety, system security and reliability reasons. A particular asset replacement program will almost certainly have all these factors as a driver to some extent. This results in capex allocated to both reliability and quality maintained, and environmental, safety and legal categories being subject to an identical forecasting methodology, although the weighting of various factors will vary.

The forecasting methodology applying to the reliability and quality maintained capex category is described in this section, however that methodology also applies to the environmental, safety and legal category.

Where the major driver of an asset replacement program is safety, environment or security (legal), it is allocated into the environmental, safety and legal category. Where the major driver is not related to these factors, the asset replacement program remains in reliability and quality maintained category. The categorization of the asset replacement programs into safety, environmental and legal is set out in section 6.5 of this chapter.

As noted in section 6.5, for forecasting purposes only, SP AusNet has departed from the previous approach taken in the 2006 EDPR Determination which was to categorise projects with the aim of complying with the Distribution Code as 'quality improved'. This expenditure is better categorised as investment to 'maintain' the network to required quality standards. Therefore, for the forthcoming regulatory control period SP AusNet has categorised expenditure to comply with the Distribution Code as 'quality maintained' capex.

6.8.1 Scene setting

Prioritisation is fundamental in an ex-ante regulatory regime where a business is expected to respond efficiently to actual events during a regulatory control period within the constraints of its revenue allowances and the compliance requirements set by applicable health, safety, environmental, technical and other regulations. While in theory a business is free to spend more than its allowance, the global financial crisis has starkly illustrated that funding in the real world may, from time to time be subject to stringent rationing.

Against this backdrop, SP AusNet expenditure priorities are, in broad terms as follows:

- safety and bushfire programs;
- customer connections;
- network reinforcement; and
- customer reliability.

During the current regulatory control period, SP AusNet's asset replacement programs have balanced:

- undertaking necessary capex to ensure strict compliance with its safety and bushfire compliance obligations along with the much higher funding demands of reinforcement and customer connection capex; and
- responding to the short term funding constraints resulting from the global financial crisis.

Over the course of the current regulatory control period, SP AusNet has succeeded in funding an extra 33% of capex above the 2006 EDPR Determination allowance (including reliability improvement expenditure) in the face of the most hostile funding environment that private Australian regulated utilities have faced. This outcome has been achieved in spite of the fact that energy volumes have been lower than forecast at the last review (thus providing no revenue "hedge" against the higher capex funding demands that have been met by the company).

The first consequence of these circumstances is that prioritisation has resulted in (non safety related) asset replacement volumes being below those forecast on the 2006 EDPR Determination, particularly at zone substations. As a result, there has been a consequent increase in load at risk at zone substation level. However, the actual reliability performance of SP AusNet's network has not declined over the current period.

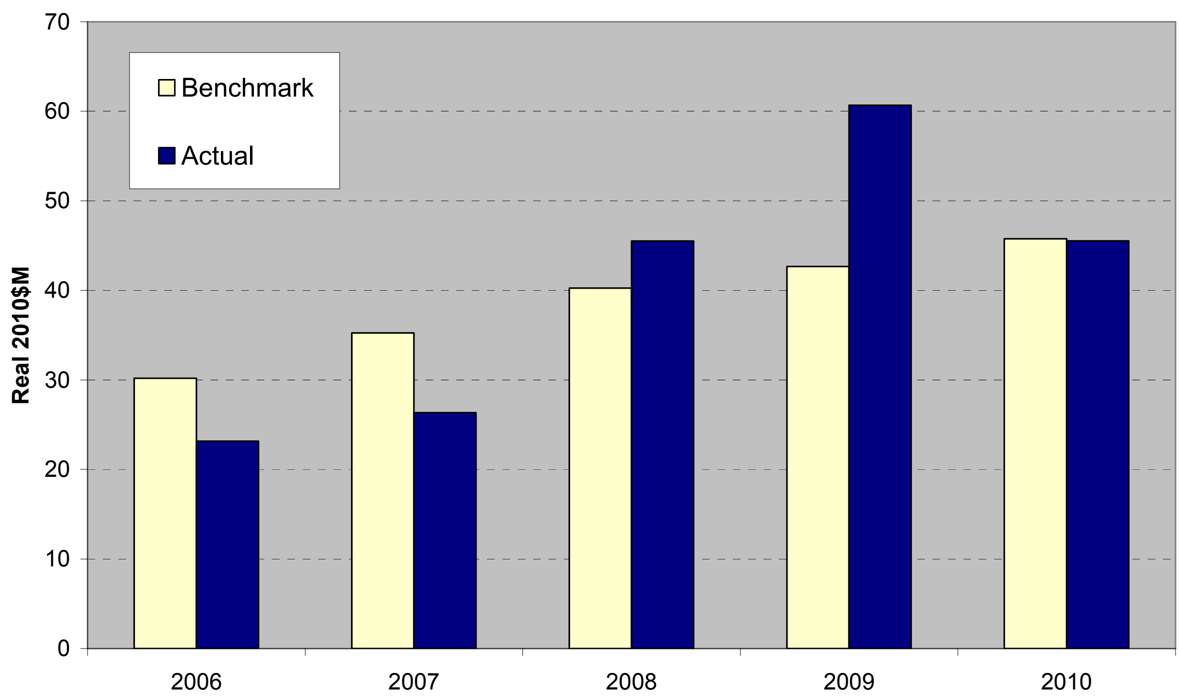
Accordingly, asset replacement volumes for the forthcoming regulatory period have been established using best practice risk models. For most assets a condition based replacement strategy is used with extensive inputs from inspection programs, with very little age based replacement except in critical locations. The resulting options analysis produces a prudent and efficient replacement strategy for each major asset class.

The results of SP AusNet's analysis indicate that significant increases in asset replacement volumes (both safety and non-safety related) will be necessary in the forthcoming regulatory control period to address the expected deterioration of the network as increasing numbers of assets reach end-of-life.

6.8.2 Historical Performance

Historical expenditure on maintaining the reliability and quality of the network is forecast to be $201 million (real 2010 $). This is $7 million, or 4%, higher than the allowance set in the 2006 EDPR Determination (see figure below).

Figure 6.7: Historical Expenditure versus Benchmark



Source: SP AusNet

Reasons for historical performance

Clause 3.10 of the RIN requires SP AusNet to explain the reasons for the historic performance compared to the ESC's forecast in the 2006 EDPR. In broad terms, the reasons for the variations are:

- volumes of replacement were lower over the current regulatory period than forecast in the 2006 EDPR Determination; and
- project costs were considerably higher than forecast. Section 6.15 discusses unit rates in more detail.

6.8.3 Drivers of Reliability and Quality Maintained Capex Forecasts

In accordance with the requirements of Clause 3.1(b)(ii) and Clause 3.5(a)(i) of the RIN, the key drivers of reliability and quality maintained capex forecasts are:

- safety obligations, especially those relating to protection of the public from electric shock and bushfire risk;
- compliance obligations with regard to secondary, remote (non-IT) SCADA and communication assets;
- deterioration of the condition of network assets; and
- information from asset inspection programs.

These are discussed in more detail below.

Safety Obligations

SP AusNet must comply with the following key pieces of Safety Legislation and regulations over the forthcoming regulatory control period:

- the Electricity Safety Act 1998;
- Electricity Safety (Bushfire Mitigation) Regulations.
- Electricity Safety (Management) Regulations; and
- Electricity Safety (Line Clearance) Regulations.

The process of refurbishing and replacement of assets that affect public safety and bushfire ignition are audited by ESV.

Specifically, the Electricity Safety Act 1998 requires that SP AusNet's replacement and refurbishment of assets in public places must not:

> *"[have] the potential to significantly increase the overall level of risk to the safety of any person or property arising from the supply network"*
>
> *[have] the potential to significantly influence the levels of specific risk to the safety of any person or property arising from the supply network."* [42]

Therefore, the primary objective of SP AusNet's asset management plan is the safe operation of the distribution network in accordance with all applicable regulatory compliance obligations. This entails the control and prevention of the escape of electrical energy to ensure the safety of

[42] See Part 10, Division 2, section 106(4) of the Electricity Safety Amendment Act 2007 (Vic).

customers, the public, employees and property. In the event of a failure of control, outcomes such as fire and electric shock may arise.

SP AusNet's Bushfire Mitigation Management program and Electrical Safety Management Scheme (ESMS) facilitate the identification and quantification of network incidents that present a risk to safety. SP AusNet's ESMS for the forthcoming regulatory period will be submitted to the ESV for approval in December. This ESMS meets the new legislative requirements introduced in 2009. The expenditure forecasts presented in this Proposal reflect the costs of delivering the ESMS.

With regard to providing a safe and healthy workplace for employees and contractors, SP AusNet's Occupational Health and Safety Management System (OHSMS) is certified against the AS/NZ 4801 standard and compliance is checked by regular internal and external audits.

SP AusNet's core program for asset replacement and refurbishment involving assets that have the greatest exposure to the public is based primarily upon asset condition, which is determined through cyclic line inspection and testing programs.

SP AusNet has developed an Enhanced Network Safety Plan to provide a co-ordinated approach to the optimised management of network assets and programs that deliver enhanced safety for the public and employees. An objective of that Plan is to reduce the annual number of network related incidents reported to ESV by 20% per regulatory period in line with the AMS and the ESMS principle of reducing risk 'As Low As Reasonably Practicable' (ALARP).

Changes to ESMS Obligations

During the current regulatory control period, the ESV accepted the application of a risk based approach to safety management in areas where literal compliance was not possible.

An important development in safety regulation is the expected replacement of the Network Asset Regulations with a 'safety case' approach by the ESV at the end of 2009. This formalises the acceptance of the risk based approach.

Over the 2011-2015 regulatory period, new Electricity Safety (Management) Regulations, introduced under the Electricity Safety Amendment Act 2007, which control network business ESM Schemes (ESMS) will provide increased opportunity for SP AusNet to embrace a form of ESV approved risk management philosophies to manage network safety outcomes as low as reasonably practicable.

As noted above, SP AusNet will submit its revised ESMS to ESV by the end of December 2009, with a final approval expected by May 2010. A key part of that approval process will be the completion of the ESV conductor audit to be completed in February 2010.

SP AusNet will be required to agree to implement over the forthcoming regulatory period any changes to the lodged ESMS proposed by the ESV prior to the ESV's approval being granted.

Any expenditure changes that result from the ESV's approval process will be submitted prior to, or in response to the AER's Draft Decision. In the event that approval of the ESMS is delayed to a time when the AER is unable to consider revisions to expenditure forecasts for the purpose of this review, SP AusNet has assumed it would be covered by the standard 'regulatory change event' pass-through NER provision (see the discussion Chapter 13).

How safety is incorporated into the analysis

Safety is factored into the economic analysis for projects through modelled risks and costs, including actuarial costs. The overall capex forecasting methodology also takes into account SP AusNet's health and safety targets and the corporate risk management analysis.

Compliance Obligations for Secondary Systems, Remote SCADA and Communications

Well functioning protection, SCADA and communication systems are a core requirement to meet the security and reliability standards. These systems embody key parts of what is referred to as 'smart network' functionality. As such, the secondary, SCADA and communications systems are governed by overlapping compliance requirements; including:

- standards and compliance obligations in the NER and AEMO (formerly VENCorp) Operating Agreement;
- the AEMO (formerly NEMMCO) Standard for *Power System Data Communications*; and
- physical and cyber security requirements (*802.1x Protocol*).

In addition, the current remote SCADA system is not configured to take advantage of the new SCADA IT platform put in place for SP AusNet's three networks (see the discussion in section 6.11 below for further details). This results in:

- several substations currently not being under SCADA monitoring and control;
- the system not meeting the latest SCADA standard (IEC Standards 61850);
- cyber security risks on the older RTU systems; and
- lack of vendor and maintenance support for outmoded systems.

Deterioration of the Network

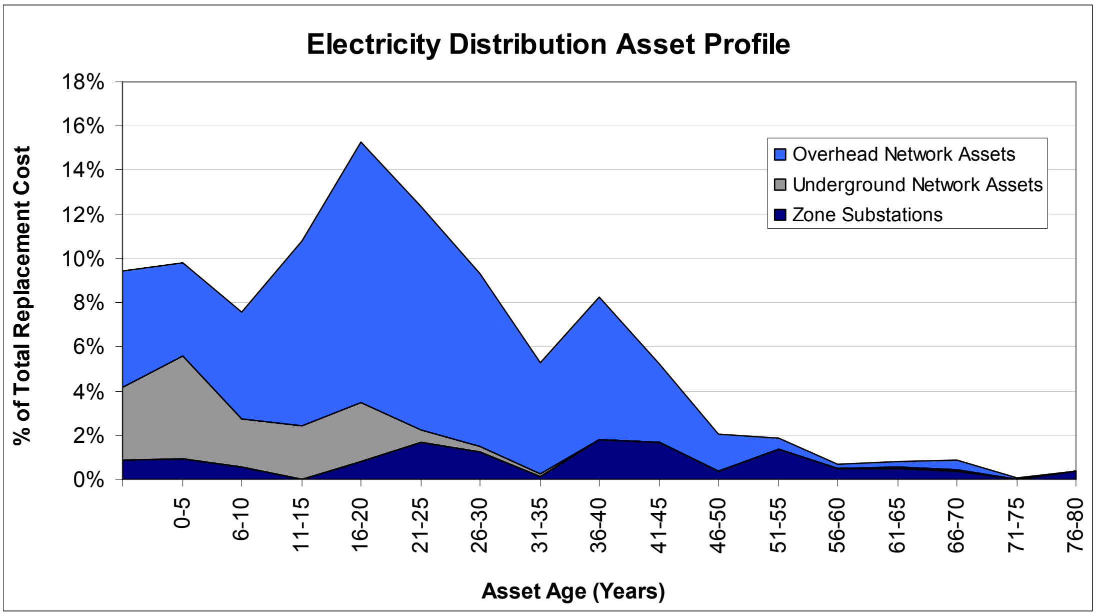
SP AusNet replaces assets based on both risk and condition as appropriate. It does not replace based on age alone. Nonetheless, there is obviously a strong correlation between asset age and condition as older assets operating near their technical design limits, present higher risks to network performance, the environment and health and safety through functional limitations and progressive deterioration from environmental factors, loading cycles and operating cycles. Older assets also tend to lack functionality that can limit their use or integration with new systems and technology. Therefore, the age profile of network and the various asset fleets is an important input when forecasting volumes of condition based asset replacement.

Careful management of the replacement of aging asset fleets is required to ensure that whole-of-life costs are minimised, having regard to the trade-offs between:

- the increased costs associated with maintaining obsolescent unsupported plant, equipment and systems;
- the increased costs incurred if aging but, nonetheless serviceable assets are replaced prematurely;
- the risks associated with the operation of the asset and how this changes over time; and
- the costs of resources to meet expected replacement work associated with the replacement of large aging asset fleets (that is, benefits from smoothing peaks in replacement profiles).

Weighted Average Remaining Life (WARL) is a broad indicator of the sustainability of asset management strategies. The figure below shows the service age profile of key asset fleets.

Figure 6.8: Electricity distribution asset profile



Source: SP AusNet

From a replacement cost weighted perspective, the distribution network assets have an average age of 27 years.

The oldest asset category is zone substation assets with mean service life of 41 years (however the oldest assets have a service life of 80 to 90 years). In this category, 59% of expected engineering life has been consumed and only 21 years or 41% remains. This is of some concern as the failure of assets in these key installations can affect large numbers of downstream customers.

Underground cable and substation assets are becoming a significant component the total network as approximately 95% of new customer connections are via underground residential distribution networks. Here only 33% of expected engineering life has been consumed.

More detailed age profiles for each asset category and cohort is provided in the *AMS 20-01* submitted in support of the Proposal.

Inspection Cycles

Assets in public places

SP AusNet operates a continuous asset inspection process based on a combination of 3, 5 and 10-year cycles. The inspection cycles are statistically based on the time interval from when deterioration can be measured to when the asset fails. The serviceability criteria are set at the onset of mechanical or electrical failure. Assessments are undertaken by specifically trained personnel, whose work is subject to peer review and independent audit of both methodology and results. Replacement activity is determined by the volume of assets whose condition no longer meets the industry-established serviceability criteria. Remediation timeframes within the electronic asset management system (Q4) are short and well defined to ensure bush fire ignition risks are minimised prior to the annual declaration of the fire-hazard season.

The process of inspecting, maintaining, refurbishing and replacing assets, with public safety and bush fire ignition potential, is monitored and audited by Energy Safe Victoria.

Assets in zone substations

Assets located in zone substations are visually inspected on a combination of weekly, monthly, quarterly and six-monthly cycles. Thermal, ultraviolet, radio frequency and ultrasonic surveys are undertaken on annual cycles. These inspections and surveys are scheduled on the basis of the time interval from when deterioration can be measured to when the asset fails. Testing and analysis of results is undertaken by specifically trained personnel.

Preventative maintenance is undertaken on a combination of annual, 2-year, 8-year and 12-year cycles, or upon a combination of duty and number of operations as relevant. Preventative maintenance schedules are based on manufacturer's recommendations, industry experience and asset-condition and deterioration rates.

Support documentation

Preventative maintenance schedules are provided in SP AusNet's Plant Guidance Instructions.

The inspection schedules and deterministic serviceability criteria are documented in SP AusNet's Asset Inspection Manual.

6.8.4 Overview of Forecasting Methodology

SP AusNet's asset replacement strategies can be differentiated between those that relate to:

- assets which are in public places (for example, poles and lines) and, therefore, pose a risk to public safety (including indirectly via bushfire ignition consequences), and
- assets in secure private locations such as zone substations.

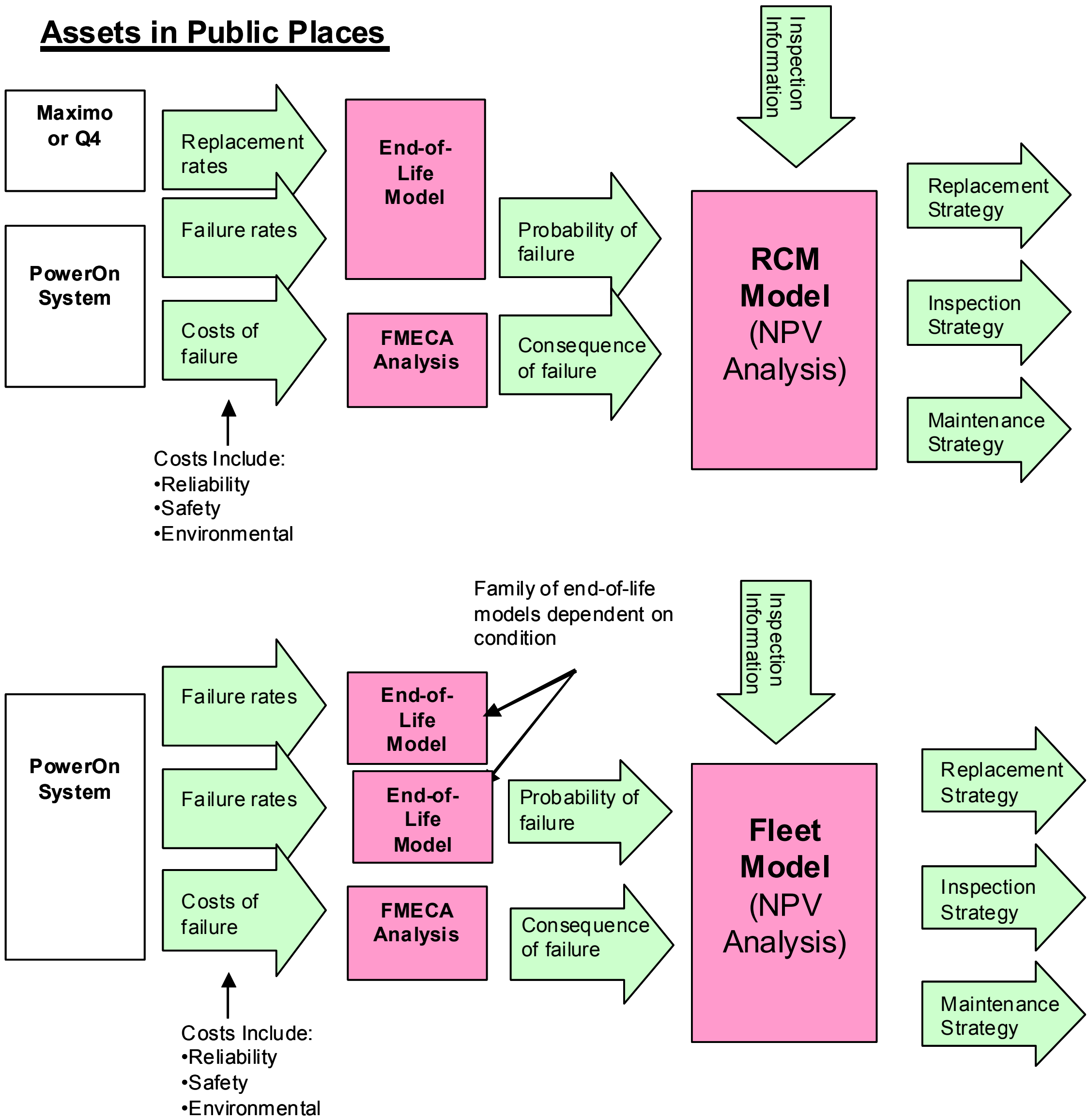
SP AusNet uses two closely related methodologies to match inspection, maintenance, refurbishment and replacement activities to the deterioration rates and failure rates of the increasing proportion of assets nearing the end of their service life. These are shown in the figure below.

The methodologies involve the following three steps:

- a calculation of the probability of failure – an end-of-life model is constructed using the probability density function of a normal distribution constructed from the prevailing failure and replacement rates;
- a calculation of the consequences of failure – Failure Mode Effect Criticality Analysis (FMECA) is used to quantify how the equipment is expected to fail and consequences of failure for each class of asset; and
- an optimisation by cost and location of the resultant risk – by Reliability Centred Maintenance (RCM) or Risk models.

The methodology for each group of assets is discussed in more detail below.

Figure 6.9: Methodologies for Asset Replacement Analysis



Source: SP AusNet

Assets in Public Places

SP AusNet's forecasts of future refurbishment and replacement volumes for the numerous low cost assets, located in public places, commences with identification of the homogenous cohorts within each asset class.

Probability of failure calculation

An end-of-life model based on the probability density function of a normal distribution, is constructed for each asset cohort from the service age profile and the prevailing failure and replacement rates. Failure rates are established from records in the outage management system (PowerOn). Replacement rates are established from the asset management systems (Maximo or Q4).

Prior to use in forecasting future replacement volumes, the outputs of the end-of-life model are then:

- cross-checked against the industry expected life for the asset in question; and
- calibrated by being applied to historical periods. If the model is calibrated correctly it should produce forecasts for the historical period that match the actual failure rates experienced.

Consequence of failure calculation

As already noted, Failure Mode Effect Criticality Analysis (FMECA) is used to quantify the failure modes and consequences of failure for each class of asset. Consequences are established from records in the outage management system (PowerOn). Costs include:

- clean up and replacement (eg. capex and opex);
- reliability (eg. as set out in the AER STPIS);
- occupational health and safety (eg. injury as a result of electric shock); and
- damage to third party property (eg. bushfire property damage consequences).

Reliability centred maintenance models

The cost optimised RCM models embody an NPV analysis that identifies the most economic inspection, maintenance and replacement strategies for each class of asset from the following two broad generic strategies:

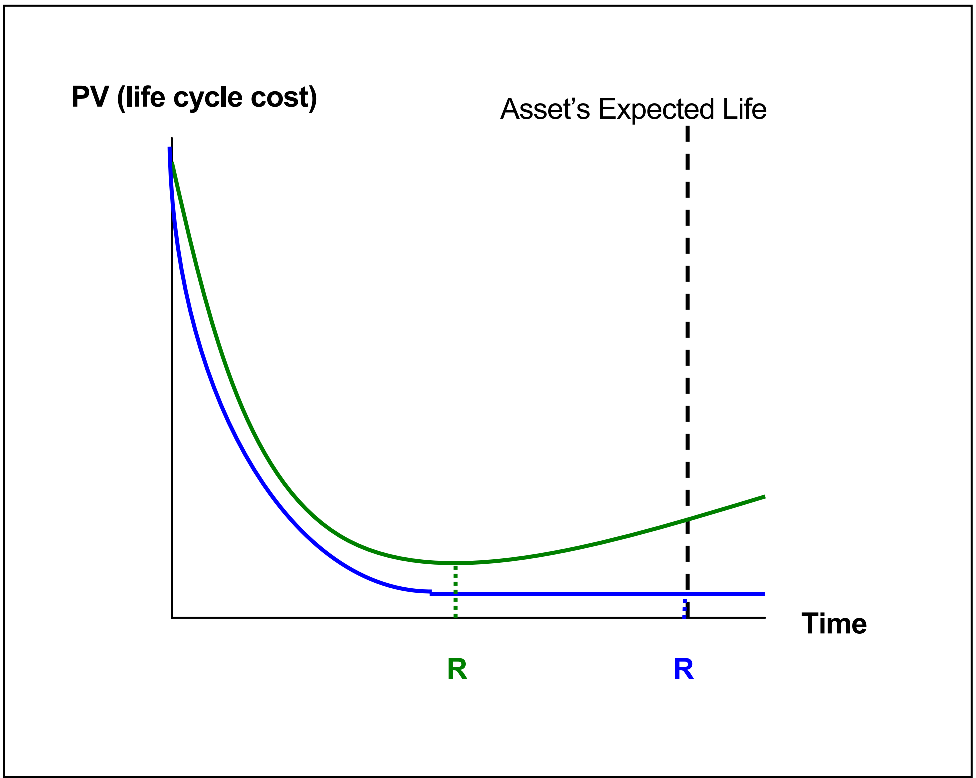
- replace-on-condition strategies – which accepts a limited amount of asset failures (as inspection is not perfect) and in the extreme will only replace a particular kind of asset on failure. For example, the vast majority of poles and cross-arms are replaced on condition as a result of the associated inspection program whereas assets such as fuses are allowed to fail before replacement; or
- age based or planned replacement strategies – used for a limited number of critical assets. For example, bus tie circuit breakers at zone substations.

This is demonstrated in the Figure below. The graph plots the present value (PV) of the cost of replacement of an asset over time. As the asset ages, the likelihood of failure increases, depending on the consequences of such a failure, two strategies can result.

The green curve shows an asset with a PV cost of replacement that declines to a minimum and then starts to rise again. This suggests the cost of the reliability and safety consequences of failure is high and the appropriate replacement strategy is early planned replacement (at the green R).

The blue curve shows an asset with a PV cost of replacement that declines to a minimum and then stabilises. This suggests the cost of the reliability and safety consequences of failure is counterbalanced by the benefits of delaying investment and the appropriate replacement strategy is to monitor via an inspection strategy and only replace once immanent failure is likely (replace-on-condition at the blue R or has occurred.

Figure 6.10: Replacement Strategies



Source: SP AusNet

Generally, the higher reliability, safety or bushfire consequences a particular asset failure would generate, the more likely a replace-on-time strategy will be optimal. Replace-on-condition is generally only acceptable where that failure presents low risks (low costs) to the public.

An important additional information source at this stage is inspection frequency (how many times an asset is inspected) and accuracy (does the inspection have a good probability of identifying a problem before failure occurs). If inspections have a good track record of identifying problem assets before they fail this allows a replace on condition strategy to be considered even when assets are in critical locations.

The consequences of asset failure to public safety (from electric shock) and bushfire ignition will result in a replace-on-condition strategy being undertaken for the majority of these assets.

As noted above, the process of refurbishment and replacement of assets that affect public safety and bushfire ignition is audited by ESV.

Assets in Zone Substations

Zone substations contain key high voltage assets that account for substantial load at risk at each station. The fundamental principle underpinning the management of these high-value assets is the stabilization of failure risk.

Risk models are used to quantify the risks associated with key high-value assets such as power transformers and circuit breakers. They are used to guide the specification of refurbishment and replacement actions.

Risk modelling must consider not only individual asset failure but also multiple combinations of asset failure. The impacts of outages on the community strongly drive the consequence calculation for these assets.

Probability of failure calculation

Establishing the individual probability of failure relevant to each individual asset within the fleet commences with the identification of cohorts and the assessment of the generic condition of the cohort. Information on failures, forced outages and unplanned maintenance is used to establish the generic condition relative to that of other cohorts. Assets within the cohort are then individually assessed for a particular failure, forced outage or unplanned maintenance history. A suite of standard end-of-life models is used to calculate the probabilities of failure for each individual asset. The fleet-risk model aggregates the probabilities of failure for cohorts and the overall fleet.

Prior to use in forecasting future replacement volumes, the outputs of the fleet risk models are then:

- cross-checked against the industry expected life for the asset in question; and
- calibrated by being applied to historical periods. If the model is calibrated correctly it should produce forecasts for the historical period that match the actual failure rates experienced.

Consequence of failure calculation

Consequences of failure are calculated from the costs of repair, safety impact, environmental damage, and collateral damage risk and reliability incentive penalties relating to the failure of each individual asset. Calibration is achieved by comparison to recent events in the network or in similar networks.

Risk models

A time series of the risk of failure is now calculated for individual assets, sub-fleets and the entire fleet of assets. The time series of failure-risk facilitates scenario analysis of refurbishment and replacement plans for individuals and groups of assets. Key outputs from the fleet-risk model include the relative risk ranking of assets and installations and the identification of individual assets whose annual risk of failure exceeds the funding cost of refurbishment or replacement. The fleet-risk model aids the specification of individual works and timing as well as optimising the overall volume of proposed works necessary to stabilize the fleet failure risk. Again inspection information is an important input.

Some use is then made of RCMCost and AVSim software to model the failure risks of asset classes and of combinations of assets in differing configurations at selected installations. This work is focussed on optimising larger zone substation projects where replacement activities is integrated with augmentation works having defined delivery schedules.

The relevant refurbishment or replacement strategy for each asset class is documented in the detailed plant strategies which underpin the Asset Management Strategy.

Economic Analysis

A high level NPV analysis is embedded in the RCM and fleet-risk models. A further economic (NPV) analysis is performed at the time an individual business case is submitted for approval through the SP AusNet capex approval process.

6.8.5 Forecast Reliability and Quality Maintained Capex

Primary Network Assets

Forecast expenditure to maintain network reliability in the forthcoming regulatory control period involves increased replacement volumes. These planned programs are:

- surge diverters replacement program – this includes approximately 13,460 replacements (101% increase compared to the current regulatory period) to address falling system coverage in surge diverters which protect distribution and zone substations. At end of life, surge diverters which remain connected to the network may cause supply outages, collateral damage and wildfire ignition, and currently 25% of distribution substations are not effectively protected from this. SP AusNet plans to progressively increase the average annual replacement rate of surge diverters to 6000 single phase units (2277 installations) p.a. to effectively protect 95% of medium voltage installations by 2020; and
- distribution transformers replacement program – this includes approximately 1,174 replacements to address an ageing fleet and the poor condition of around 10% of transformers. SP AusNet expects the replacement levels will increase over the next decade due to increasing incidence of oil leaks and corrosion. In 2011-2015 SP AusNet plans to retire 14 transformers, replace 16 large and 5 small transformers and refurbish 29 transformers. This replacement program will stabilize risk at 2006 levels.

Forecast expenditure programs to maintain network reliability in the forthcoming regulatory control period that involves stable or decreasing replacement volumes are:

- pole replacement and staking program – this includes replacing around two thirds of SP AusNet's down graded poles and staking the other third as poles become increasingly downgraded according to their age profile; and
- automatic circuit reclosers and switches replacement program – this involves continuing the replace on condition strategy at reduced rates through 2011-2015 (down from 200 plus units per annum to approximately 160 units per annum). The composition of the MV switchgear fleet is expected to change over the next decade and around 160 air-break switch installations will be retired or replaced by metal-enclosed switchgear each year. Use of air-break switches will fall over time while gas-insulated pole-mounted switches will increase. SCADA control will extend to approx 2000 switching installations by 2020.

SP AusNet's forecast investment in the replacement of primary assets is set out in the table below together with a comparison between the forecast and historical expenditure.

Table 6.6: Primary Asset Replacement Programs

Category	2006-10 (Real 2010 $M)	2011-15 (Real 2010 $M)	Change
Poles	63.7	55.3	-13%
Conductors, cross arms and insulators	98.7	130.3	+32%
Underground cable	7.8	4.5	-42%
Overhead services	24.2	19.2	-21%
Distribution substations - includes transformers, regulators, pole top switches, ring main units, circuit reclosers, HV fuses, surge diverters	51.9	75.9	+46%
Zone substations - includes primary systems, protection and control, batteries and charges and communications	6.5	141.5	+2077%
Total	**252.8**	**426.7**	

These forecasts have been determined according to the capex forecasting methodology described above.

Secondary Systems, Remote SCADA and Communications

As already noted, forecast capex for secondary systems, remote SCADA and communications is strongly driven by compliance with obligations and standards. As such, investment is calculated to ensure compliance with the relevant performance and security standards in the forthcoming regulatory control period. SP AusNet plans to undertake the following works:

Protection and control

- eliminate unreliable, maintenance-intensive and unique equipment (for instance, through the replacement of remaining electro-mechanical and analogue electronic relays);
- standardise protection and control schemes and relay types in order to enhance supportability of these devices; and
- remove common transformer/bus protections and provision of separate protections for each transformer and each 22 kV bus;

SCADA at substations

- replace life-expired RTUs with modern units or Station Controller (SC) as appropriate;
- extend SCADA monitoring and control to all substations;
- upgrade RTUs with the latest-release processor modules where appropriate;
- extend the capability of the RTUs with the installation of HMIs;
- convert RTUs to SC systems where appropriate;
- upgrade existing substation automation systems to supported versions;
- upgrade existing HMI systems to ensure they continue to meet reliability and useability requirements;
- extend the RTU/SC to monitor existing and new IED and condition-monitoring devices;

SCADA at distribution feeder devices (DFDs)

- replace end-of-life and obsolete DFDs with modern units;
- upgrade various DFDs with the latest-release processor control modules;
- install additional DFDs on the network in strategic locations;
- extend monitoring and control on “SCADA ready” line voltage regulators and pole top capacitors;

Communications

- transfer protection communications from remaining copper supervisory cables by installing 19.1 km of optical fibre and 17 pilot wire systems;
- provide communications to 17 zone substations for SCADA purposes due to Telstra withdrawal of private line services in order to meet the requirements of the NER;
- replace mobile radio (TMR) of 500 vehicles, 20 fixed stations and 20 pole tops and 2 OTN interfaces; and

Auxiliary power supplies

- replace 20 life expired battery banks and chargers in order to maintain reliability and security.

A comparison of SP AusNet’s investment for the current and forthcoming regulatory control periods in secondary systems, remote SCADA and communication assets is set out in the table below in terms of volumes. Expenditure on secondary assets in terms of dollars cannot be separated from overall replacement works due to the embedded nature of secondary assets in project costs.

Table 6.7: Secondary Asset Replacement Programs*

Category	Volumes 2006-10	Volumes 2011-15	Difference
Secondary Systems	38	89	+51
Remote SCADA	5	38	+33
Human Machine Interfaces	40	20	-20
Total	**83**	**147**	**+64**

**excludes station rebuilds*

These forecasts have been determined in accordance with the capex forecasting methodology described above in this chapter. The general increase in volumes in the forthcoming regulatory control period reflects renewal requirements due to the natural life-cycle of these assets.

Total Forecast Reliability and Quality Maintained Capex

In total, the proposed reliability and quality maintained capex is $322 million over the forthcoming regulatory control, period. This represents a 60% ($121 million) increase on the current regulatory control period, as shown the table and figure below.

In accordance with the requirements of Clause S6.1.1(7), the reasons for material changes in capex from the current regulatory period to the forthcoming regulatory period are as follows:

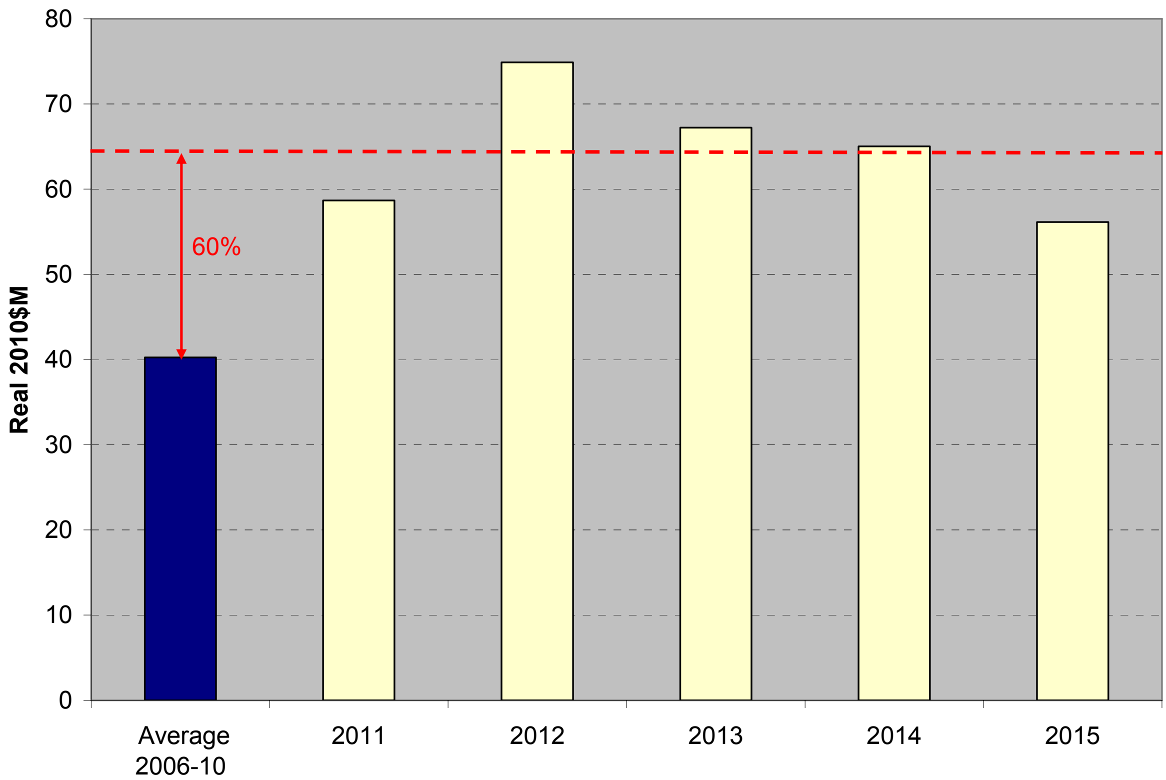
- conductors, cross arms and insulators – a material increase in expenditure is necessary to address failure rates. This is due to the increasing age profile and deteriorating performance of steel and copper conductors, and timber cross arm failure rates rising consistently over time due to asset ageing;
- distribution substations – a material increase in expenditure is required to address the issues caused by an increasing proportion of fleet nearing end of life and the need to stabilize risk levels.
- zone substations – this significant increase in expenditure is due to the assets at SP AusNet zone substations reaching their end of effective life. This broad range of assets includes primary systems (such as transformers, circuit breakers, etc), protection and control, batteries and charges and communications which are now due for complete replacement.

Reasons for the required increase in reliability and quality maintain capex from the current regulatory control period to the forthcoming period are addressed further in the investment drivers discussion (section 6.8.3) above.

Table 6.8: Total Forecast Reliability and Quality Maintained Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	58.7	74.9	67.2	65.0	56.2	321.9

Figure 6.11: Proposed Reliability and Quality Maintained Capex



Source: SP AusNet

6.8.6 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with the following information:

- SP AusNet Asset Management Strategy;
- engineering support document AMS 20-01;
- the Asset Inspection Manual;
- Plant Guidance Instructions.
- Regulatory test and business cases for projects above the $5 million threshold set out in the RIN and clause 6.5.7 (b)(4) of the NER;
- RIN Templates setting out detailed historic and forecast financial information; and
- all relevant support material referenced in SP AusNet's Support Document Register.

6.8.7 Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the forecast of reliability and quality maintained capex complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.9 Reliability and Quality Improved Capex

This category includes capex associated with the replacement of distribution network assets that have reached the end of their economic lives, the primary purpose of which is to improve network reliability.

This section of the proposal and the accompanying support material complies with the requirements of Section 3.6 of the RIN and Sections 3.1 and 3.2 (where these relate to reliability and quality improved capex) and Clause S6.1.1 of the NER.

6.9.1 Scene Setting

SP AusNet strongly supports the incentive regime for reliability improvements that the AER has put in place with its STPIS. The scheme replaces and improves on the existing scheme applied by the ESC in current regulatory control period. An attractive feature of these schemes for customers is that customers only pay for improvements if they are delivered, with the risk being born by the DNSP.

In response to these incentives, SP AusNet has invested heavily ($71.2 million) in improving reliability during the current regulatory control period. The quality performance of the network was maintained over the current regulatory control period

Consistent with the regulatory regime this Proposal contains no forecast expenditure for reliability and quality improvements.

6.9.2 Historical Performance

The 2006 EDPR Determination set in place a capex allowance in this category to:

- resolve quality of supply issues to ensure compliance with the Electricity Distribution Code; and
- install equipment to measure harmonics and flicker.

No allowance was made for expenditure to improve reliability as it was intended that the ESC's S Factor scheme would incentivise a DNSP to invest in reliability improvements where it is efficient to do so.

Historical expenditure on network quality and reliability improvements is forecast to be $71.2 million (real 2010 $).

Reasons for historical performance

Clause 3.10 of the RIN requires SP AusNet to explain the reasons for the historic performance compared to the ESC's forecast in the 2006 EDPR. In broad terms, the reasons for the variation are:

- substantial investment in projects that improved reliability; and
- a much lower expenditure on quality improvement than anticipated.

As already noted, SP AusNet invested heavily in reliability improvements during the current regulatory control period. Capex programs included:

- the feeder automation program; and
- the feeder condition assessment and targeted asset replacement program.

The 2006 EDPR Determination made allowances for funding to upgrade the power quality meters at 17 zone substations. Allowances were also included for the cost of other works. SP AusNet has completed much of this work during the current period, specifically:

- 1000 customers experiencing voltage quality issues on the SWER system;
- 11,000 customers experiencing negative sequence voltage;
- SP AusNet has upgraded power quality meters at 17 zone substations; and
- SP AusNet has mitigated the negative sequencing voltage at 52 substation feeders.

Additional projects to address quality issues on the SWER system were not economically justified in the current period.

6.9.3 Drivers of Reliability and Quality Improved Capex

In accordance with the requirements of Clause 3.1(b)(ii) and Clause 3.6(a)(i) of the RIN, the key driver of reliability and quality maintained capex forecasts is the AER STPIS.

Changes to regulatory obligations related to reliability quality

There have been no changes to jurisdictional or other regulatory network reliability or quality standards that impact on the forthcoming regulatory period. Accordingly, Clauses 3.6(c) and (d) of the RIN are not applicable.

Service Standard Incentive Schemes

As already noted, the key driver of reliability and quality improved capex is the existing ESC S Factor scheme for the current regulatory control period and the AER's STPIS for the forthcoming control period. These schemes:

- place a value on customer reliability in terms of unplanned SAIDI (a measure of duration of unplanned interruptions) and SAIFI (a measure frequency of unplanned interruptions); and
- using those values, place incentives on the DNSP to invest up to the point the that benefit to customers from improved reliability equals the cost imposed on the business from the investment.

In effect, the schemes provide incentives for the DNSP to deliver the efficient level of reliability to customers. The STPIS has provision for a similar scheme to apply to quality of supply at a future price review.

A key feature of these existing schemes is that the incentive payments themselves justify and fund the investment in improved reliability (or quality, in the future). Therefore, subject to complying with all applicable regulatory obligations or requirements associated with the provision of standard control services (as required by Clause 6.5.7(a)(2) of the NER), a DNSP's capex forecast must include the total forecast capex which the DNSP considers is required in order to maintain - but not improve - its reliability, quality safety and security of the services and the distribution system (in accordance with the requirements of Clauses 6.5.7(a)(3) and (4) of the NER).

6.9.4 Proposed Reliability and Quality Improved Capex

On the basis of the discussion set out above, this regulatory proposal contains no expenditure forecast for capex in the reliability and quality improved category. As discussed above, for forecasting purposes only, SP AusNet has departed from the previous approach taken in 2006 EDPR Determination which was to categorise projects with the aim of complying with the Distribution Code as 'quality improved' expenditure. This expenditure is better categorised as investment to 'maintain' the network to required quality standards. Therefore, for the forthcoming regulatory control period SP AusNet has categorised expenditure to comply with the Distribution Code as 'quality maintained' capex.

6.10 Environmental, Safety and Legal Capex

This category includes capex required to meet environmental, safety and legal obligations.

This section of the proposal and the accompanying support material complies with the requirements of:

- Section 3.7 of the RIN and Sections 3.1 and 3.2 where these apply to environmental, safety and legal capex; and
- Clause S6.1.1 of the NER.

6.10.1 Scene Setting

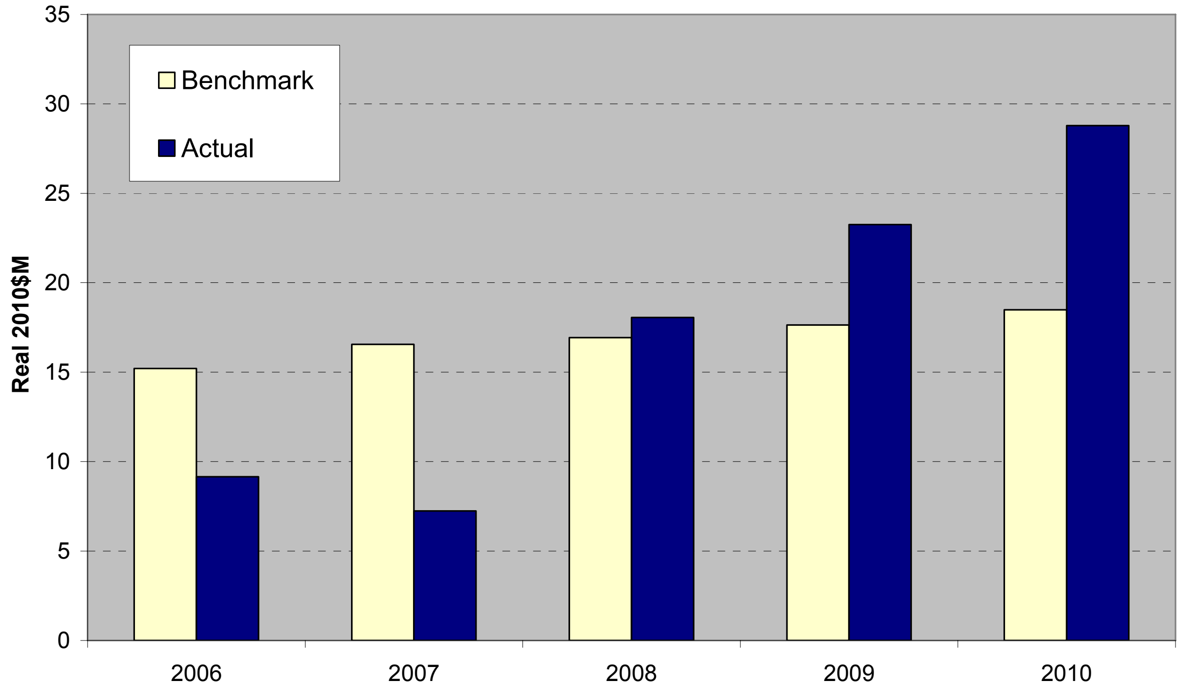
SP AusNet has invested significantly in relation to safety, and ensures it complies with its safety, security (also referred to as legal) and environmental obligations. Following the introduction of new safety and security legislation, SP AusNet was provided an allowance to undertake capex in the current regulatory control period for the primary purpose of reducing the expected number and severity of safety, security and environmental incidents.

In this current regulatory control period, safety has been determined to be the top priority for SP AusNet.

6.10.2 Historical Performance

Historical expenditure on safety is forecast to be $86.5 million (real 2010 $) or 2% higher than the allowance set in the 2006 EDPR Determination for safety (see figure below). Including approximately $3 million of animal proofing work which has been subsumed into reinforcement programs, SP AusNet has spent 5% above the safety allowance.

Figure 6.12: Historical Safety Expenditure versus Benchmark



Source: SP AusNet

Historical expenditure on environmental and security is forecast to be well below the allowance set in the 2006 EDPR Determination. Despite this, all environmental and security obligations have been met.

The total expenditure on all three categories of safety, environment and legal is forecast to be $86.57 million over the current regulatory control period has been spent, which is $31 million or 26% below the benchmark. The expenditure, split into the three categories, is set out in the table below.

Table 6.9: Historical safety, environment and legal expenditure by category

Category	Benchmark (Real 2010 $M)	2006-10 Expenditure (Real 2010 $M)
Environment	12.5	0.1
Safety	84.8	86.5
Legal	19.8	0.0
Total	**117.2**	**86.6**

Reasons for historical performance

Clause 3.10 of the RIN requires SP AusNet to explain the reasons for the historic performance compared to the ESC's forecast in the 2006 EDPR. In broad terms, the reasons for the variation are:

- capital constraints; and
- prioritisation of capital towards fulfilling safety obligations.

As stated above, SP AusNet has had to prioritise expenditure to enable the company to respond efficiently to events during the regulatory control period. Safety has been determined to be of highest priority, therefore, the company has invested heavily in its safety programs. As a result, the amount of capital investment in safety programs exceeds the safety expenditure benchmark set in the 2006 EDPR Determination. The safety works completed by SP AusNet include:

- replacing conductors, cross arms and insulators to minimise risks associated with deteriorating performance of conductors, and increasing timber cross arm and insulator failure rates due to asset ageing;
- replacing MV fuses to address the fleet ageing driving higher failure rates. Fuse failures can cause wildfire ignitions and present safety risks; and
- Electrical Safety Management Scheme (ESMS) specific expenditure.

Total safety expenditure for the current regulatory control period is $86.5 million, which has exceeded the benchmark of $84.8 million. In addition, as already noted, $3 million has been invested in an animal proofing program. This program was included in the 2006 EDPR Determination benchmark but is included in reliability improvement category for the purposes of this Proposal because these works have been subsumed into reliability improvement programs.

In meeting SP AusNet's security and environmental compliance obligations, it has not been necessary to spend to the benchmark levels, particularly in light of other expenditure priorities. Further, these security and environmental programs have been relatively minor and subsumed into the replacement programs which are addressed in section 6.8 of this proposal.

6.10.3 Drivers of Environmental, Safety and Legal Capex

In accordance with Clause 3.1(b)(ii) and Clause 3.7(a)(i) of the RIN, the key drivers of environmental, safety and legal capex are compliance with:

- environmental obligations;
- health and safety obligations; and
- physical network security obligations.

These are discussed in more detail below.

Compliance with Environmental Obligations

SP AusNet must manage oil filled plant to prevent oil contamination to the environment. Management primarily involves appropriate plant bunding and storm water management initiatives to comply with EPA Victoria's 'Bunding Guideline Publication 347', AS1940 and standards on water quality discharges

Compliance with Safety Obligations

A stated above, SP AusNet must comply with the following key pieces of Safety Legislation and regulations over the forthcoming regulatory control period:

- the Electricity Safety Act 1998;
- Electricity Safety (Bushfire Mitigation) Regulations.
- Electricity Safety (Management) Regulations; and
- Electricity Safety (Line Clearance) Regulations.

In addition, once approved by Energy Safe Victoria, SP AusNet must comply with its own:

- Bushfire Mitigation Management program; and
- Electrical Safety Management Scheme (ESMS).

SP AusNet's ESMS is a new legislative requirement, which will come into effect in 2010.

With regards to providing a safe and healthy workplace for employees and contractors, SP AusNet's Occupational Health and Safety Management System (OHSMS) is certified against the AS/NZ 4801 standard and compliance is checked by regular internal and external audits.

Compliance with Security Obligations

SP AusNet must comply with the following key pieces of Security Legislation and regulations over the forthcoming regulatory control period:

- the Victorian Terrorism (Community Protection) Act 2003; and
- the ESAA Guidelines for Prevention of Unauthorised Access to Electricity Infrastructure.

The Victorian Terrorism (Community Protection) Act 2003 requires electricity providers to develop and monitor risk management plans, including all appropriate preventative security and emergency restoration measures, to ensure the continued provision of electricity supply.

In addition, the Electricity Supply Association of Australia (ESAA) has released *Guidelines for Prevention of Unauthorised Access to Electricity Infrastructure* for the prevention of unauthorised access to various electrical installations including zone substations. These are consistent with good industry practice.

Expected change in regulatory requirement

The ESV is expected to remove the Electricity Safety (Network Asset) Regulations in 2010. These regulations are highly prescriptive and particularly onerous. This was recognised by all of the Victorian DNSPs in the 2006 EDPR Regulatory process. These regulations will be replaced by the amended safety regime provided in the amendments to the Electricity Safety Act due to commence on 1 January 2010. These new arrangements will shift the safety regime to focus purely on a safety case.

SP AusNet has taken these factors into account in developing its forecast capex.

ESV audit

SP AusNet was audited once in the previous regulatory control period and was found to be compliant with applicable regulatory obligations and requirements. A hardcopy of the ESV Compliance Audit Report is available for review.

6.10.4 Overview of Forecasting Methodology

As explained in section 6.8 above, asset replacement is undertaken primarily for public safety, system security and reliability reasons. A particular asset replacement program will almost certainly have all these factors as a driver to some extent. Accordingly, capex which is classified as reliability and quality maintained, or environmental, safety and legal categories is subject to an identical forecasting methodology.

The methodology described in section 6.8.4 applies to the environmental, safety and legal capex category.

Environmental Programs

In response to its obligations outlined in the previous section, SP AusNet has developed a least cost effective oil containment program targeting sites where the risk of oil spill can be mitigated through augmentation or bunding.

While SP AusNet currently has a sound record in preventing oil spillage, the bunds of some large transformers must be made to conform with 'literal' EPA and Australian Standards requirements. Further, within zone substations only large plant items are currently bunded, but spills from other plant also have the potential for oil discharges off site. SP AusNet will seek to address these issues in its oil containment program.

Support documentation

Detailed strategies are provided in SP AusNet's engineering support document *AMS 20-18, Sustainability*.

Safety Programs

As a consequence of the high exposure to the public from the electricity distribution network assets, implementation of a continuous improvement methodology to maintenance or enhancement of network safety is a key asset management strategic objective and a requirement of the ESMS. In response to its obligations outlined above, SP AusNet has developed a least cost public safety program. This program is based on SP AusNet's Enhanced Network Safety Plan which aims to reduce the annual number of network related incidents reported to ESV, currently 139[43] per annum, by 20% per regulatory period in line with the stretch target of the 20 year AMS.

The Enhanced Network Safety Plan recommends a range of additional asset replacement and refurbishment programs that reduce network related health and safety risks to as low as reasonably practicable for customers, personnel and the general public. These programs include:

- Conductor replacement program – this includes approximately 2,000 km of replacement work to address conductor failures. This is due to the increasing age profile and deteriorating performance of steel and copper conductor, primarily in the eastern network, where moist and more corrosive (salt) environments contribute to deterioration;
- Cross-arm and MV insulator replacement program – this includes approximately 12,650 pole top structure replacements to address timber cross arm failure rates and insulator failure rates. Timber cross arm failure rates have consistently risen over time, and

[43] 2008 five year moving average.

accordingly, timber cross arm replacement rates must progressively increase to address this. A number of network faults or incidents are caused by insulator failure, and obsolete pin type insulators cause the majority of pole fires. Replacing pin type insulators on 5,642 structures from 2011 to 2015 is intended to reduce by a third the number of insulator failures.

- Neutral screened service cables replacement program – this includes approximately 52,000 service cable replacements (115% increase) to address service cable failures due to deteriorated aluminium neutral screened service cables. Replacing these will reduce the likelihood of electrical shock incidents;
- Fuse replacement program – this includes approximately 7,000 fuse replacements (100% increase) to stabilize failure rates which are driven by an increasing proportion of fleet nearing end of life. Fuse switch disconnector failures cause sustained supply outages, quality of supply events, wildfire ignitions and present safety risks.
- a No Go Zone for line augmentations;
- asbestos removal; and
- OHS-related replacement programs for current transformers, disconnectors and silicon carbide gap arrestors.

Support documentation

Detailed strategies are provided in SP AusNet's engineering support document AMS 20-13, Enhanced Network Safety.

Security Programs

The four main security threats to the electricity distribution network are:

- Safety – of untrained persons in the vicinity of energy-containing equipment
- Malicious – motivated by revenge, fame, association or challenge
- Criminal – profit driven; includes theft, fraud, sabotage or extortion
- Terrorism – threat or use of force to influence government or public through fear or intimidation

The Infrastructure Security Risk Assessment Tool (ISRAT) is used to assess physical security risks and control measures in SP AusNet's installations. SP AusNet's Infrastructure Security Strategy is informed by more than 50 individual assessments, of major sites, and 20 generic assessments for the multiplicity of less significant installations.

SP AusNet's physical security control measures are founded on the following principles:

- consistent risk identification and quantification;
- defence in depth – increasing the number and sophistication of control measures commensurate with the degree of intrusion risk;
- deterrence – measures to deflect would-be intruders away from their targets;
- delay – measures to increase the time and effort required to successfully intrude;
- detection – measures to promptly and reliably detect intrusion;

- response – measures to promptly and appropriately deal with intruders and associated consequences; and
- contingency planning – measures to promptly recover service and minimise societal impact in the event of a breach of security.

From these assessments, a cost effective program of asset security works to comply with legislative and regulatory requirements has been developed. It includes investment in fencing, CCTV, remote light controls and electronic switchyard access.

Support documentation

Detailed strategies are provided in SP AusNet's engineering support document AMS 20-14 Infrastructure Security.

6.10.5 Forecast Environmental, Safety and Legal Capex

The table below sets out SP AusNet's forecast Environmental, Safety and Legal capex programs.

Table 6.10: Forecast Environmental, Safety and Legal Capex Programs.

Category	Direct Costs (Real 2010 $M)
Pre emptive replacement of cables	13.2
Crossarms	12.4
Pre Emptive replacement conductor - Steel	33.7
Pre Emptive replacement conductor - Copper	10.8
Pre Emptive replacement fog type HV insulator	11.7
Environmental, bunding, security	2.9
HV Fuses	16.2
OH & S - Replace CTs	0.2
OH & S - Replace disconnectors	0.6
OH & S - Replace silicon carbide gap arrestors	1.9
Total (with overheads)	**119.0**

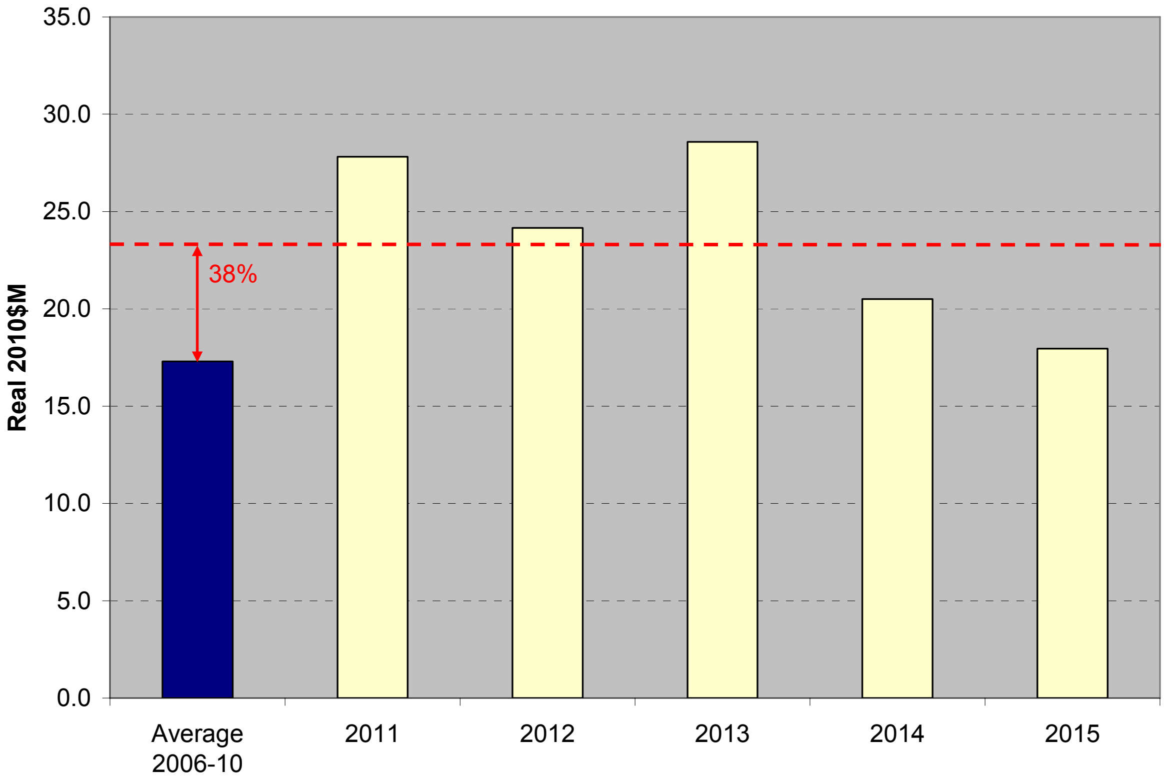
Total

In total, the proposed environmental, safety and legal capex is $119 million over the forthcoming regulatory control, period. This represents a 38% ($32.5 million) increase on the previous period, as shown the table and figure below. The increase is driven by increasing volumes of work to address deterioration of network assets and increased costs.

Table 6.11: Forecast Environmental, Safety and Legal Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	27.8	24.2	28.6	20.5	18.0	119.0

Figure 6.13: Forecast Environmental, Safety and Legal Capex



Source: SP AusNet

6.10.6 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with:

- SP AusNet Asset Management Strategy;
- support documents AMS 20-18, Sustainability, AMS 20-14 Infrastructure Security; AMS 20-13 Enhanced Network Safety.
- Regulatory test and business cases for projects above the $5 million threshold set out in the RIN and clause 6.5.7 (b)(4) of the NER;
- RIN Templates setting out detailed historic and forecast financial information; and

- all relevant support material referenced in SP AusNet's Support Document Register.

6.10.7 Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the forecast of environmental, safety and legal capex complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.11 SCADA (IT) Master Station Capex

The SCADA Master Station system provides the monitoring and control functionality on the distribution network. This links the assets to the network operations centre via remote terminal units (RTUs), station controllers (SCs) and distribution feeder devices (DFDs).

SCADA Master Station capex is expenditure associated with the replacement, installation and maintenance of Supervisory Control and Data Acquisition (SCADA) and network control hardware, software and associated IT systems.

SP AusNet has historically allocated SCADA Master Station capex in the following manner:

- the installation and replacement of remote SCADA assets on the network (RTUs, SCs, DFDs, communication network etc.) has been allocated into the system sub-transmission and distribution categories (reinforcement and reliability and quality maintain); and
- network control hardware, software and associated IT systems have been allocated into the Guideline 3 SCADA category.

SP AusNet is proposing to continue this allocation for the forthcoming regulatory control period. This maintains consistency with the basis of the 2006 EDPR Determination. Therefore, in accordance with the requirements of the RIN, SP AusNet has allocated SCADA Master Station costs consistently over the historical and forecast periods.

The primary purpose of the SCADA replacement capex program is to meet the requirements of Clauses 6.5.7(a)(2), (3) and (4) of the NER. For this Proposal, these requirements have been interpreted to mean:

- compliance with protection and control systems obligations and standards is maintained (Clause 6.5.7(a)(2));
- the quality of network services is maintained at levels achieved in the current regulatory period (Clauses 6.5.7(a)(3) and (4)); and
- reliability is maintained at levels consistent with historical performance as expressed in the proposed STPIS targets (Clauses 6.5.7(a)(3) and (4)).

This section of the proposal and the accompanying support material complies with the requirements of:

- Section 3.8 of the RIN and Sections 3.1 and 3.2 where applicable to SCADA Master Station capex; and
- Clause S6.1.1 of the NER.

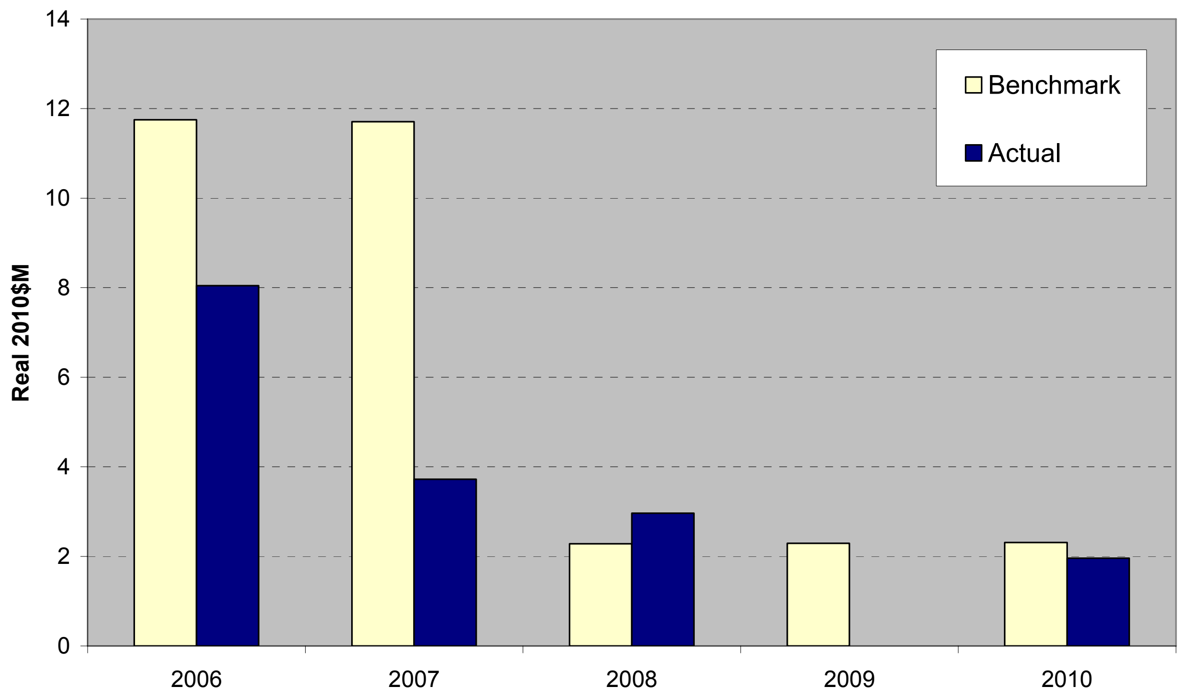
6.11.1 Scene Setting

The SCADA Master Station system is a key area where efficiencies have been achieved as a result of rationalisation across the three networks owned by SP AusNet. As such expenditure during the forthcoming regulatory control period is expected to be well below that observed during the current regulatory period.

6.11.2 Historical Performance

Historical SCADA Master Station system capex is forecast to be $17 million which is $13 million or 45% lower than the benchmark set in the 2006 EDPR Determination. The SCADA Master Station historical performance is discussed in more detail in the IT Strategy.

Figure 6.14: Historical Expenditure versus Benchmark



Source: SP AusNet

Reasons for historical performance

In accordance with Clause 3.10 of the RIN the reasons for the difference between actual capex and the amount approved by the ESC in the 2006 EDPR Determination are:

- the consolidation of SP AusNet's SCADA IT platform and planned SCADA upgrade in 2010; and
- the allocation of remote SCADA expenditure out of SCADA IT to the sub-transmission and distribution categories.

SCADA IT platform consolidation

SP AusNet expects to complete the consolidation of its seven existing SCADA IT systems for each of its three networks into one platform by the end of the current regulatory control period.

SP AusNet inherited seven multi-utility SCADA Master Station systems from the merger of SPI PowerNet (transmission) and TXU (gas and electricity distribution) in 2006. Four of these systems serviced the distribution electricity network (Mosaic, TMR, Sentry and Baw Baw). This multi phase consolidation program commenced in 2006, was largely completed in 2007 and concluded in 2009. This project replaced and consolidated obsolete systems, consequently reducing associated risks to the continued reliability and security of the distribution system.

With the consolidation of SCADA Master Station to one platform, first commissioned in 2006, the associated hardware and software for SCADA Master Station have reached end of life and require upgrade. This project is forecast for 2010. A benefit of system consolidation is the avoided capex required to upgrade IT systems.

Remote SCADA

The benchmark SCADA IT set in the 2006 EDPR Determination included secondary systems, remote SCADA and communications costs. Consistent with SP AusNet's cost allocation approach, this expenditure is not reported as SCADA IT but is captured in the secondary systems, remote SCADA and communications expenditure category in the sub-transmission and distribution categories. Historic expenditure in this category is reported above as part of the quality maintained section of this chapter.

6.11.3 Drivers of SCADA Master Station Capex

In accordance with Clause 3.1(b)(ii) of the RIN, the key drivers of SCADA Master Station capex historic expenditure are:

- compliance with standards: and
- end of life of the current SCADA Master Station system.

Compliance with Standards

The SCADA Master Station functionality is a core requirement to meet the security and reliability standards on the network. As such, the SCADA Master Station system is governed by overlapping compliance requirements; including:

- standards and compliance obligations in the NER and VENCorp Operating Agreement;
- the AEMO (formerly NEMMCO) Standard for Power System Data Communications; and
- physical and cyber security requirements (802.1x Protocol).

SCADA System life cycle

During the current regulatory period, SP AusNet commissioned the current SCADA Master Station in 2007 and is forecast to upgrade the SCADA Master Station in 2010. SCADA Master Station systems continue to evolve with technological advances and continued convergence with related IT Systems. Consequently, the supported life of SCADA Master Station systems is consistent with other IT systems.

6.11.4 Overview of Forecasting Methodology

SP AusNet recognises the challenges in forecasting the expected costs and benefits of each IT program, given regard to the short life of IT assets. In forecasting SCADA Master Station capex for the forthcoming regulatory control period, SP AusNet has taken the following steps to determine an efficient non-network IT capex forecast:

- engage business units to understand Asset Management Strategies and jointly assess requirements of IT to support deliverability of these strategies;
- assess the current performance of IT systems and infrastructure to assess their capability to support the Asset Management Strategies;
- jointly undertake options analysis and identify preferred option. For IT Asset Replacement, the options include “Do Nothing” and “Maintain” options;
- consider emerging technologies and trends that can be applied, where it is effective and efficient to do so;
- engage experienced independent sources to provide research, benchmarks and/or cost estimates;
- assess the risk of preferred option, identifying appropriate mitigation strategies and the resulting residual risk; and
- complete financial cost and benefit assessment, incorporating all obtain inputs and key estimating assumptions. This includes the application of SP AusNet’s IT cost allocation methodology, in recognition that SP AusNet is a multi-utility regulated business.

Annually, SP AusNet conducts a capital allocation and prioritisation process that aims to prioritise the following year’s capex to projects estimated to deliver the best value, aligned to our corporate and asset strategies.

After projects are prioritised, full business cases are completed to determine the appropriate scope, methodology, costs, benefits, risk and timeline. The business owner of the project seeks required approval before project delivery is initiated.

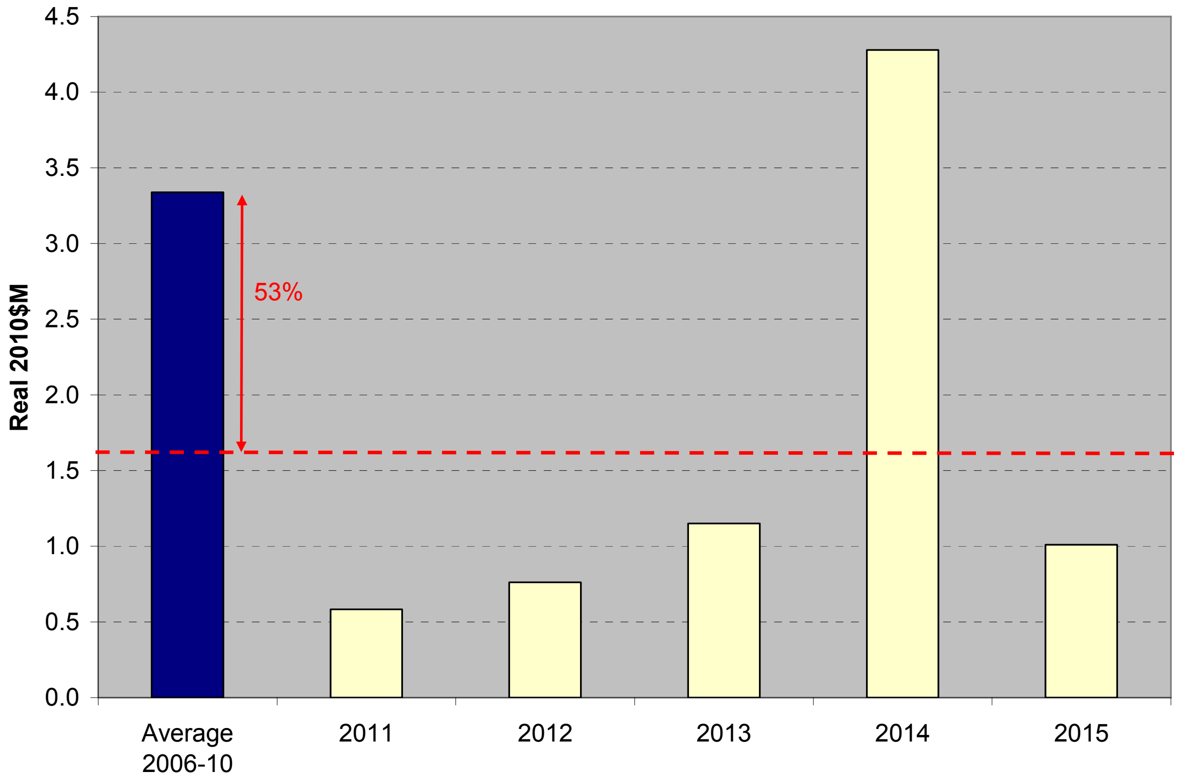
6.11.5 Forecast SCADA (IT) Master Station Capex

In total, the proposed SCADA IT capex is $7.8 million over the forthcoming regulatory control, period. This represents a 53% ($10 million) decrease on the previous period, as shown the figure below. The decrease is driven by the benefits of the consolidation project completed in the current regulatory control period.

Table 6.12: Forecast SCADA (IT) Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	0.6	0.8	1.2	4.3	1.0	7.8

Figure 6.15: Forecast SCADA (IT) Capex



Source: SP AusNet

6.11.6 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with the following documents:

- SP AusNet IT Strategy which contains justifications and business cases for projects above the $2 million threshold set out in the RIN and clause 6.5.7 (b)(4) of the NER;
- SP AusNet Asset Management Strategy;
- RIN Templates setting out detailed historic and forecast financial information; and
- all relevant support material referenced in SP AusNet's Support Document Register.

6.11.7 Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the SCADA capex forecast complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.12 Non-network – Information Technology Capex

Non-network – IT capex is expenditure associated with the replacement, installation and maintenance of IT systems.

The vast majority of SP AusNet's forecast IT replacement capex is required to maintain network security and reliability. Where IT enhancements may deliver efficiencies or cost effective service improvements to customers, this is identified.

SP AusNet's Information Technology Capital Expenditure Strategy has been developed to enable the company to meet the capex objectives in Clause 6.5.7(a) efficiently and prudently. The achievement of the capex objectives would be severely compromised in the absence of a carefully planned and executed IT strategy. The information contained in this section explains the basis for SP AusNet's IT strategy and proposed expenditure.

6.12.1 Scene setting

SP AusNet's IT assets have provided adequate support to enable SP AusNet to effectively operate its business and enable the AMS. However, the IT environment is subject to rapid technological change, which typically translates to short asset lives and time-limited technical support. Inevitably, IT assets must be periodically renewed if reliability is to be assured.

In addition to the performance and life-cycle of core IT infrastructure, a number of other factors also influence SP AusNet's IT requirements in the forthcoming regulatory control period, including:

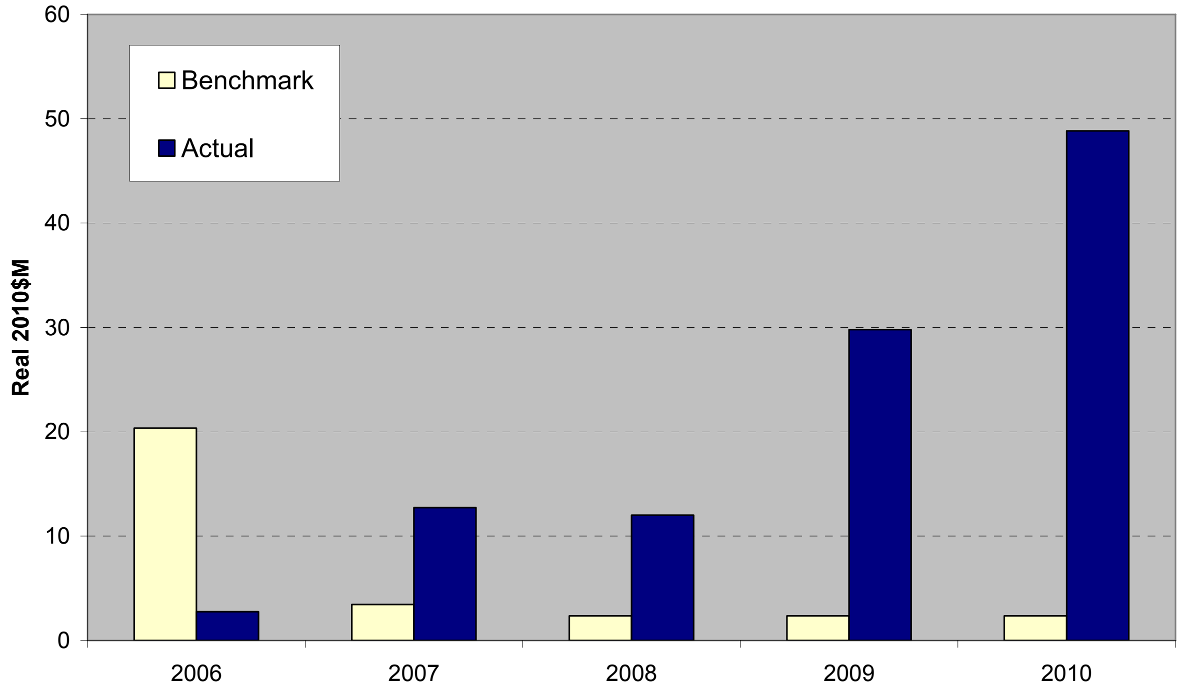
- a changing business operating environment which demands greater flexibility and robustness in IT services;
- continual technological developments which provide the potential to improve IT performance and operational efficiencies; and
- changing customer expectations, including the demand for more timely and accurate information.

SP AusNet recognises that while the current IT infrastructure has served the business well to date, an IT Strategy and program of asset replacement and updates is required to enable SP AusNet to continue to meet its regulatory requirements and business needs.

6.12.2 Historical Performance

Historical expenditure on IT is forecast to be $106 million which is $75 million or 244% higher than the benchmark set in the 2006 EDPR Determination.

Figure 6.16: Historical Expenditure versus Benchmark



Source: SP AusNet

During the current regulatory period, SP AusNet commenced the following IT projects:

- Enterprise Asset Management (EAM) – consolidated up to 15 disparate asset and works management systems required to service the distribution system. This multi-phase project commenced in 2007 and is expected to conclude within the next regulatory period. This project consolidates and replaces end of life or custom-built applications that inhibit SP AusNet's ability to improve and maintain the distribution system efficiently;
- Outage Management System (OMS) – forecast to be replaced in 2010 as OMS has passed end of supported life and last upgraded in 2001. This project is expected to reduce distribution reliability risks through improved real time information analysis of network events and customer notified outages;
- Geospatial Information System (GIS) – forecast to be replaced in 2010 as GIS has passed end of support life, last upgrade in 2000. This project will also reduce complexity in the OMS replacement project; and
- Enterprise Drawings Management System (EDMS) – forecast to be commissioned in 2010, the EDMS will be extended to the distribution network having been commissioned for the transmission network in 2006.

Reasons for historical performance

Clause 3.10 of the RIN requires SP AusNet to explain the reasons for the historic performance compared to the ESC's forecast in the 2006 EDPR. In broad terms, the reasons for the higher capex are:

- IT Infrastructure and Back Office systems, which were previously accounted for as opex under the Business Services SLA, are now being capitalised. This expenditure is estimated at $32 million. This is a one off ocurrence; and
- AMI related expenditure has been allocated to the Electricity Distribution Business, as accepted by the AER as part of the AMI budget application. This expenditure is estimated at $30 million. This is a one off occurrence.

These are discussed in more detail below.

Business Services SLA

Prior to the merger of TXU and SPI PowerNet, TXU had centralised business services that were common to the Networks and Retail businesses, to obtain economy of scale benefits. The business services, allocations and charges were set out in the Business Services SLA. Those operating charges were accepted by the ESC in the current regulatory period.

With the sale of retail, SP AusNet reassessed how these services were to be efficiently provided to the transmission and distribution regulated businesses. SP AusNet concluded that greater synergies and efficiencies could be delivered if SP AusNet owned and controlled IT infrastructure and back office systems (eg. Finance, Human Resources and Payroll), rather than continuing with the previous leasing arrangement. As a consequence, SP AusNet considered the most cost effective arrangement was to own the corresponding IT infrastructure and back office systems and allocate to the appropriate regulated network.

Advanced Metering Infrastructure (AMI)

In February 2009, SP AusNet submitted an updated AMI budget application to the AER. To support this application, SP AusNet engaged Deloitte to advise an appropriate allocation of costs for the IT projects necessary to deliver AMI. These allocations were approved by the AER in the final determination of the Victorian Advanced Metering Infrastructure review in October 2009. In the current regulatory control period, SP AusNet forecasts that the costs of IT projects necessary to deliver AMI, allocated to the electricity distribution network will total $30 million. Should the AER disallow any part of this allocated cost, SP AusNet may need to submit a revised AMI budget application to recover the unallocated costs.

6.12.3 Drivers of IT Capex

SP AusNet's major drivers of non-network IT capex are:

- meeting regulatory requirements in relation to operating the network and providing standard control services;
- managing the life cycle of IT assets (hardware and software) to minimise costs and risks; and
- delivering and managing IT solutions to provide the business capabilities to enable the AMS. This involves ensuring the efficient operation of core business systems through appropriate, robust and agile IT applications and infrastructure to meet SP AusNet's service levels.

The IT Strategy, in underpinning the AMS, has identified six objectives for IT over the next regulatory period. The IT objectives are to:

- improve capabilities to capture, sort, analyse and present large volumes of data to make informed decisions;

- improve capabilities to schedule, package and execute work safely on assets for office and field staff;
- support network utilisation and maintain reliability by leveraging 'fringe devices' in the network;
- improve the customer experience in interacting with SP AusNet in response to increasing expectations;
- enable operating effectiveness through increased process automation and collaboration tools; and
- modernise IT Assets through replacement or upgrade to avoid increased costs and risks.

6.12.4 Overview of Forecasting Methodology

SP AusNet followed the same forecasting methodology for IT non network capex as that used for SCADA Master Station capex as set out above in section 6.11.4 of this chapter.

6.12.5 Forecast Non-network IT Capex

SP AusNet's proposed non-network IT capex totals $148 million over the forthcoming regulatory control period. The proposed expenditure will deliver the seven programs summarised below.

A more detailed discussion of these programs, their drivers and costs, is set out in the IT Strategy provided as part of this Proposal. SP AusNet notes that the program costs set out in the IT Strategy exclude labour escalations. For regulatory purposes, the forecast capex provided in the RIN Template 2.1 should be used.

Asset and Works Management

This program, forecast at $20 million, replaces and consolidates IT systems that support Asset and Works Management functions as they reach end of supported sale, support and life. Additionally, with asset replacement work expected to double over the forthcoming regulatory control period, SP AusNet will require more increased integration and process automation, in order to continue efficient deliverability of these asset replacement works.

As this project materially consolidates existing Asset and Works Management systems, SP AusNet forecasts a reduction in opex of $0.58 million per annum associated with the support and maintenance of the decommissioned systems. This reduction is incorporated within SP AusNet's forecast IT operating expenditure.

Network Management

This program, forecast at $9 million, will replace IT Systems that support Network Management functions as they reach end of life. This program includes SCADA Master Station, which has been allocated to that the category discussed in section 6.11 of this chapter. The forecast expenditure within this section seeks to upgrade the Distribution and Outage Management System (DOMS), forecast to be commissioned in 2010, and replace the Operations Centre wallboard. It will also make necessary improvements to auto circuit restoration, intelligent alarm management and communication protocols to the SCADA Master Station.

Customer Care

This program, forecast at $11 million, will improve customer interaction with SP AusNet, particularly during high activity periods[44] and in relation to standard control services requiring direct interaction with customers, such as notification of planned maintenance works. SP AusNet recognises that customers will benefit from enhanced self service functions that will facilitate accurate information to customers based on preferred communication channels. It is expected that this program will allow SP AusNet to deliver improved customer service and satisfaction.

Workforce Collaboration

This program, forecast at $16 million, will improve how SP AusNet's workforce collaborates and shares knowledge related to the standard control services of the distribution network. This program will address how asset and works related data is captured, retrieved and shared amongst the workforce, improving SP AusNet's ability to efficiently restore, maintain and improve the distribution system.

Analytics and Reporting

This program, forecast at $12 million, seeks to capture actionable intelligence from the distribution network. Increased intelligence in the distribution network will continue to require analytics and reporting capabilities to process larger volumes of data quickly to allow for informed decision making.

Back office management

This program, forecast at $16 million, will replace and consolidate IT systems that support back office functions, such as Financial, Human Resources, Payroll and Risk Management.

IT Infrastructure and Operations

This program, forecast at $66 million, will provide appropriately reliable, fault tolerant, secure and supportable IT infrastructure is implemented from the desktop to the data centre. It aims to deliver agreed service levels and provide capacity to undertake identified business projects.

Purpose of IT programs

It is expected that amongst other things, these programs will:

- avoid increased expenditure necessary to support obsolete systems;
- avoid risk to standard control services through supported systems;
- maintain IT operational efficiencies through system consolidation;
- enhance operational efficiencies through improved workforce mobility;
- improve customer satisfaction through preferred communication channels and enhanced information provision;
- improve how asset and work data is shared, stored and captured and decision-making support information capabilities;

[44] The adequacy of the regulatory framework applying to Victorian electricity distributors during significant energy supply events, is currently under consultation by the ESC. The ESC has published for consultation an issues paper (the Paper) titled 'Electricity Distributors' Communications in Extreme Supply Conditions.

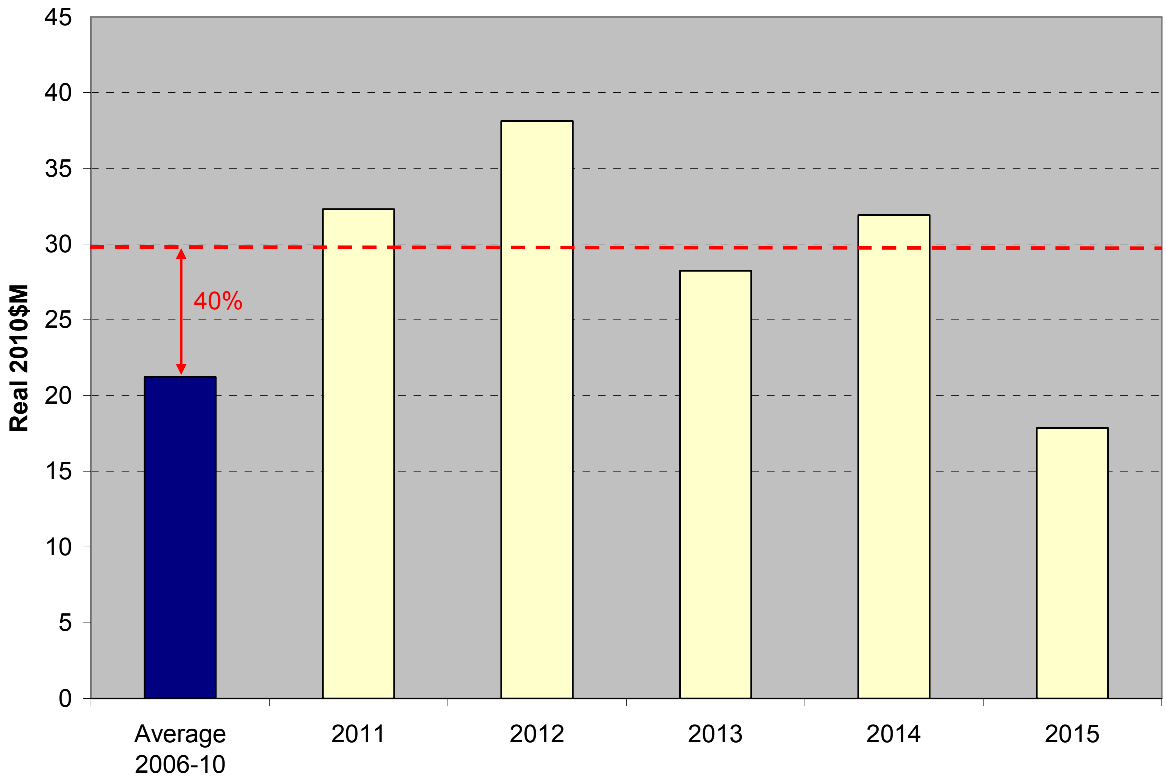
- enable further automation of back office processes to ensure provision of support services can be maintained; and;
- adapt to the continued convergence and growth of intelligent network devices and IT systems.

Table 6.13: Forecast Non-network IT Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	32.3	38.1	28.2	31.9	17.9	148.4

Source: SP AusNet

Figure 6.17: Forecast Non-network IT Capex



Source: SP AusNet

6.12.6 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with:

- SP AusNet IT Strategy;
- SP AusNet Asset Management Strategy;
- Completed RIN Templates setting out detailed historic and forecast financial information; and

- all relevant support material referenced in SP AusNet's Support Document Register.

Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the non-network IT capex forecast complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.13 Non-network – Other Capex

Non-network – other capex ("non-network general capex") is defined as expenditure associated with the replacement, installation and maintenance of non-network assets such as, but not restricted to, vehicles, non-operational buildings and non-operational IT systems.

The primary purpose of SP AusNet's proposed non-network – other capex is to meet the requirements of Clause 6.5.7(a)(3) and (4) of the NER. For this Proposal, these requirements have been interpreted to mean:

- maintaining the quality and reliability of the network at levels achieved in the current regulatory period; and
- maintaining the safety and security of the distribution system.

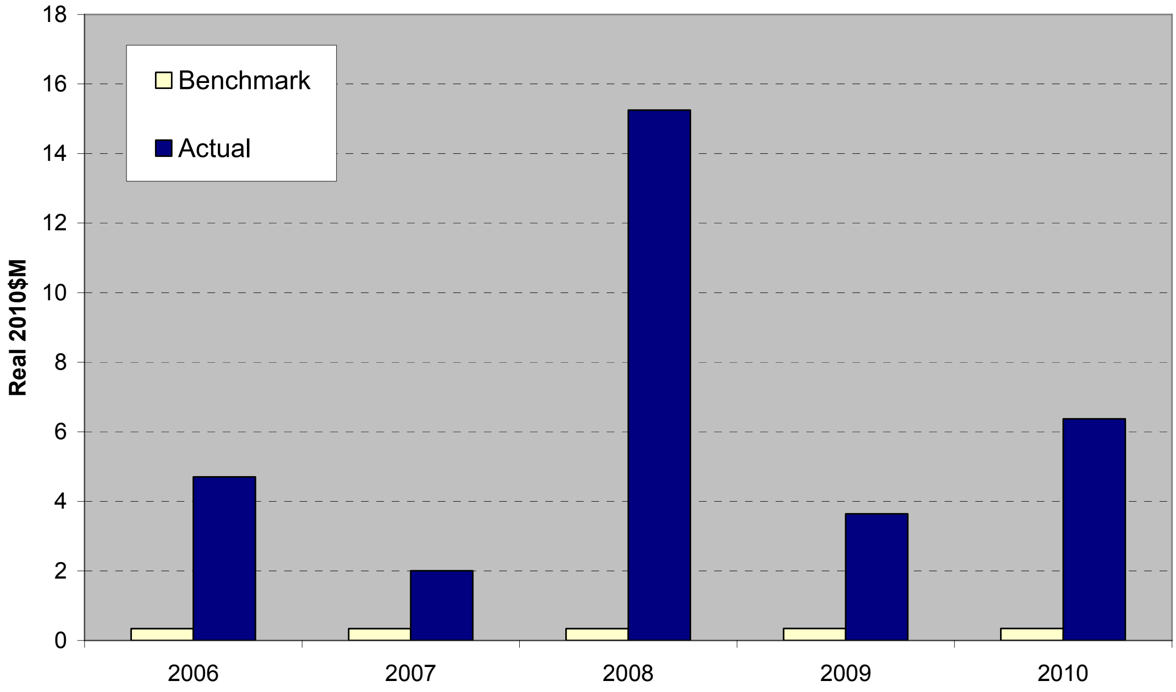
This section of the proposal and the accompanying supporting material complies with the requirements of:

- Section 3.8 of the RIN and Sections 3.1 and 3.2 where these are applicable to non-system – other capex; and
- Clause S6.1.1 of the NER.

6.13.1 Historical Performance

Historical capex in this category is forecast to be $32 million or almost 19 times higher than the allowance set in the 2006 EDPR Determination.

Figure 6.18: Historical Expenditure versus Benchmark



Source: SP AusNet

Reasons for this performance

As required by Clause 3.10 of the RIN, the key reasons for the substantially higher capex, relative to the 2006 EDPR Determination allowance are:

- at the time of developing the 2006 EDPR Proposal (around 2004/05), TXU (SP AusNet's predecessor) was incurring minimal non-network general capex, as the costs associated with purchasing items such as minor tools, equipment, fleet etc were being incurred by the T-Squared Alliance;
- on dissolving the T-Squared Alliance, SP AusNet was contractually required to purchase non-network assets from Tenix, and moreover, was required to purchase tools and equipment for the remainder of the regulatory period; and
- at the time of developing the 2006 EDPR Proposal (around 2004/05), SP AusNet was leasing its vehicles. In 2008, SP AusNet made a decision to purchase a proportion of its vehicles. This lead to around $11.7M in capital costs being incurred, which was not otherwise included in SP AusNet's benchmark allowances.

The latter resulted in a substantial increase in non-network general capex, however it is noted that this was confined to 2008.

6.13.2 Overview of Forecasting Methodology

This forecast was developed via the extension of the existing annual budgeting process. More specifically, relevant areas within the business, for example the Central Region manager, Facilities manager and Works Manager within Field Services were asked to detail the minor tools and equipment that they would require over the forthcoming regulatory control period.

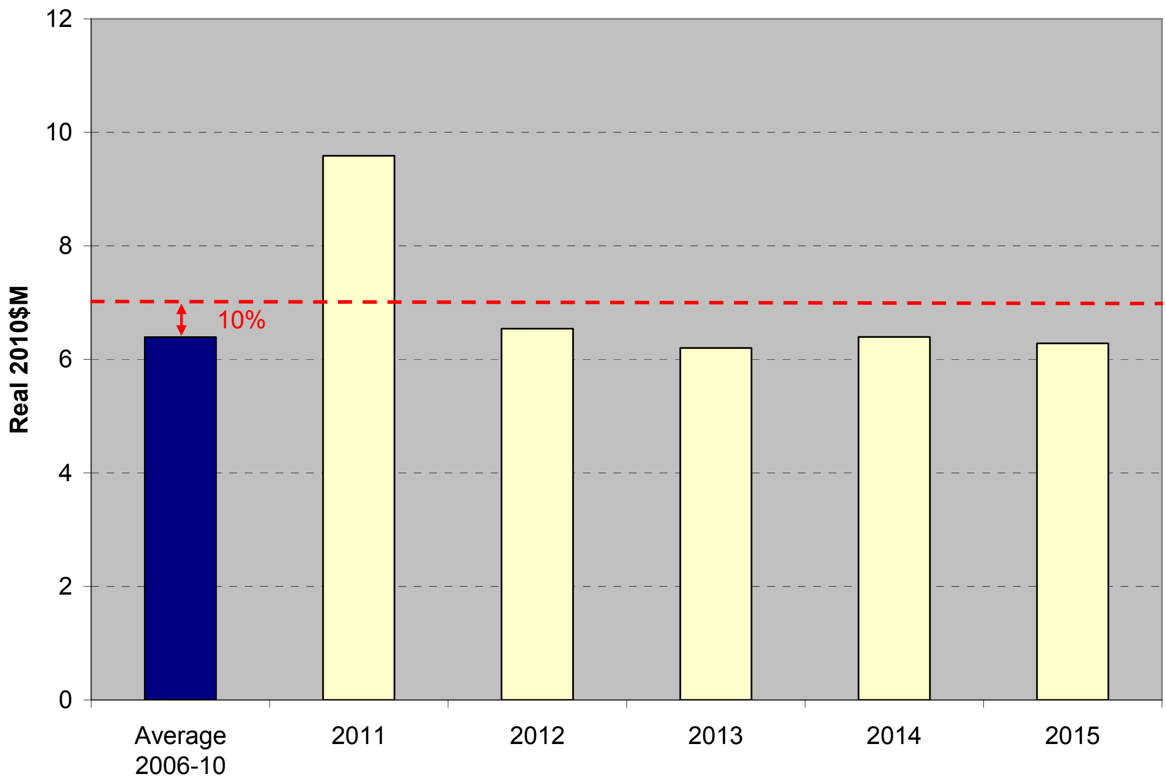
6.13.3 Forecast Non-network General Capex

SP AusNet is proposing $35 million in non-network general capex over the forthcoming regulatory control period. This is primarily driven by the need to purchase minor tools and equipment to allow the safe operation of the network by SP AusNet's employees. It is noted that no fleet or facilities capex has been included in this Proposal. As stated in Chapter 7, SP AusNet is proposing to continue with its current approach of leasing these items.

Table 6.14: Proposed Non-network General Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Total	9.6	6.5	6.2	6.4	6.3	35.0

Figure 6.19: Proposed Non-network General Capex



Source: SP AusNet

6.13.4 Motor vehicle fleet

SP AusNet has reverted back to leasing its motor vehicles towards the end of this current regulatory control period and will continue its current leasing arrangements for its fleet of vehicles throughout the forthcoming regulatory control period. Therefore, no capex associated with motor vehicles has been included in this Proposal.

The disposal timing for motor vehicles is as set out below:

- passenger vehicles and utilities - 3 years;
- 4WD light commercial - 5 years; and
- heavy commercial vehicles - 10 years.

The above information is provided in accordance with section 3.8(c) of the RIN.

6.13.5 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with SP AusNet's Asset Management Strategy and all relevant support material referenced in SP AusNet's Support Document Register.

6.13.6 Compliance with the Rules

SP AusNet notes that the information set out above together with the supporting documentation provided with this Proposal demonstrates that the forecast of $35 million in non-general capex complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.14 Customer Connections Capex

Customer connections capex is defined as expenditure to establish new customer connections to the network, including that part of the cost recovered through customer contributions towards connection/augmentation work (net of standard service charges).

Historical customer connection and reinforcement projects have separate work codes in SP AusNet's accounting systems and allocated accordingly in the regulatory accounts. In addition, customer connection capex and customer contributions are calculated in accordance with Guideline 14.

The primary purpose of the customer connections capex program is to meet the requirement of Clauses 6.5.7(a)(1) and (2) of the NER.

This section of the proposal and the accompanying support material complies with the requirements of:

- Section 5 of the RIN and Sections 3.1 and 3.2 where these apply to customer connections capex; and
- Clause S6.1.1 of the NER.

6.14.1 Classification

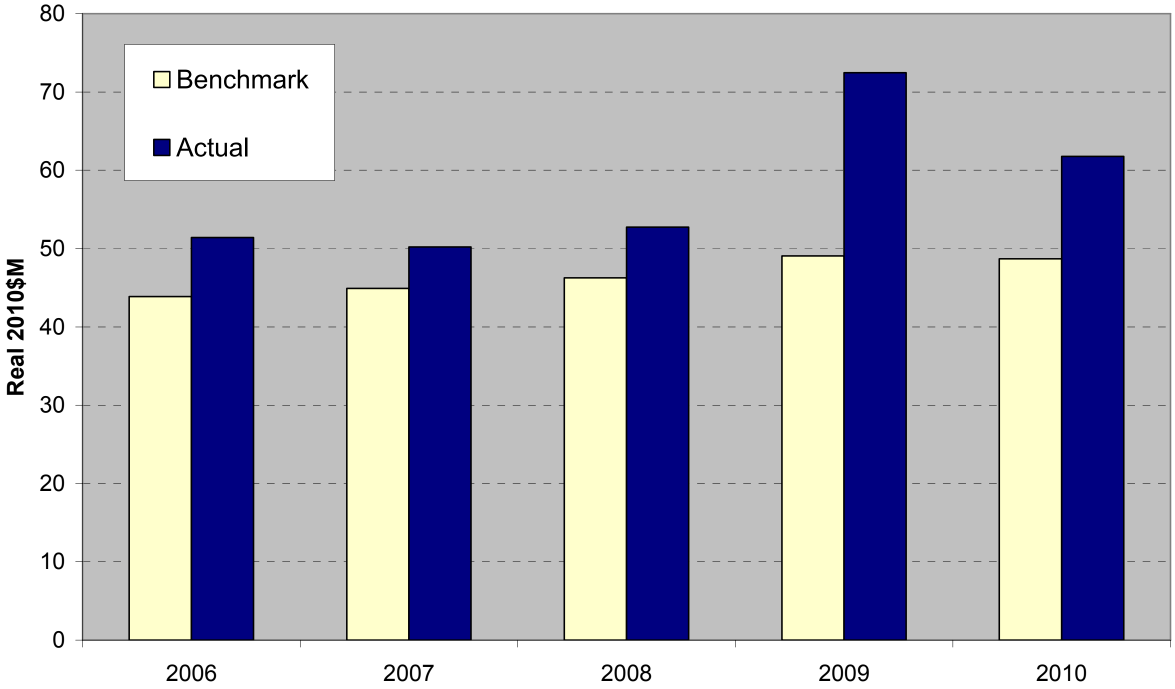
SP AusNet's proposed classification of customer connection as a standard control service is set out in Chapter 2 of this Proposal.

6.14.2 Historical Performance

For the 2006 EDPR Determination, SP AusNet proposed capex in this category that would meet gross new connections of 65,548 over the period from 2006 to 2010. Actual gross new customer connection is forecast to be 69,822 by the end of the current regulatory period. Therefore, customer connection volumes have been higher than forecast.

Net capex for customer connections is forecast to be $289 million. This is $56 million or 24% higher than the allowance set in the 2006 EDPR Determination.

Figure 6.20: Historical Expenditure versus Benchmark



Source: SP AusNet

Reasons for this performance

As per Clause 3.10 of the RIN, the reasons for this were:

- an inadequate regulatory allowance for customer capex in the 2006 EDPR Determination;
- higher than expected new customers; and
- unit costs being considerably higher than forecast.

The overspend is primarily the result of SP AusNet having an inadequate allowance from the 2006 EDPR Determination to meet forecast customer connections growth. While the ESC accepted SP AusNet's forecast customer connections numbers in the EDPR Determination, it rejected the SP AusNet's proposal and only provided an allowance of $233 million.[45] On top of this, SP AusNet has experienced higher than expected customer connections over the current

[45] ESC, *2006 EDPR Final Determination*, p252.

period. These factors, in combination with higher input costs, have contributed to the $56 million overspend.

These higher costs remain efficient as the works are non-discretionary, the scope is decided by the customer (subject to minimum connection standards) and the works are subject to the competitive tender processes required by Guideline 14.

6.14.3 Drivers of Customers Initiated Capex

Compliance Obligations

SP AusNet has obligations to connect customers under the following regulatory instruments:

- its *Electricity Distribution Licence*, and in particular, Clause 6 (Obligation to Offer Connection Services and Supply to a Customer), Clause 8 (Obligation to Offer Undergrounding and Similar Services) and Clause 11 (Requirements for Offers);
- the *Distribution Code*, in particular Clause 2 – Connection of Supply;
- *Electricity Industry Guideline No. 14 – Provision of Services by Electricity Distributors* (Guideline 14); and
- SP AusNet's customer contribution policy published, as required, by Guideline 14.

The instruments and policy also set out in detail the calculation of customer contributions.

With customer service connection obligations set under the Distribution Code and customer contribution policy governed by Guideline 14, any variations between forecast and actual customer initiated expenditure is largely determined by economic conditions that influence new customer connection numbers and the unit cost of new customer connection capex.

Economic Growth

The level of customer initiated expenditure is largely determined by economic conditions that influence customer connection rates.

SP AusNet's customer connection growth rates are periodically verified through independent industry and market research.

This has determined that average economic growth in GSP for Victoria is expected to decline marginally from 1.86% over the current regulatory control period to 1.76% over the forthcoming regulatory control period. Further information relating to these economic growth forecasts is provided in Chapter 5.

Growth rates in customer connections for the forthcoming regulatory period are similar to those experienced during 2006-10, specifically averaging around 2.1% per annum.

The ratio of contributions to total capex is expected to remain stable over the forthcoming regulatory control period.

6.14.4 Methodology for Forecasting Customer Connection Capex

Established unit rates to respective customer connection categories are utilised to establish budget forecasts. These unit rates are based on a historical average cost across a number of connection categories. Customer unit rates are derived through dividing customer numbers for the respective activity codes into the annual expenditure. The high volume of customer numbers provides unit rates with low variance, which can be used to accurately forecast future capex. Forecasts of customer numbers were provided by NIEIR and have been used in conjunction with derived unit costs to estimate the forecast capital proposal. Unit rates are discussed further in section 6.15 and in the supporting document entitled *Unit Costing*, provided in support of this proposal.

Customer connection capex is offset by customer contributions in accordance with Guideline 14.

AMI Roll-out

In accordance with the requirements of Clause 5.1(a)(ii) of the RIN, SP AusNet has excluded all customer connection capex associated with the AMI roll-out. This capex is separately recovered through the AMI cost recovery determination. Costs are allocated in accordance with SP AusNet's approved CAM.

6.14.5 Customer Contributions

In accordance with Clause 5.2(a)(i) and (ii) of the RIN, the quantum of the customer contributions in each regulatory year of the previous regulatory control period, current regulatory control period and the forthcoming regulatory control period, and the customer categories to which the customer contribution relates, are set out in the RIN Template 2.1 provided with this proposal.

Further information in relation to customer contributions to address RIN requirements is provided below.

Ratio of customer contributions to gross capex over time

In accordance with clause 5.2(b)(i) of the RIN, customer contributions made up 41% of total customer capex in the current regulatory control period, and are forecast to fall to 27% in the forthcoming regulatory control period. Variations greater than 10 % (above or below) between the current and forecast regulatory control periods have been observed in two customer categories – Urban LV and Rural (short) HV. These categories are consistent with the categories set out in the RIN template 2.1. The variance may be a consequence of the high level allocator used for customer contributions.

Depth of Connections

SP AusNet adheres to Guideline 14 in calculating customer contributions which ensures the appropriate charging calculation in relation to deep and shallow connections. The customer contribution calculation takes into account all augmentation required in the distribution network but excludes any augmentation required to the transmission network. In this respect, where "deep" connections relate to works to the transmission network, SP AusNet does not anticipate any customer contributions related to "deep" connections in the forthcoming regulatory control period.

In circumstances where a customer requests connection works where SP AusNet already has existing plans to augment the distribution network, and the project is brought forward to accommodate the customer's request, the customer is charged a customer contribution fee only so far as this relates to the costs associated with bringing forward the project. However, this charge does not reflect the technical requirements of the works (ie: that it is a "deep" connection in terms of the engineering sense) but rather, a cost allocation approach.

This addresses clause 5.2(b)(ii) of the RIN.

Powerline Relocation Scheme

SP AusNet has recorded approximately a total of $0.8 million in customer contributions attributable to the Victorian Powerline Relocation Scheme over the period spanning both the 2001-05 and 2006-10 regulatory control periods. No contributions are forecast for the forthcoming regulatory control period.

The Victorian Government and Council funds 100% of the forecast capital cost of a project which fulfils the Powerline Relocation Scheme. If the actual cost exceeds the target estimated cost then this is funded by SP AusNet.

Wind farm related connection

Based on available information, the customer contribution attributable to wind farm related connection capex funded under the Electricity Industry Act 2000 (Vic) for the forthcoming regulatory control period is nil.

6.14.6 Other RIN Requirements

Bushfires related reconnections

In accordance with Clause 5.3 of the RIN, SP AusNet estimates the component of new customer connection capex associated with reconnecting customers disconnected as a result of the February 2009 bushfires to be approximately $0.7 million over the forecast regulatory control period, having been approximately $0.2 million in the current regulatory control period. This figure is based on an analysis of abolishments and expected reconnections in the areas affected by the February 2009 bushfires and the average cost of reconnection.

Undergrounded connection

In accordance with Clause 5.3 of the RIN, the component of new customer connection capex that is proposed to be undergrounded is $147 million over the forthcoming regulatory control period. The profile of this capex is shown in the table below.

Table 6.15: Undergrounded Customer Connection Capex

(Real 2010 $M)	2011	2012	2013	2014	2015	Total
Capex	30.9	28.6	26.4	28.1	32.8	146.8

In accordance with Clause 5.5 of the RIN, this proposed underground customer connection capex meets the objective set out in Clause 6.5.7(a)(2) as it allows SP AusNet to comply with Victorian regulatory obligations. Specifically, under Clause 8 of its distribution licence, SP AusNet is "required to co-operate with proposals to underground distribution fixed assets".[46] Capex costs result from this obligation because:

> *In making an offer to underground distribution fixed assets, a distributor must include a price that has been determined on the basis that the distributor is to*

[46] ESC, Clause 2.1.1, *Electricity Industry Guideline No. 14 – Provision of Services by Electricity Distributors*, page 1.

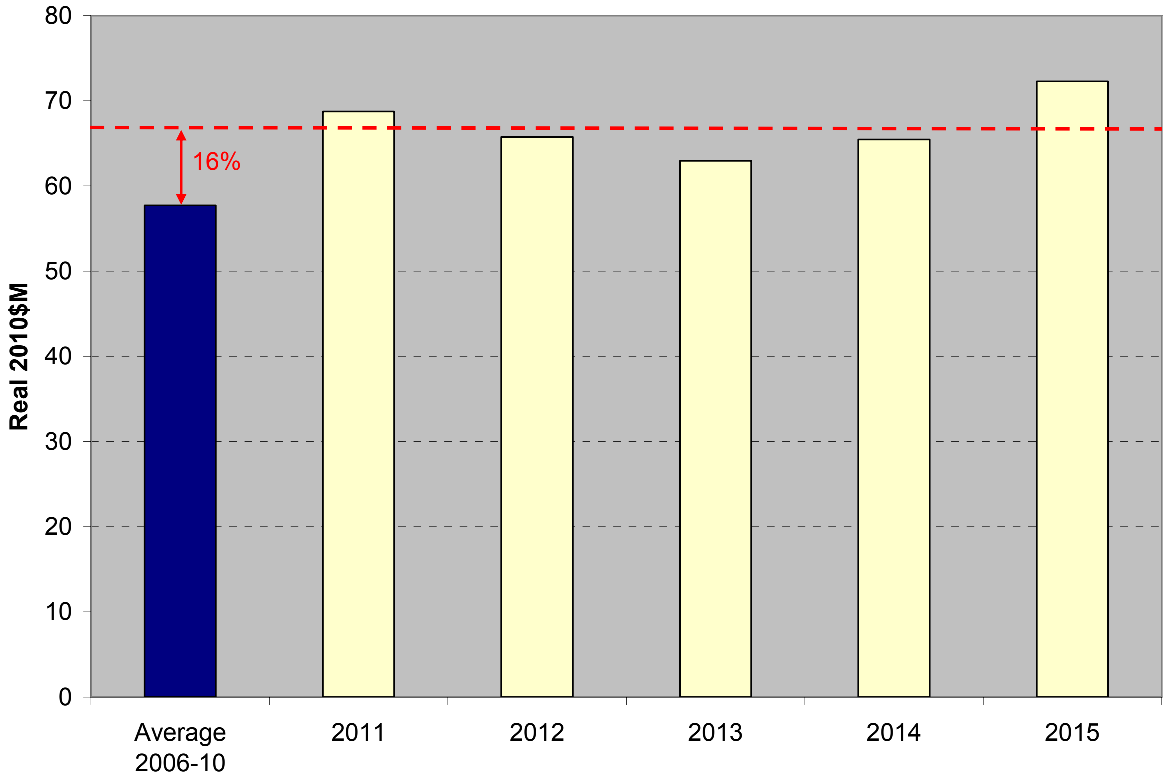
contribute toward the costs of the undergrounding an amount equal to the distributor's avoided costs.[47]

Guideline 14 sets out in detail how the avoided cost is to be calculated. SP AusNet's capex forecasts are calculated consistent with the requirements of Clause 2.3 of Guideline 14.

6.14.7 Proposed Customer Connections Capex

SP AusNet is proposing $335 million in total net customer connections capex over the forthcoming regulatory control period. This is 16% more than the amount spent in the current regulatory control period. This does not include $37 million of customer connections capex related to alternative control services. This increase in capex is to meet the expected customer growth forecast for the forthcoming regulatory control period and accommodate higher unit costs.

Figure 6.21: Proposed Net Customer Connections Capex



Source: SP AusNet

6.14.8 Key Support Documentation

In accordance with the requirements of the RIN, SP AusNet has supplied the AER with:

- SP AusNet Asset Management Strategy AMS 20-01;
- NIEIR Report;

[47] Ibid, Clause 2.2, page 2.

- Regulatory test and business cases for projects above the $5 million threshold set out in the RIN and clause 6.5.7 (b)(4) of the NER;
- RIN Templates setting out detailed historic and forecast financial information; and
- all relevant support material referenced in SP AusNet's Support Document Register.

6.14.9 Compliance with the Rules

SP AusNet notes the above information together with the supporting documentation provided with this Proposal demonstrates that the forecast capex for customer connections complies with Clauses 6.5.7 and S6.1.1 of the NER and the requirements of the RIN.

6.15 Unit Rates and Costs

6.15.1 Scene setting

Since 2005 SP AusNet has been subject to increasing cost pressures, and this is reflected in the historic capex spend against the 2006 EDPR Benchmark. For example, commodity and equipment prices have increased during the current regulatory control period at a much faster rate than CPI. Higher commodity prices flow into plant, materials, equipment and construction costs.

SP AusNet manages the risk of input cost increases by negotiating long term purchase agreements with suppliers. However, as agreements expire and are replaced with new agreements, SP AusNet is been unable to avoid the impact of higher commodity and equipment prices.

In the current regulatory control period, SP AusNet has also experienced labour cost increases as strong competition for skilled labour has driven increases in labour rates in the utility sector. The sustained period of strong economic growth in Australia has exacerbated the high demand for skilled labour. As a result of commodity, equipment and labour cost increases, SP AusNet has experienced higher installation costs.

In addition to these input cost increases, SP AusNet has been subject to a hostile funding environment following the global financial crisis in 2008, which has increased funding costs and driven the business to carefully prioritise capital.

6.15.2 Unit rates

Unit rates used in forecast capex

Unit rates are generally based on current and historic spending levels. The current unit rates used in SP AusNet's forecast network capex were developed over the course of 2009 and finalised in November 2009.

In relation to asset replacement programs and minor reinforcement projects, current unit rates for different categories of works and materials/equipment are applied to the estimated volumes to establish forecast capex. These unit costings are set out in the document entitled *Unit Costing*, provided in support of this proposal. Essentially, they are derived from historic cost information from completed works and projects covering a combination of:

- internal cost information on current materials, equipment and labour costs from the corporate systems which records; and

- market cost information provided through competitive tenders, current quotations, orders or contracts.

These unit rates are verified against total contract costs and industry cost guides.

Reinforcement expenditure forecasts are based on a detailed bottom-up cost-build on a project by project basis (excepting minor reinforcement works). Information in relation to the estimated project costs for major reinforcement projects are provided in the individual project reports and analysis provided in support of this proposal.

Customer unit rates are derived through dividing physicals for the respective corporate activity codes into the annual expenditure. The high volume of physicals provides unit rates with low variance which can be used to forecast future capital expenditure. Forecasts of customer numbers (physicals) were provided NIEIR and have been used in conjunction with derived unit costs to estimate the forecast capital proposal.

The unit rates used to develop forecast capex are generally different to those used in day to day project estimation for practical reasons. For asset replacement in particular, forecasts are based on a program of works and then quantities estimated to implement those programs. In day to day operations, different projects may result in different unit rates being applied, depending on the mix of materials, equipments, activities and the scope of the project. As such, the unit rates used for forecasting purposes are not automatically reflected in actual project costs.

The unit rates used in the model to develop SP AusNet's capex forecasts are the same unit rates as described above. Forecast costs have been developed by applying real escalators to the current unit rates.

Efficiency of current unit rates

SP AusNet considers the unit rates used to derive the forecast capex represent efficient costs. The rates result from SP AusNet's internal project delivery services which are subject to regulatory cost management incentives, as well as competitive tender processes which inject external market rates into the cost analysis. This assists in ensuring unit costings are efficient. Further, for internal and external service providers, benchmark measures are established to monitor costs and performance.

In addition to this, SP AusNet's procurement group manages the materials and equipment required for capex projects and forms long-term supplier contracts, minimising cost increases. SP AusNet also benefits from the lower pricing offered for increased order volumes. These organisation arrangements ensure unit costs remain efficient.

Historical unit rates

The historical unit rates used for key items of plant and equipment are provided in the document entitled *Unit Costing*, provided in support of this proposal.

The base unit rates used for the 2006-10 regulatory control period were developed in a manner consistent with an estimation model developed independently by PB Power in the previous regulatory control period. These rates were accepted in the 2006 EDPR Determination.

The split in labour and materials in historic capex is different to the splits in forecast capex is explained in the explanatory notes accompanying RIN template 5.2.

6.15.3 Labour and materials escalators

The escalators used in SP AusNet's forecast capex are set out in the table below in real terms. The same expenditure escalators have been used in developing the forecast opex.

Table 6.16: Escalators used in developing forecast capex

Escalator	2010	2011	2012	2013	2014	2015
Labour	2.56%	2.62%	2.60%	2.87%	2.54%	2.34%
Materials-						
Aluminium	15.90%	5.10%	3.70%	3.90%	3.40%	3.10%
Copper	14.30%	-.70%	-3.70%	-4.10%	-4.10%	-4.20%
Steel	20.00%	6.90%	1.80%	-0.80%	-0.70%	-0.80%
Crude Oil	29.00%	0.00%	-1.00%	0.00%	0.00%	0.00%

In relation to standard control services, the portion of forecast capex due to labour and materials escalation is approximately 9.45% (or about $118.5 million) over the forthcoming regulatory control period.

The above escalators are supported by reports from suitably qualified consultants in combination with information that specifically relates to SP AusNet, such as its current EBA. In particular:

- BIS Shrapnel[48] has estimated the labour escalators. The BIS Shrapnel Report, which is provided as an appendix to this Proposal, describes its sources, data conversions; its assumptions, including lags.
- SKM's report[49], which is also provided as an appendix, outlines the weightings given to each escalator for major equipment items, and explains how these weightings have been developed, including any assumptions.
- For some categories of equipment, SP AusNet has applied its own weightings based on an engineering assessment. A spreadsheet entitled *SP AusNet escalator weightings – Section 12.2(d)(ii) RIN Requirement* sets out the relevant information as part of this Proposal.
- SP AusNet has provided a copy of the model used to apply these labour and materials escalators as part of the supporting information to this Proposal. SP AusNet cannot

[48] BIS Shrapnel, Wages Outlook for the Electricity Distribution sector in Victoria, August 2009.

[49] SKM, Victorian DNSP Annual Material Escalators 2010-15 Final Reprt – SPA Asset Categories, November 2009.

provide the models which derive the escalators and weightings used in its Proposal as this is the intellectual property of SKM and BIS Shrapnel.

It should be noted that SP AusNet's capex forecasts do not include a contingency factor, with the exception of IT non-network capex. The rationale for the inclusion of a contingency factor in IT capex is discussed in the IT Strategy.

6.16 Capex and Opex Substitution

SP AusNet recognises the linkages between its capex and opex work programs within the NPV analysis that underpins the development of its entire capex program, which ensures that its mix of programs represents the least cost means of maintaining existing levels of service. This section addresses the substitution possibilities between operating and capital expenditure and chapter 7 of this Proposal provides more detailed discussion of the impact of SP AusNet's capex forecast on its opex forecast for the forthcoming regulatory control period.

6.16.1 Capex to Maintain Reliability and Quality

The impact that its reliability and quality related capex program will have on SP AusNet's opex forecasts is split into two discrete sections:

- network heat related faults; and
- other system assets.

Network heat related faults

SP AusNet engaged AECOM to identify the impact that climate change will have on SP AusNet's electricity distribution network. AECOM has advised that the cost incurred by SP AusNet over the study's reference period (which includes the summer of 2009) related to extreme heat events is greater than the cost that a prudent service operator would expect to incur over the forthcoming regulatory control period. SP AusNet has accepted AECOM's recommendation that forecasts should be reduced by $875,000 per annum and has factored this cost reduction into its forecast.

Amongst other planned works, SP AusNet is proposing to replace a significant number of distribution transformers over the forthcoming regulatory control period, which will increase the average capacity of its fleet. In theory, this will reduce the opex costs associated with attending capacity related faults and emergencies, which in turn, generally occur during extreme loading events.

Table 6.17: Impact of Distribution Transformer capex on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Reliability – Other System Asset	-0.88	-0.88	-0.88	-0.88	-0.88

Other System Assets

SP AusNet's considers that when an asset, which was at or near the end of its economic life, is replaced, then the level of reliability increases, whilst the cost of operating and maintaining that asset will generally reduce.

SP AusNet observes that the capital expenditure objectives outlined in Clause 6.5.7(a)(3) and (4)) require that its capex program allows it to maintain existing levels of service. The results of this are that the increasing age and deteriorating condition of some network assets will be offset by a reduction in the age, and therefore, enhanced condition (through replacement) of other network assets. The reduced opex costs associated with replacing assets that are at or near the end of their economic life, will be offset by the increased opex costs associated with maintaining and operating older assets that aren't replaced during the forthcoming regulatory period. Therefore, SP AusNet has not sought an increase in its opex as a result of 'ageing assets', nor has it sought to reduce its opex forecasts for the perceived reduction in opex costs when older assets are replaced with newer assets.

6.16.2 Capacity related capex to provide standard control services to customers

The provision of standard control services to end customers over the forthcoming regulatory control period implicitly requires SP AusNet to not only provide enough network capacity to facilitate the distribution of electricity to its existing customers, but also to all of its new customers. The process outlining SP AusNet's approach to estimating this impact is set out in detail in Chapter 7 below. SP AusNet's approach leads to the following work volume escalation rates. Parameters not included in the table below have been determined to have escalation rates of 0%.

Table 6.18: SP AusNet's Work Volume Escalation Rates

Parameter	2010	2011	2012	2013	2014	2015
Routine maintenance	0.78%	1.41%	0.76%	0.76%	0.75%	0.78%
Condition-based maintenance	1.05%	0.98%	1.22%	0.99%	1.01%	1.05%
Emergency maintenance	0.45%	0.33%	0.71%	0.33%	0.34%	0.45%

6.16.3 Information Technology capex

The planned replacement of existing IT systems during the forthcoming regulatory control period will have a consequential effect on IT opex costs. In particular, additional opex costs will arise in relation to:

- Providing on-going support;
- Training users of the new systems; and
- Administering and licensing new IT systems.
- SP AusNet's modelling of IT opex costs also includes the cost reductions that stem from, amongst other things:
- Phasing out of obsolete IT systems; and
- Cessation of contracts with a number of third party service providers.

More detailed information with regards these opex costs changes are outlined in Chapter 7 below and the IT Strategy. Further information with regards to these expected benefits of each of SP AusNet's IT programs are provided in the IT Strategy.

Table 6.19: Impact of IT capex Program on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Impact on IT opex	6.81	7.32	7.32	9.18	8.28

6.16.4 Non system General capex

SP AusNet analysis shows that it is economic to continue its current leasing arrangements for its facilities and its fleet of vehicles, trucks etc. Therefore, no capex costs for this expenditure has been included in this Proposal.

Table 6.20: Impact of Non System General capex Program on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Leasing of fleet	-0.39	0.52	0.81	1.55	2.00
Leasing of facilities	0.29	0.30	0.88	0.88	0.88

6.16.5 Impact of larger capex program on opex

SP AusNet's proposed increase in its capex program will:

- increase the amount of opex costs that are incurred by SP AusNet to deliver these programs, and which are subsequently capitalised, as these costs are partially variable; and
- reduces the overall percentage overhead that is applied to direct capital expenditure, as SP AusNet's larger capex program will result in this capitalised overhead amount being allocated across a larger pool of capital projects.

This Proposal includes a reduced overhead capitalisation rate of 16% for the forthcoming regulatory control period, relative to the historical average of 26.5% for the period 2006-2009.

Table 6.21: Impact of Increased capex Program on Capitalisation Rate

Parameter	Current Period Average	2011	2012	2013	2014	2015
Impact of increased capex program on Capitalisation Rate	26.5%	16%	16%	16%	16%	16%

6.16.6 Assessment against the NER and the RIN

SP AusNet considers that its approach to forecasting the impact that its capex program will have on its opex forecasts is consistent with the NER. More detailed discussion on this area is provided in Chapter 7.

6.17 Deliverability of the Proposed Capex Program

This section of the proposal and the accompanying supporting material directly addresses Section 3.2 of the RIN, which requires SP AusNet to explain the deliverability of its forecast capex and to provide supporting documentation relating to deliverability.

6.17.1 Financial deliverability

SP AusNet has secured sufficient funding to support the proposed capital investment for the forthcoming regulatory control period. This includes:

- raising $408 million of equity under a rights issue on 12 May 2009; and
- having in place debt funding of $4.1 billion and undrawn debt facilities worth $325 million with maturities out to 2018.

The experience already gathered in the 2009/10 financial year, where the work program is similar in size to the forecast period, demonstrates SP AusNet's financial delivery capability.

The overall capex program has been subject to detailed financial modelling to ensure that it can be financed, within the constraints of maintaining a BBB credit rating. The results of this analysis indicate that the proposed capex program is deliverable from a funding perspective, although those results are highly sensitive to credit market and revenue assumptions.

Furthermore, using the funding assumptions in the PTRM it has been determined that recourse to external equity is not necessary using regulatory benchmark assumptions. This will be revisited in light of revenues provided for in the AER Draft Decision.

6.17.2 Physical deliverability

The capex program for the forthcoming regulatory period represents a material increase in expenditure from the level undertaken in the current period. However, the annual levels of capex forecast are already being achieved in the most recent years of the current regulatory control period.

The increased program should also be assessed against of the total capex managed by SP AusNet in Victoria. For example, in 2009, SP AusNet is forecasting to spend $535 million across its gas and electricity networks. Thus, the average real increase of 48% in forecast electricity distribution capex represents just a 17% increase on total annual SP AusNet capex. SP AusNet has demonstrated during the current period it can successfully manage an increase in capex of this order. The average capex during the current regulatory control period was substantially higher in real terms than for the preceding regulatory period from 2001 to 2005.

SP AusNet's experience in efficiently executing its previous capex program is reflected in its Project Delivery Model, which is described below.

Program Delivery Model

Both capex and maintenance services are provided by internal and external service providers. The Integrated Network Services (INS) Group within SP AusNet provides resources to deliver SP AusNet's opex and capex programs. Panels of external service providers, sourced through competitive tenders, are also used. For internal and external service providers, benchmark measures are established to monitor costs and performance.

Further detail in relation SP AusNet's program delivery capability is set out in *AMS 10-21-Program Delivery*, provided as supporting information to this Proposal.

Program Optimisation

Work arising from SP AusNet's expenditure plans is bundled into projects to ensure that the delivery of this work is cost effective and minimises planned outages. This optimisation takes into account forecast works across the major categories of primary, secondary and communications equipment.

Design

The provision of design services has been restructured by tendering standard work packages and selecting a number of service providers based on price, quality and performance. This process results in more efficient specification and delivery of design services at lower costs and within reduced timeframes.

Materials and equipment

Planning for the materials and equipment for the capex program is carried out via a purchasing plan that coordinates the manufacturing and delivery requirements with suppliers.

A strategic purchasing group manages the materials and equipment required for capex projects on a project-specific basis to ensure timing and specifications are met. This group also provides business efficiencies due to the volume of works and the price pressures in the market. This includes forming long-term supplier contracts, where benefits accrue to both parties in the form of more stable pricing, minimising cost increases. SP AusNet also benefits from the lower pricing offered for increased order volumes.

Installation

Installation services are tendered out on a competitive basis to the installation service provider panel and internal benchmarks are established to provide an indication of fair market rates.

The decision to use external service providers is optimised based on the strategic importance of the work and the most efficient delivery model for the services. External work is generally sourced by competitive tendering.

6.18 Benchmarking of the Proposed Capex Program

The previous sections has outlined SP AusNet's analyses, processes and procedures to ensure that efficient forecasts are developed, costed and implemented. It is widely recognised that benchmarking capex is fraught with difficulty because account needs to be taken of asset age and condition; planning standards; and load growth – all of which can differ materially across companies. Nevertheless, the information presented in this section is intended to provide a broad cross-check that SP AusNet's capex forecast is reasonable.

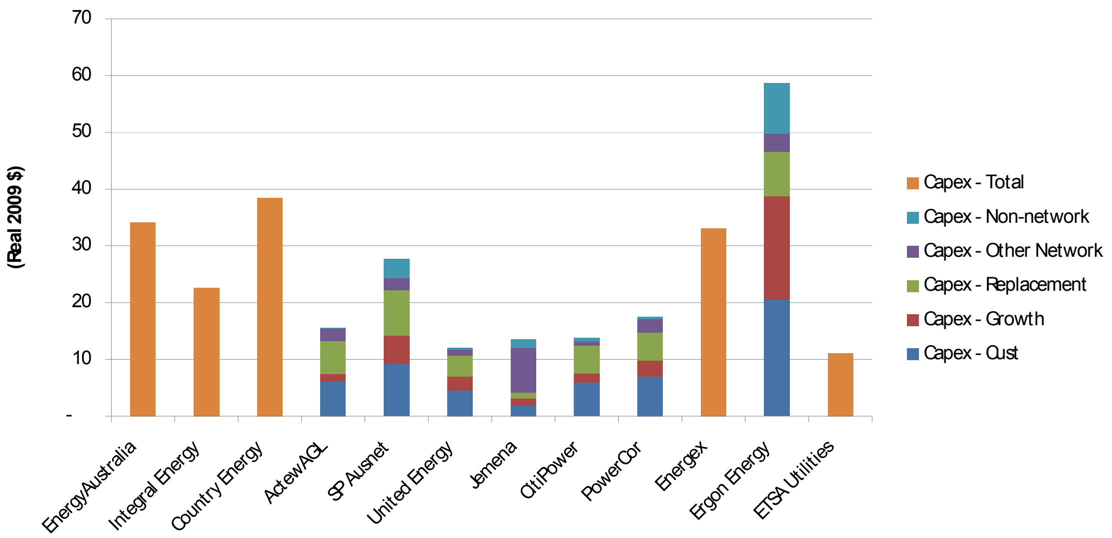
6.18.1 Benchmarking Historical Capex

The figures below report benchmarking results from SKM, using 2008 data. The data source consists of publically available data for the non-Victorian DNSPs and detailed data from the Victorian DNSPs. The 2008 year was chosen as it was the most recent year auditable data was available.

Several observations can be made:

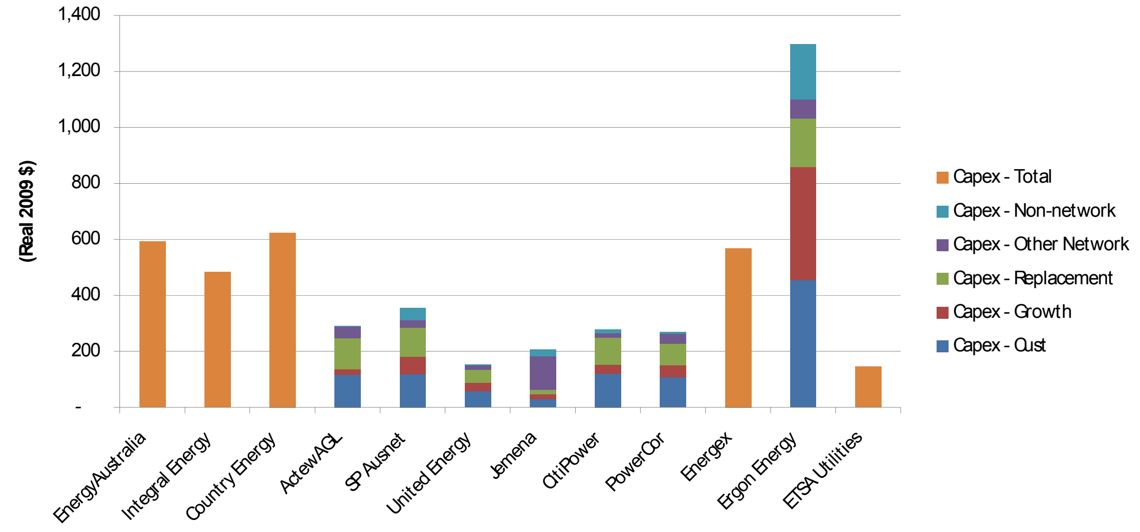
- the privately owned DNSPs (including the five Victorian DNSPs) capex ratios were well below that of the publically owned DNSPs;
- the privately owned rural DNSPs (SP AusNet, Powercor) capex ratios were well below that of the publicly owned rural DNSPs (Country Energy, Ergon).

Figure 6.22: Total Capex per Energy Sales (MWh), 2008



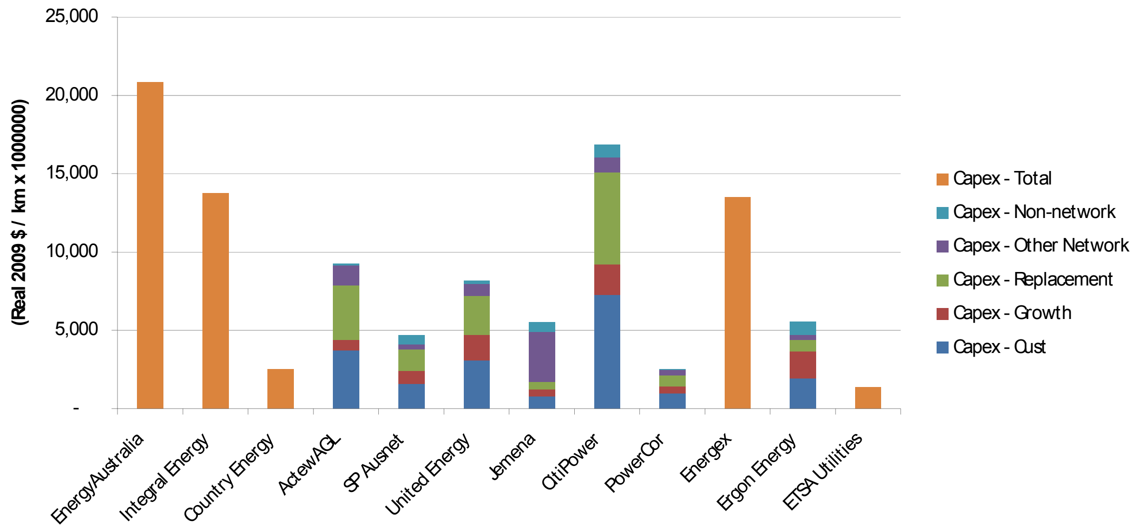
Source: SKM Benchmarking.

Figure 6.23: Capex per total customer number, 2008



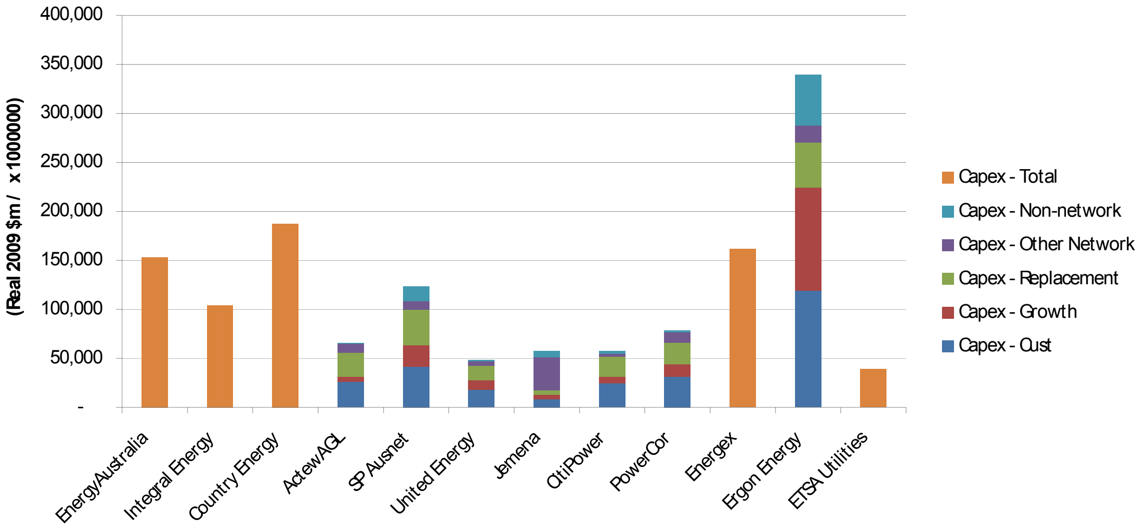
Source: SKM Benchmarking.

Figure 6.24: Total Capex per Line Length (km) 2008



Source: SKM Benchmarking.

Figure 6.25: Total Capex per Max Demand (MVA) 2008



Source: SKM Benchmarking.

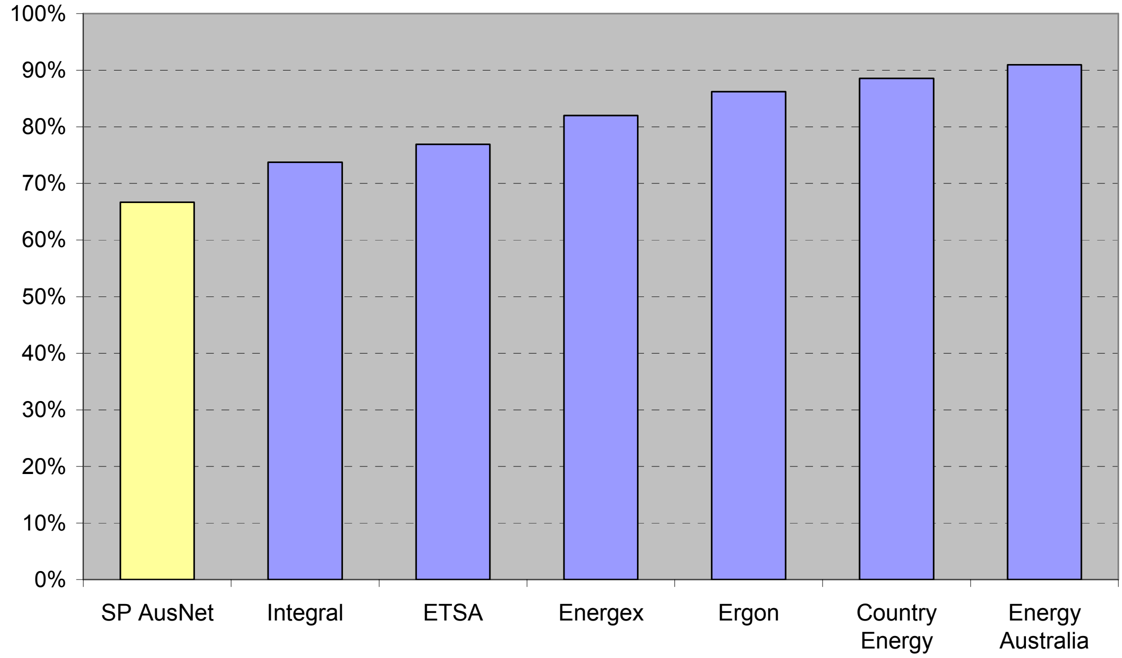
6.18.2 Benchmarking Forecast Capex

The figure below shows the ratio of capex to the regulatory asset base for a number of DNSPs, using data from recent AER decisions or DNSP proposals.

Whilst a number of different benchmarks could be examined, this high-level comparison confirms that SP AusNet's capex proposal is reasonable when compared to the capex approved or proposed by DNSPs in other states. SP AusNet would also observe that SP AusNet faces many of the same pressures experienced in other states, including:

- addressing network deterioration due to age;
- high demand growth; and
- implementation of new technology.

Figure 6.26: Capex/RAB Ratio



Source: SP AusNet, Current Proposals (SA and Qld), AER Decisions (NSW).

7 Operating and Maintenance Expenditure

This chapter outlines SP AusNet's proposed opex for the forthcoming regulatory control period. This chapter is structured as follows:

- Section 7.1 provides a summary of SP AusNet's opex forecasts and the key assumptions underpinning those forecasts;
- Section 7.2 details the regulatory information requirements that SP AusNet has complied with when developing its opex forecasts;
- Section 7.3 outlines the aims and objectives of SP AusNet's opex;
- Section 7.4 describes SP AusNet's method for developing its opex forecasts;
- Section 7.5 outlines SP AusNet's base year opex;
- Section 7.6 discusses SP AusNet's forecast cost escalators;
- Section 7.7 explains the capex/opex trade offs that SP AusNet has taken into account in developing its opex forecasts;
- Section 7.8 outlines SP AusNet's Step Changes and Other Cost Changes;
- Section 7.9 explains SP AusNet's self insurance risk quantification;
- Section 7.10 sets out SP AusNet's debt raising costs;
- Section 7.11 outlines the costs to SP AusNet of providing GSL payments to customers;
- Section 7.12 summarises SP AusNet's demand management opex; and
- Section 7.13 outlines the amount SP AusNet has included for the payout of the current S-Factor scheme.

7.1 Summary of SP AusNet's Opex Forecasts and Assumptions

The following table summarises SP AusNet's opex forecasts for the forthcoming regulatory control period.

Table 7.1: Summary of SP AusNet's opex Forecasts

(Real 2010 $M)	2011	2012	2013	2014	2015	TOTAL
Operating						
Network operating costs	52.26	56.49	59.89	60.52	62.07	**291.23**
Billing and revenue collection	0.78	0.79	0.81	0.82	0.84	**4.04**
Customer service	9.10	9.05	9.26	9.45	9.63	**46.50**
Advertising / marketing	2.03	2.15	2.28	2.36	2.43	**11.25**
Regulatory costs	1.36	1.39	1.25	1.28	1.30	**6.58**
Other network operating costs	30.19	31.12	31.56	33.85	33.35	**160.08**
Maintenance						
Routine maintenance	5.37	5.49	5.59	5.68	5.77	**27.90**
Condition-based maintenance	14.68	15.12	15.34	15.57	15.96	**76.67**
Emergency maintenance	17.81	17.70	18.17	18.62	19.06	**91.35**
Vegetation management	27.18	28.42	27.35	27.34	27.85	**138.14**
SCADA and network control	0.15	0.15	0.16	0.16	0.16	**0.78**
Other Maintenance	-	-	-	-	-	**-**
Other Costs						
GSL payments	4.02	3.99	3.95	3.91	3.87	**19.74**
Debt raising costs	3.46	3.67	4.00	4.26	4.55	**19.94**
Total opex	**168.39**	**175.55**	**179.61**	**183.82**	**186.84**	**894.21**

Paragraph 4.2(b)(ii) of the RIN requires SP AusNet to outline each key assumption utilised in its Proposal. The table below outlines this information.

Table 7.2: Key Assumptions

Opex Input	Assumption
Base Year Opex	SP AusNet's base year opex is the company's latest estimate of recurrent opex for 2009. It is SP AusNet's actual opex to Sept 2009 and forecast opex for Oct-Dec 2009 for standard control services, adjusted downwards for the costs of two non-recurrent events that occurred in 2009: • $10.66 millions ($2009) for the incremental costs associated with the February 2009 bushfires and heatwaves, and • $3.26 million ($2009) for the costs that SP AusNet has paid to SPIMS for the actuarial adjustment pertaining to its defined benefits superannuation contribution. In addition, SP AusNet has removed $0.038 from its actual 2009 opex, to reflect a small margin that it paid to a related party service provider in 2009 for maintenance services.
Labour Escalator	SP AusNet has split its real labour cost escalators into two components, namely: • 'Energy, Gas and Water' (EGW) labour to escalate internal and related party labour; and • An 'Outsourced' index to escalate third party labour costs. The real labour cost escalators applying to each labour category in this Proposal are: • EGW increases 3.36% for the 2010 year, based on the average nominal wage increase that will apply to SP AusNet's employees under their Enterprise Bargaining Agreements (EBA) in 2010, less the assumed CPI rate for 2010 of 1.26%; • EGW increases annually at 2.9%, 2.6%, 2.7%, 2.6% and 2.4% for the years 2011 to 2015 period based on forecasts provided by BIS Shrapnel; • Outsourced increases 3.06% for non vegetation management related labour, and 3.74% for vegetation management labour for the 2010 year, based on a combination of contracted escalations and BIS Shrapnel's forecasts; • Outsourced annual increases of 2.4%, 2.6%, 3.0%, 2.5% and 2.3% for the years 2011 to 2015 period, again based on BIS Shrapnel's forecasts. Over 7% of SP AusNet's total opex forecast for the forthcoming regulatory control period results from the application of SP AusNet's proposed labour escalation rates.

Opex Input	Assumption
Materials Escalator	SP AusNet has applied a 0% real materials cost escalator in this Proposal.
Allocation of Overheads	Consistent with SP AusNet's proposed CAM.
Capex / Opex Trade Off	SP AusNet has escalated its maintenance expenditure by 0.68% per year to account for changes in the volume of maintenance that it expects to undertake in the forthcoming regulatory control period as a result of operating and maintaining an larger network in the next regulatory control period. SP AusNet has also: • Included an expected $0.88 million p.a. benefit that its distribution transformer replacement program will have on its Faults and Emergencies costs during extreme weather events; • Increased its opex costs by a net $7.78 million per year on average, to reflect the expected net increase in costs stemming from the implementation of new IT systems and from decommissioning old systems; • Reduced its Business as Usual opex forecasts to have regard to the benefits that its IT capex program will have on its on-going customer service costs; • Increased its opex costs by $4.46m and $3.23m to account for changing costs of leasing its fleet and facilities over the forthcoming regulatory control period; and • Reduced its overhead capitalisation rate from 26.5%, which is the average for the period 2006-2009, to 16%, to reflect the fact that the opex that is incurred and subsequently capitalised will be allocated across a larger pool of capex projects.
Step Changes and Other Cost Changes	SP AusNet forecasts a $98.06 million increase in its opex costs over the forthcoming regulatory control period due to Step Changes and Other Cost Changes. This can be further broken down into the following: • Step Changes – Compliance ($4.46 million) • Other Cost Changes – change in exogenous circumstances ($20.48 million), SP AusNet initiated - Safety ($37.29 million) and Customer ($35.84 million)

Opex Input	Assumption
Self Insurance	SP AusNet has included an allowance of $19.79 million over the forthcoming regulatory control period for its self insurance, which is based on an independent actuarial assessment. In addition, all 2009 actual opex costs that are already included in SP AusNet's 2009 Base Year and which have been used to derive these self insurance estimates, have been removed from this self insurance estimate to avoid double counting costs within this Proposal.
Debt Raising Costs	CEG has advised that a margin of 12 basis points (bp) per annum was appropriate for calculating direct debt raising costs for the forthcoming regulatory control period. In addition, the financial crises has justified an additional margin of 16 bp per annum to account for the increased holding costs of early refinancing. Combining these margin results in a debt raising cost allowance of between $3.45 million and $4.52 million per annum.
GSL Payments	SP AusNet has included an allowance of $19.74 million for its GSL costs over the regulatory period. This is based on the adoption of a 3.2β threshold, and includes the impact of climate change.
Demand Management Costs	SP AusNet forecasts $10.76 million for Demand Management programs over the regulatory period. Chapter 8 provides more detail with regard to these programs.

7.2 Regulatory Requirements

In formulating its opex forecasts, SP AusNet has carefully considered the regulatory requirements in the NEL, NER and RIN. A number of these provisions are discussed in more detail below.

7.2.1 National Electricity Law

The national electricity objective is defined in the NEL as follows:

> *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to —*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system."*

In developing its opex forecasts, SP AusNet has focused on ensuring that its expenditure plans are efficient in terms of the resulting price, quality, safety, reliability and security of supply of electricity. SP AusNet is especially conscious of the need to balance the growing customer expectations of service and reliability improvements against the competing pressure to keep price increases to a minimum. In balancing these objectives, SP AusNet has addressed the NER requirements, which are set out below.

7.2.2 National Electricity Rules

Clause 6.5.6(a) of the NER outlines the following 'operating expenditure objectives':

> *"A building block proposal must include the total forecast operating expenditure for the relevant regulatory control period which the Distribution Network Service Provider considers is required in order to achieve each of the following (the operating expenditure objectives):*
>
> *(1) meet or manage the expected demand for standard control services over that period;*
>
> *(2) comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;*
>
> *(3) maintain the quality, reliability and security of supply of standard control services;*
>
> *(4) maintain the reliability, safety and security of the distribution system through the supply of standard control services".*

The NER require the AER to accept the opex forecasts if certain defined operating expenditure criteria have been satisfied. In particular, Clause 6.5.6(c) states that:

> *"The AER must accept the forecast of required operating expenditure of a Distribution Network Service Provider that is included in a building block proposal if the AER is satisfied that the total of the forecast operating expenditure for the regulatory control period reasonably reflects:*
>
> *(1) the efficient costs of achieving the operating expenditure objectives; and*
>
> *(2) the costs that a prudent operator in the circumstances of the relevant Distribution Network Service Provider would require to achieve the operating expenditure objectives; and*
>
> *(3) a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives.*
>
> *(the operating expenditure criteria)."*

Furthermore, Clause 6.5.6(e) also defines the matters that the AER must consider in determining whether the operating expenditure criteria have been satisfied.

> *"(e) In deciding whether or not the AER is satisfied as referred to in paragraph (c), the AER must have regard to the following (the operating expenditure factors):*
>
> *(1) the information included in or accompanying the building block proposal;*
>
> *(2) submissions received in the course of consulting on the building block proposal;*
>
> *(3) analysis undertaken by or for the AER and published before the distribution determination is made in its final form;*
>
> *(4) benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the regulatory control period;*
>
> *(5) the actual and expected operating expenditure of the Distribution Network Service Provider during any preceding regulatory control periods;*

(6) the relative prices of operating and capital inputs;

(7) the substitution possibilities between operating and capital expenditure;

(8) whether the total labour costs included in the capital and operating expenditure forecasts for the regulatory control period are consistent with the incentives provided by the applicable service target performance incentive scheme in respect of the regulatory control period;

(9) the extent the forecast of required operating expenditure of the Distribution Network Service Provider is referable to arrangements with a person other than the provider that, in the opinion of the AER, do not reflect arm's length terms;

(10) the extent the Distribution Network Service Provider has considered, and made provision for, efficient non-network alternatives."

Clause S6.1.2 of the NER requires that the Proposal must also provide, amongst other things:

- the key assumptions that underlie the opex forecast (that must meet the above criteria); and
- a certification of the reasonableness of the key assumptions by the directors of the DNSP.

As noted earlier, SP AusNet has ensured that its opex forecasts fully address the NER requirements. Where appropriate, this chapter refers to the above provisions to assist the AER and other stakeholders in understanding how these requirements have been reflected in the development of SP AusNet's forecasts.

7.2.3 Regulatory Information Notice

In addition to the requirements of the NEL and NER, in developing and presenting its opex forecasts, SP AusNet has addressed the detailed requirements of the RIN. These requirements are extensive, and will not be repeated here. However, appropriate cross referencing to the RIN has been provided in this section to assist the AER in assessing SP AusNet's compliance with the RIN.

7.3 Aims and Objectives

In broad terms, SP AusNet's forecast opex proposal reflects the requirements of the operating expenditure objectives as outlined in Clause 6.5.6(a) of the NER. In particular, SP AusNet's opex forecasts are designed to maintain existing levels of service, including the reliability targets for SAIDI, SAIFI and MAIFI, along with complying with SP AusNet's network planning standards.

The following sections provide a description of each opex category in accordance with definitions in Guideline 3[50] or the RIN. In addition, SP AusNet explains its aims and objectives for each opex category, as required by paragraph 4.2 of the RIN, along with the key variances between forecast opex and actual opex.

[50] 'Guideline 3' means the Electricity Industry Guideline No. 3: Regulatory Information Requirements—Issue No. 6 dated December 2006 published by the ESC.

7.3.1 Network Operating Costs

Network Operating Costs cover the costs associated with the operation of the network including, but not restricted to, the staffing of the control centre(s), operational switching personnel, outage planning personnel, provision of authorised network personnel, demand forecasting, procurement, logistics and stores, information technology (IT) costs directly attributable to network operation, insurance costs and land tax costs.

The aim and objective of this category is to maintain existing levels of service. In addition, SP AusNet has identified the following service enhancements for the forthcoming regulatory control period:

- enhancing its demand management program;
- responding to an expected increase in the number of quality of supply queries, as a result of the AMI roll out; and
- a pro rata increase in SP AusNet's increased insurance premium from October 2009.

The latter contributes over half of the variance between proposed Network Operating Costs over the forthcoming regulatory control period and current Network Operating Costs.

7.3.2 Billing and Revenue Collection

Billing and Revenue Collection costs include the billing of retailers for use of the distribution system, and the associated collection of distribution revenue from retailers.

The objective of this opex category is to maintain existing levels of service to both existing customers and to new customers, and to facilitate the introduction of SP AusNet's proposed Time of Use and Critical Peak Demand tariff structures. This, along with general real labour cost escalators, is the driver of the variance between historical costs and forecasts costs for this opex category.

7.3.3 Advertising and Marketing

Advertising and Marketing costs relate to the provision of services such as:

- providing information to customers, and conducting promotional activities, in order to improve the utilisation of the network assets by improving the power factor or the load factor;
- providing contact telephone numbers for fault reporting, for example through bill inserts;
- publicising reliability targets and communicating with network customers on reliability matters;
- development of network tariffs;
- communicating with customers on distribution matters, for instance, providing notice of planned interruptions;
- educating the public on network-related electrical safety; and
- activities arising from the Distribution Business' obligations in relation to the quality of supply.

The objective of this opex category is to maintain existing levels of service. In addition, SP AusNet has identified the following service enhancement for the forthcoming regulatory control period:

- Sending SMS messages to customers during planned and unplanned outage events, along with extreme weather events and load shedding events.

This enhancement is the driver for the variance between proposed Advertising and Marketing costs over the forthcoming regulatory control period and current Advertising and Marketing.

7.3.4 Customer Service

The Customer Service opex cost category includes the cost of:

- facilitating the reporting of network faults and safety hazards, and complaints about the quality and reliability of supply;
- responding to queries, for example from retailers, customers, builders and contractors, on new connections, disconnections and reconnections;
- responding to queries, for example from customers, builders and contractors, on improving power factor or load factor; and
- call centre costs and CIS operating costs that are directly attributable to or caused by the provision of the above services are included.

The objective of this opex category is to maintain existing levels of service over the forthcoming regulatory control period, while facing an estimated 20%-30% increased in the number of customer interactions over the forthcoming regulatory control period. In addition, SP AusNet has identified the following service enhancements for the forthcoming regulatory control period:

- a reduction in PSAIDI from current levels; and
- enhancing communication with customers with regards to extreme storm events.

These two enhancements are the key drivers for the variance between proposed Customer Service costs over the forthcoming regulatory control period and current Customer Service costs.

7.3.5 Regulatory

The Regulatory opex cost category includes the cost of expenditure items such as:

- Licence fees;
- costs associated with staffing the regulatory function, including a Regulatory Manager and staff, covering both state and federal economic regulation;
- costs associated with providing information requested by the AER;
- costs associated with preparing submissions to the AER in response to consultation processes administered by the AER;
- costs associated with participation in the AER's reviews of price controls and the development and implementation of standards and procedures; and
- costs of non-financial regulatory audits.

The objective of this opex category is to not only maintain existing levels of service, but to allow for appropriate responses to future regulatory changes, such as the National Energy Customer Framework.

7.3.6 Other Network Operating Costs

Other Network Operating Costs comprises finance, human resources, information technology and other costs that are directly attributable to or caused by the provision of distribution services by the Distribution Business in accordance with its Distribution Licence.

The objective of this opex category is to maintain existing levels of service, and to facilitate the delivery of SP AusNet's IT capex program and to provide IT support for the new systems that have and will be introduced to provide AMI services. It is this increase in IT opex that is the key driver of the variance between proposed Other Network Operating costs over the forthcoming regulatory control period and current costs for this opex category.

7.3.7 SCADA and Network Control

SCADA and Network Control includes all expenditure associated with the maintenance of Supervisory Control and Data Acquisition (SCADA) and network control hardware, software and associated IT systems.

The objective of this opex category is to maintain existing levels of service.

7.3.8 GSL Costs

In accordance with the definition in the RIN, the opex cost category covers:

- for the previous regulatory control period and current regulatory control period, guaranteed service level payments made or expected to be made under the relevant scheme in place at the time, and
- for the forthcoming regulatory control period, guaranteed service level payments forecast to be made under the service target performance incentive scheme.

The objective of this opex category is to allow SP AusNet to recover the costs associated with the GSL payments it expects to make under the service target performance incentive scheme.

7.3.9 Routine Maintenance

As per the definition outlined in the RIN, the Routine Maintenance opex cost category includes recurrent/programmed asset maintenance activities undertaken regardless of the condition of the asset.

The objective of this opex category is to maintain existing levels of service to both existing customers and new customers, having regard for the scale and condition of SP AusNet's electricity distribution network over the forthcoming regulatory control period. SP AusNet is also proposing to enhance its Zone Sub Station fire mitigation program, which, when combined with general labour cost escalators, leads to a material variance between the SP AusNet's historical cost of undertaking Routine Maintenance and its forecast costs.

7.3.10 Condition-based Maintenance

Condition-based Maintenance includes all maintenance activities based on inspection or assessment of the condition of an asset, excluding activities that are part of a recurring maintenance program.

The objective of this opex category is to maintain existing levels of service to both existing customers and new customers, having regard for the size and condition of SP AusNet's electricity distribution network over the forthcoming regulatory control period. To facilitate this, SP AusNet is proposing to introduce a number of new opex programs, including:

- enhancing its asset condition monitoring systems;
- increasing its HV power cable test program; and
- enhanced vegetation management programs focusing on both safety and least cost provision of these services.

At on average $6m per annum, the latter is the main driver of the variance between SP AusNet's forecast Condition-based Maintenance costs for the forthcoming regulatory control period and the costs that it has historically incurred in this opex category. Moreover, as this opex category is 100% labour related, it is also the key driver of the variance between historical non-related party labour costs, and the forecasts contained within this Proposal.

7.3.11 Emergency Maintenance

The Emergency Maintenance cost category captures the costs associated with all activities that restore a failed component to an operational state, along with all expenditure relating to the work incurred where supply has been interrupted or assets damaged or rendered unsafe by breakdown, making intermediate operations and/or repairs necessary.

The objective of this opex category is to maintain existing levels of service to both existing customers and new customers, having regard for the size and condition of SP AusNet's electricity distribution network over the forthcoming regulatory control period.

7.3.12 Material Projects

The RIN defines a 'material project' as "a series of related works with a common purpose, expected start and finishing dates, and relates to one or more capex categories which commences during, or commenced during the previous regulatory control period or the current regulatory control period and continues into, the forthcoming regulatory control period and which over the life of the project exceeds:

> *"(a) $2 million (real 2010 dollars) in the case of a project which relates to either of the capex categories non-network assets—IT, non-network assets—other or SCADA and network control; or*
>
> *(b) $5 million (real 2010 dollars) in the case of a project which relates to any other capex category and/or opex category".*

Consistent with this definition, the following table describes SP AusNet's 'material project', along with its aims and objectives.

Table 7.3: Material Projects

Material Project	Description	Aims and Objectives
Vegetation management	Program to monitor, inspect, cut or reduce growth of vegetation near electricity assets (or alternatively relocate/ augment electricity assets) in order maintain appropriate clearances and manage risk.	Public safety - reduce likelihood of fires and electrocution. Compliance - with Electricity Safety regulations. Reliability - reduce impact to customers of outages caused by vegetation. Environmental management - undertake activities in such a way as to minimise environmental impact. Stakeholder management - notify and consult with affected parties.

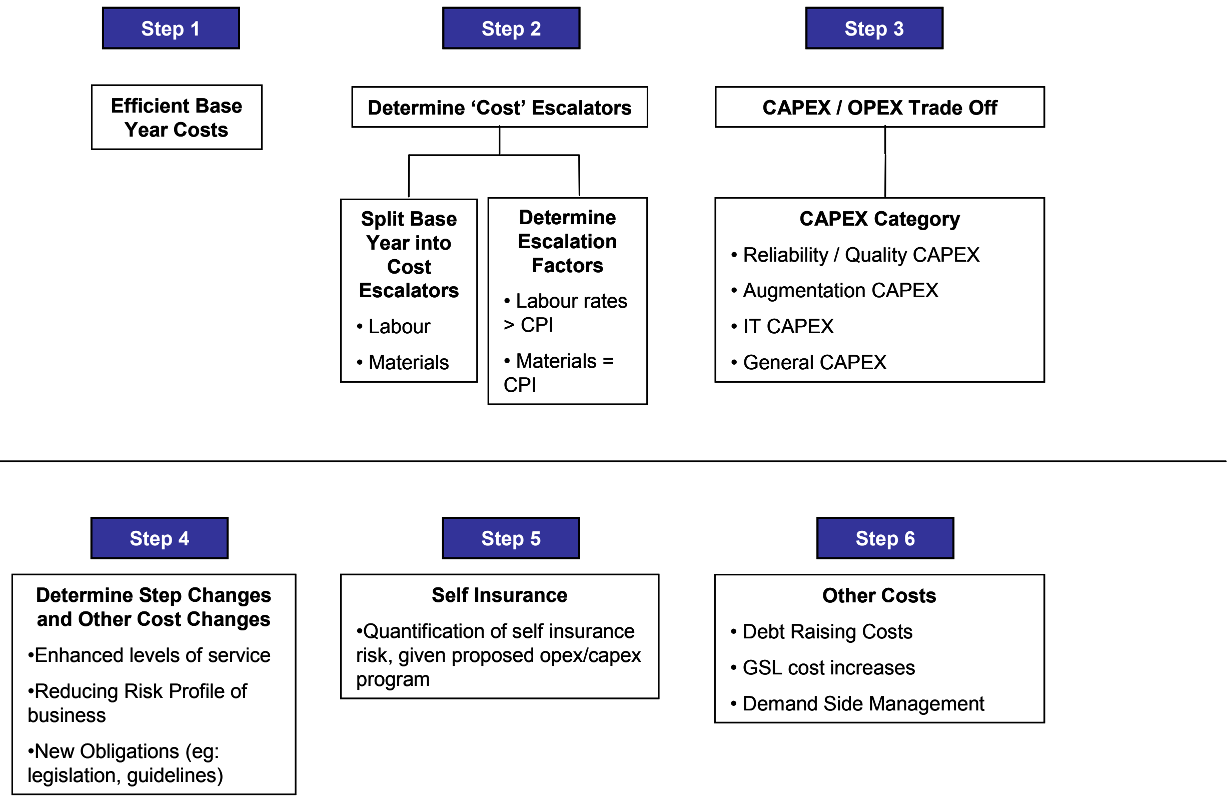
Other cost categories, such as faults and emergencies, and overhead line maintenance, are not 'a series of related works with a common purpose', and therefore, have not been defined as a material project.

7.4 Process for Developing Operating Expenditure Forecasts

S6.1.2 of the NERs requires SP AusNet to outline the method used for developing its operating expenditure forecast.

The figure below outlines the step-by-step approach SP AusNet undertook to determine its opex forecasts for the forthcoming regulatory control period.

Figure 7.1: Process for Developing opex forecasts



Source: SP AusNet.

Each of these steps is discussed in further detail in the following sections of this chapter.

7.5 Efficient Base Year Expenditure

7.5.1 Determining the efficient Base Year expenditure

SP AusNet employs a base year forecasting methodology for opex. Under this approach, SP AusNet uses its latest estimate of 2009 opex (adjusted for non-recurrent costs) as a base from which future opex is projected. The reasonableness of this forecasting methodology depends on the base year opex being efficient. In this section, SP AusNet explains that the 2009 base year opex is efficient because:

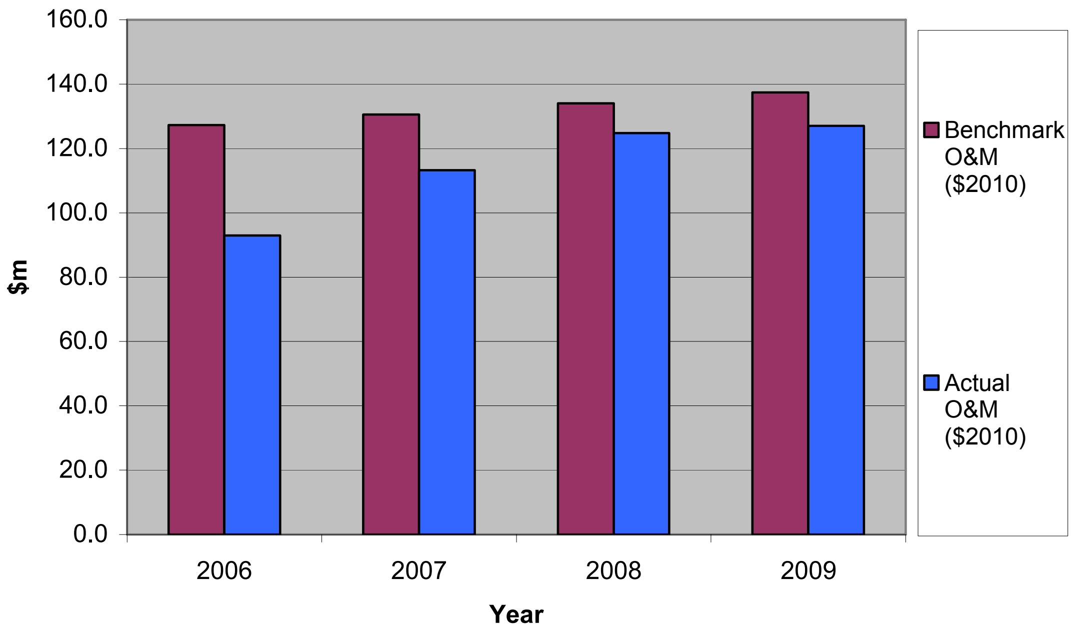
- SP AusNet has responded to the incentives provided by the efficiency carryover mechanism;
- the 2009 Base Year opex costs are consistent with its 2008 opex costs;
- benchmarking results clearly show that SP AusNet's opex costs compare favourably to its peers; and
- the Base Year opex reflect the circumstances (eg: weather events, exogenous events) that could reasonably be assumed to occur over the forthcoming regulatory period.

Each of these matters is outlined further in the following sections.

7.5.2 Historic Efficiencies

The ESC's efficiency carry over mechanism provides a continuous incentive for a regulated business to achieve operating efficiency gains in each year of the regulatory control period. SP AusNet supports regulation that provides strong incentives for businesses to achieve efficiencies. SP AusNet's historical performance provides direct evidence of its willingness and appetite to respond to these incentives. More specifically, the figure below demonstrates that SP AusNet has consistently out-performed the opex benchmarks set by the ESC.

Figure 7.2: Actual Opex V 2006 Benchmark Opex (Real 2010 $M)



Source: 2006 EDPR Final Decision, SP AusNet RIN.

To deliver these opex efficiencies, SP AusNet has implemented a number of operational improvements to its distribution business. For example, the merger of SPI PowerNet and TXU has lead to a number of on-going operational benefits including:

- contributing to SP AusNet reducing its capitalised overhead rate in each year of the current regulatory control period, with this being primarily due to the scale benefits attained in allocating these predominately fixed services across a larger pool of capex projects;
- facilitating the co-location of depots, which has reduced overall opex costs associated with providing network services;
- reducing the duplication of back office staff in numerous areas of the business (eg: finance, risk);
- allowing for a reduction in the number of IT and other management systems such as quality, environmental and occupational health and safety management systems; and
- increasing the flexibility and efficiency of SP AusNet's business in general, by, for example, allowing scale benefits in the procurement of common equipment to be reaped and increasing the operational flexibility of both its field and control room staff.

In addition, SP AusNet has varied its procurement policies within the current period, including:

- in-sourcing a number of its operational functions (eg: operations and maintenance in the Northern and Eastern regions); and
- purchasing a number of IT assets that were previously leased.

The above information, in conjunction with the information provided in RIN Templates 2.2 and 2.3, is provided in accordance with paragraph 4.6 of the RIN, namely to explain variations from the approved ESC allowance.

7.5.3 Base year forecasts relative to 2008 opex

When discussing its efficiency carryover mechanism in its 2006-2010 EDPR, the ESC explained that:

> *"The efficiency carryover mechanism (in combination with the service incentive arrangements) was a key feature of the incentive-based framework. It allows the distributors to retain the benefits of the efficiency gains they made in the current period for a limited time into the next regulatory period before those gains are passed through to customers. The intention was to maintain a continuous incentive for the distributor to achieve cost efficiencies throughout the period by allowing them to retain the benefits for five years irrespective of the years in which they are earned. These benefits would then flow through to customers in the form of lower real prices in the next regulatory period. However, in order to claim the efficiency carryover amounts, the distributors would be required to reveal the more efficient costs of providing the service and those revealed costs would then inform the Commission's assessment of the expenditure proposals for the 2006-10 regulatory period.*
>
> *Assuming that it could rely on the incentive properties of the efficiency carryover mechanism, the Commission at the commencement of this price review considered that it could use the levels of expenditure reported by the distributors as a starting point for determining the expenditure forecasts for the 2006-10 regulatory period. Based on this assumption, the Commission gave weight to the level of expenditure reported for the year 2004 as its starting point for determining the requirements for the 2006-10 regulatory period. Having determined its starting point, the Commission's assessment of the distributors' price-service proposals could then focus on the reasons why future expenditure was likely to vary from the reported levels of expenditure that the Commission had available to it."*[51]

This continuous incentive for businesses to make efficiency gains referred to by the ESC is acknowledged by the AER in their discussion of their proposed Efficiency Benefits Sharing Scheme, namely that:

> *"..the symmetrical nature of the EBSS means that any overspend in that year will be penalised for the length of the carryover period. Any potential gains to the DNSP from increasing operating expenditure in the base year will have to*

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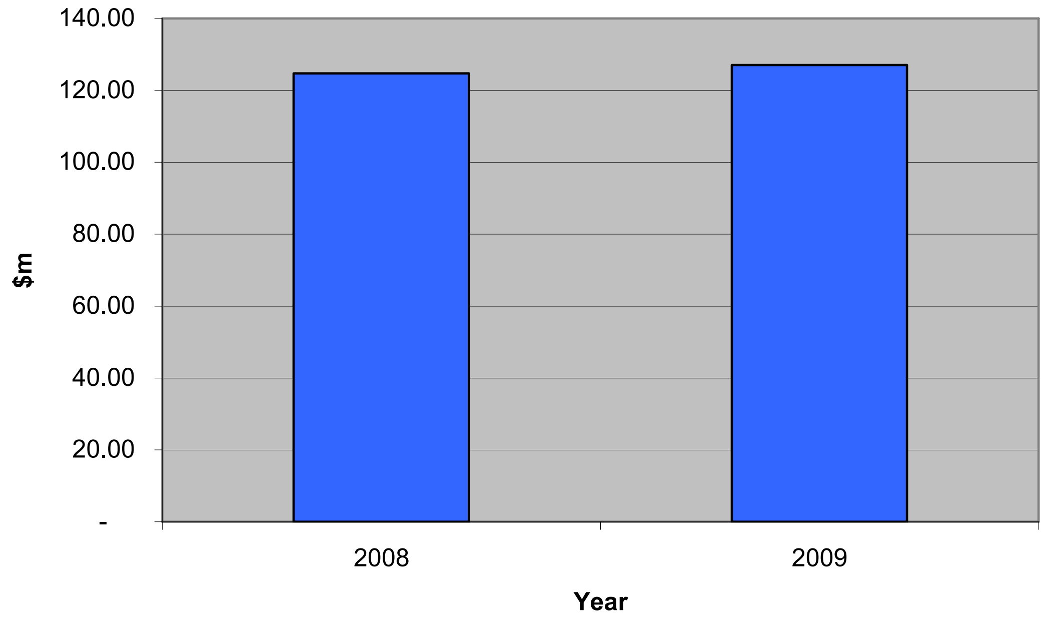
[51] Essential Services Commission, Electricity *Distribution Price Review, 2006-10, Final Decision Volume 1: Statement of Purpose and Reasons*, October 2005, pages 153 and 154.

> *be weighed up against the penalties that will be incurred for five years after the overspend."*

The practical application of this continuous incentive upon SP AusNet's business is demonstrated via analysis of SP AusNet's Base Year opex forecast, and in particular, as shown in the figure below, in total it is only 1.8% higher in real terms than the 2008 actual opex expenditure.

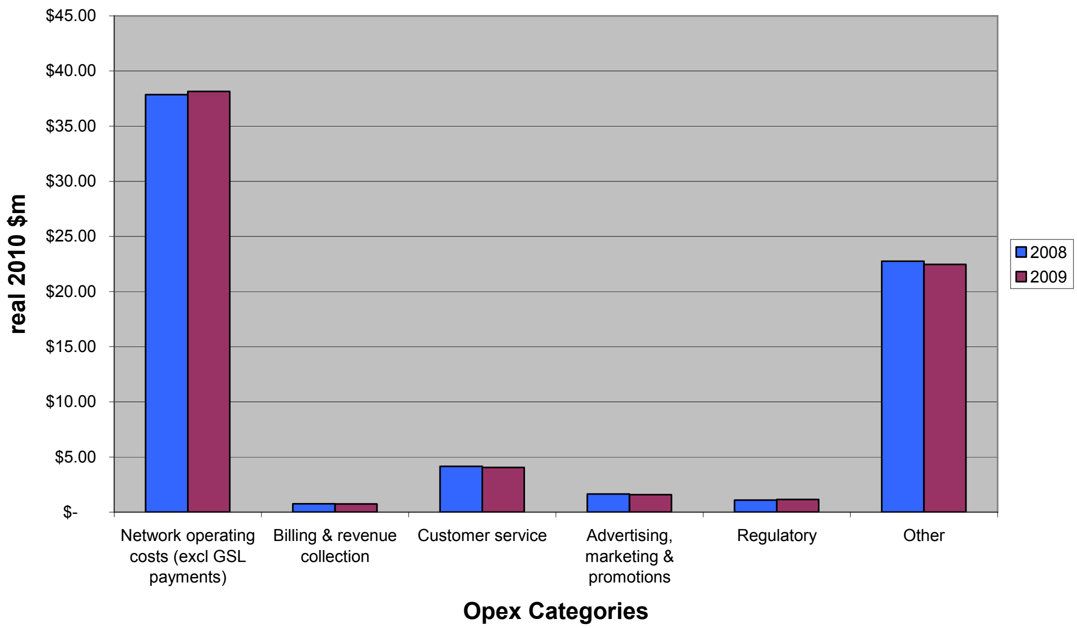
Figure 7.3: Actual 2008 V 2009 Base Year forecasts (Real 2010 $M)



Source: SP AusNet RIN.

As is illustrated in the following figures, this marginal increase is driven by the increase in GSL costs that have been incurred in 2009, relative to 2008. This year on year change is disaggregated into each opex and maintenance category in the figures below.

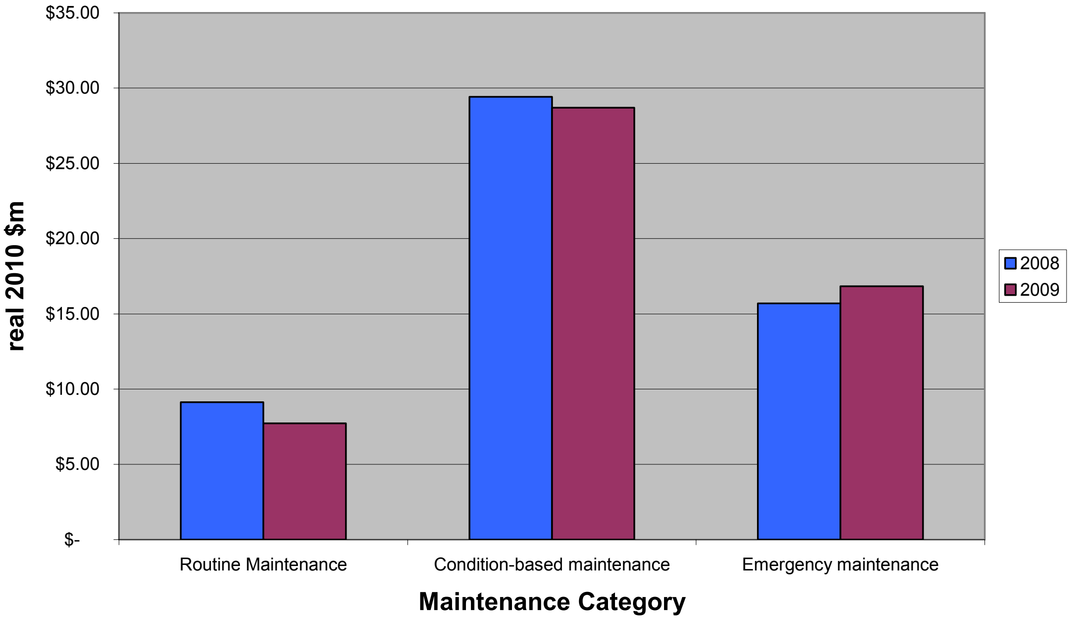
Figure 7.4: 2009 and 2008 Operating Expenditure (excl GSL Payments)



Source: RIN Template 2.2.

It is noted from the figure above that the only material increase in costs occurred in the 'Network operating costs (excl GSL payments)' opex category. Around 65% of this increase is driven by an increase in the cost to SP AusNet associated with purchasing insurance for its electricity distribution business, the increase for which has been included in the final quarter of 2009. Overall, SP AusNet's opex costs (excluding GSL payments) reduced marginally in real terms between 2008 and 2009.

Figure 7.5: 2009 and 2008 Maintenance Expenditure



Source: RIN Template 2.3

Like opex costs (excluding GSL Payments), maintenance costs (excluding non recurrent maintenance costs) have reduced in real terms between 2008 and 2009.

Overall, SP AusNet's 2008 and 2009 performance demonstrates that it has continuously responded to the incentives provided by the ESC's existing efficiency carryover mechanism.

7.5.4 Benchmarking of Opex

As stated previously, Clause 6.5.6(e)(4) of the NER requires the AER to have regard for the *"benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the regulatory control period".*

SP AusNet supports the use of benchmarking to assess the 'reasonableness' of SP AusNet's Base Year opex, providing that there is appropriate recognition for differences in size, scale and the geographic characteristics of DNSPs service areas.

To facilitate this, SP AusNet has utilised two sources of benchmarking data:

- Partial productivity analysis (SKM); and
- Composite Size Variable analysis (utilising the same analysis adopted by Wilson Cook as part of their review of the NSW DNSPs).

SKM Benchmarking

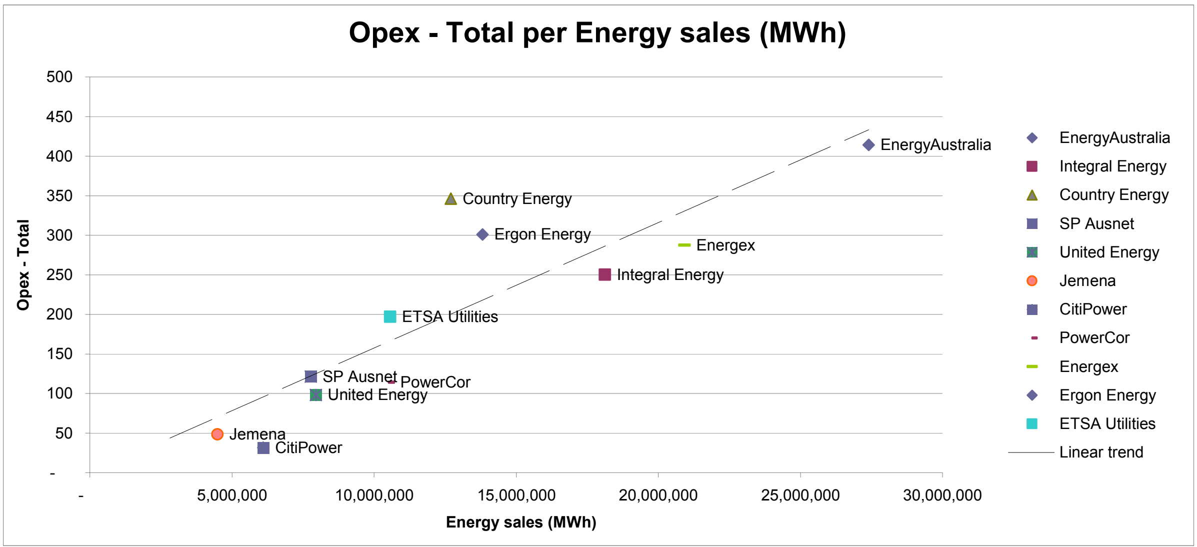
In conjunction with the other Victorian DNSPs, SP AusNet engaged SKM to undertake a high level benchmarking exercise into the relative efficiency of the Victorian electricity distribution businesses, relative to their Australian peers. The key partial productivity opex metrics that were benchmarked were:

- opex per MWh;

- opex per Customer;
- opex per line length; and
- opex per Maximum Demand.

The following figures utilise 2008 data, and are presented in real $2009 millions.

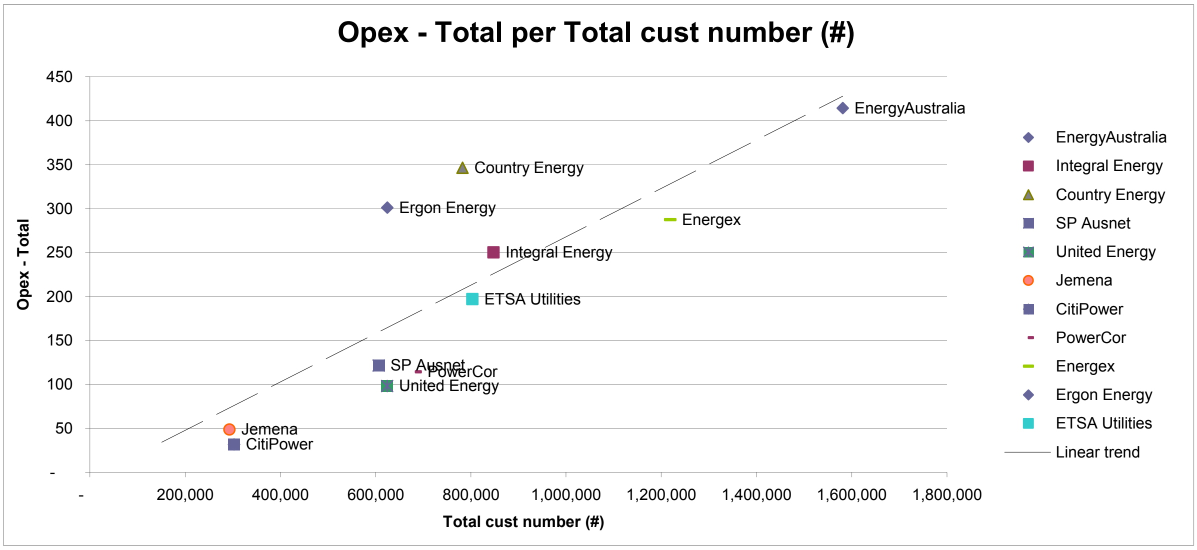
Figure 7.6: Opex per MWh



Source: SKM Benchmarking

The figure above shows that SP AusNet sits in the middle of its peers if performance is measured on an opex per MWh basis. However, cost performance on this measure is significantly influenced by the density of a business' connections, with urban businesses benefiting from a higher density of connections relative to rural distribution business. However, at $15.66, SP AusNet has a much lower opex per MWh than the average rural businesses in the benchmarking study, which have an average opex per MWh in 2008 of $19.98.

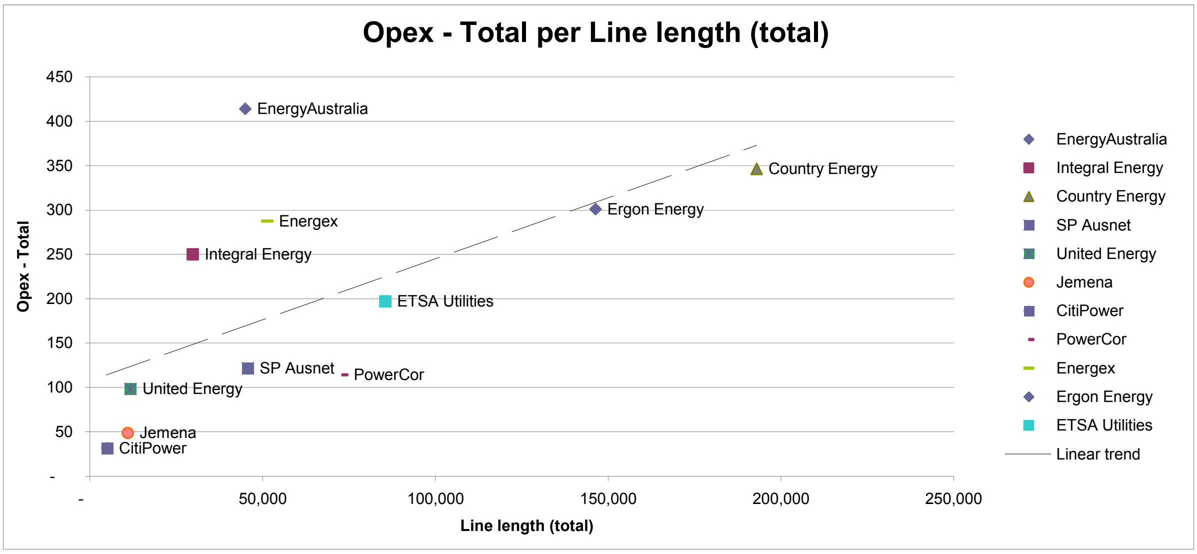
Figure 7.7: Opex per Customer



Source: SKM Benchmarking

As illustrated in the above figure, SP AusNet is one of the best cost performers on an opex per customer measure. More specifically, the average opex per Customer in 2008 across all businesses is $256.00, compared to SP AusNet's $200.20. SP AusNet's 2008 figure compares even more favourably when assessed against the average of the rural distribution businesses in the study, with their opex per Customer being $363.79 in 2008.

Figure 7.8: Opex per Line Length



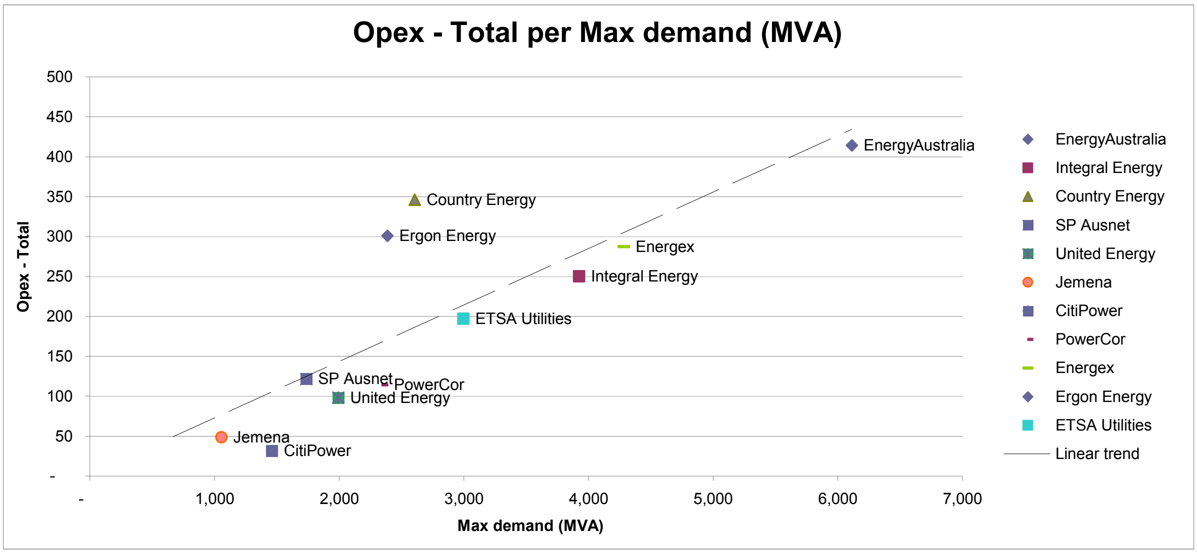
Source: SKM Benchmarking

As illustrated in the figure above, SP AusNet is also a superior cost performer on an opex per line length measure. In fact, SP AusNet's opex per km was $2,655 in 2008, which is approximately half of the average cost of $5,225 per km.

SP AusNet considers this indicator to be the most effective of the indicators produced by SKM in taking into account the different scale factors that in turn drive opex. In particular, the output variable – line length – implicitly takes into account the density of customer connections, which is particularly important when attempting to compare rural businesses with urban business. Notwithstanding this, SP AusNet notes that this indicator is still unable to adequately take into account the different operating environments that different distribution businesses operate in. In SP AusNet's case, this includes:

- approximately 60% of its overhead network in Hazardous Bushfire Risk Areas, which, amongst other things, increases the cost associated with undertaking vegetation management;
- a high proportion of SP AusNet's network is either in forested areas, which are more costly to access relative to urban or non-forested rural areas or coastal areas, which are subject to high winds and salt, which again, increases the cost of maintaining and responding to faults on these assets; and
- traverses both sides of the Great Dividing Range, which imposes a physical separation between SP AusNet's northern and eastern regions, thus reducing network operational flexibility and resource utilisation.

Figure 7.9: Opex per Maximum Demand



Source: SKM Benchmarking

As illustrated in the above figure, SP AusNet is mid range when assessed on this indicator, with SP AusNet recording $69,937 per MVA of peak demand in 2008, relative to the average of $69,176 per MVA of peak demand for all businesses. However, SP AusNet's average is again, significantly below the average of the three rural distribution businesses ($102,548).

Composite Size Variable

As part of the NSW review, the AER's consultants – Wilson Cook – undertook a high level benchmarking exercise to determine the reasonableness of the NSW DNSP's opex forecasts.

More specifically, as part of its initial advice to the AER, Wilson Cook proposed the adoption of the following formula to benchmark opex across a range of various sized businesses:

Size = $C_d L_e U_f$

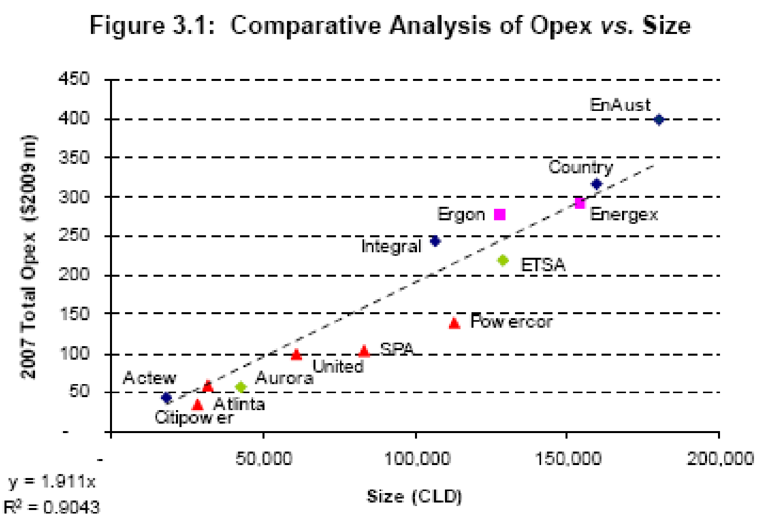
where C= customer numbers, L = network length, U = units of energy delivered and d, e and f are weights where d = 0.5, e = 0.3 and f = 0.2.

Wilson Cook further stated that[52]:

"We tested this variable on Australian and New Zealand data and found that, when using it, there was little or no correlation with customer density, thus making it an appropriate measure to use to represent the "size" of a network business – that is, "opex per unit of size" using this variable should be able to be used to compare networks with different customer densities".

Wilson Cook utilised this 'Composite Size Variable' to compare the ACT and NSW DNSPs with those in Victoria, Queensland, South Australia and Tasmania, utilising financial year 2007 data. The results of Wilson Cook's analysis are reproduced in the following figure.

Figure 7.10: Comparative Analysis of Opex vs. Size



Source: Wilson Cook[53]

Wilson Cook drew the following conclusion from the above mentioned benchmarking outputs[54]:

"The next conclusion drawn is that on a size-adjusted basis – using the composite "size" variable as a measure of size – ActewAGL, Energy Australia and Integral Energy have costs above the other DNSPs in the comparative group and Country Energy has costs similar to the average. We have calculated the variance of the ACT and NSW DNSPs by comparing actual FY 2007 opex

[52]Wilson Cook - Review of Proposed Expenditure of ACT & NSW Electricity DNSPs -Volume 1 – Main Report –Final – Page 18.

[53]Ibid, Pg 19.

[54]Ibid, pg 20.

to the level predicted by the regression line in Figure 3.1. The results are shown in Table 3.1."

The Table 3.1 that is referred to by Wilson Cook in the above quote is reproduced below.

Figure 7.11: Actual vs. Predicted Opex for NSW DNSPs

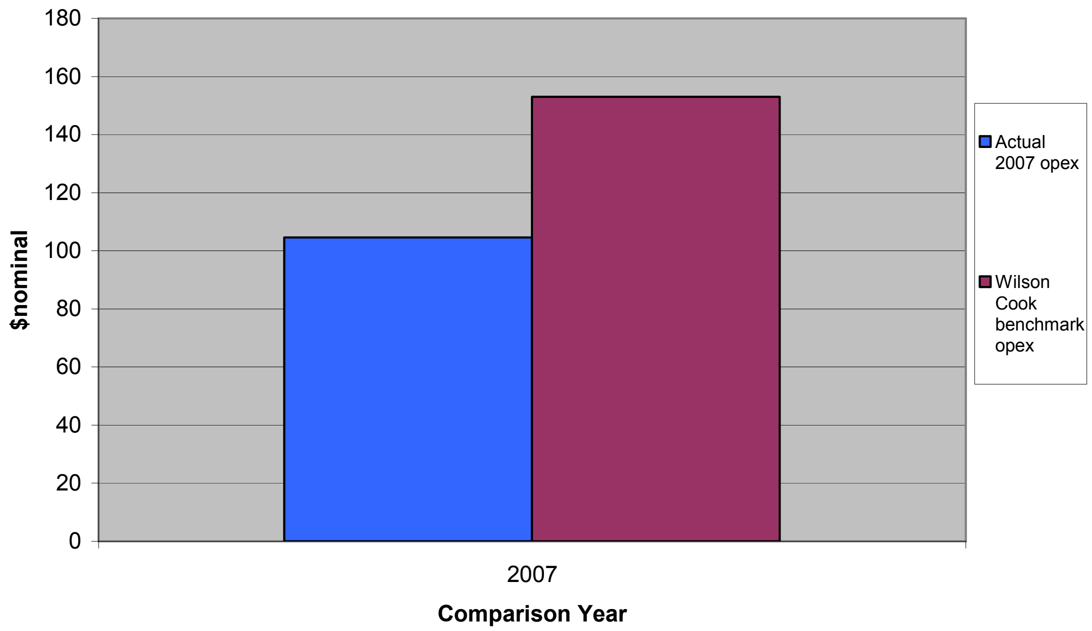
Table 3.1: Actual *vs.* Predicted Opex ($ m 2009)

	Actual	Predicted	Difference
EnergyAustralia	399	344	16%
Integral Energy	243	203	20%
Country Energy	318	305	4%
ActewAGL	45	35	30%

Source: Wilson Cook[55]

Using the same approach, including the 2007 data that Wilson Cook used to generate the above table for the NSW DNSP's, SP AusNet calculates its opex was around 30% below that predicted by Wilson Cook using their 'Composite Size Variable'[56].

Figure 7.12: SP AusNet's Opex relative to Wilson Cook Composite Size Variable Outputs



[55]Ibid.

[56]Estimated benchmark opex spend using Wilson Cook analysis = $154m; Actual opex spend in 2007 of $107m. It should be noted that SP AusNet is not privy to the exact data underpinning Wilson Cook's analysis, therefore the above assessment is based on estimated figures, which have been derived from the graphs produced by Wilson Cook and reproduced in Figure 7.10 above, along with SP AusNet's Regulatory Accounts for 2007.

Following the NSW Draft Decision, Wilson Cook updated this 'Composite Size Variable' in response to comments provided by Huegin Consulting as to the statistical validity of the original composite index developed. Wilson Cook revised the 'Composite Size Variable' equation to the following:

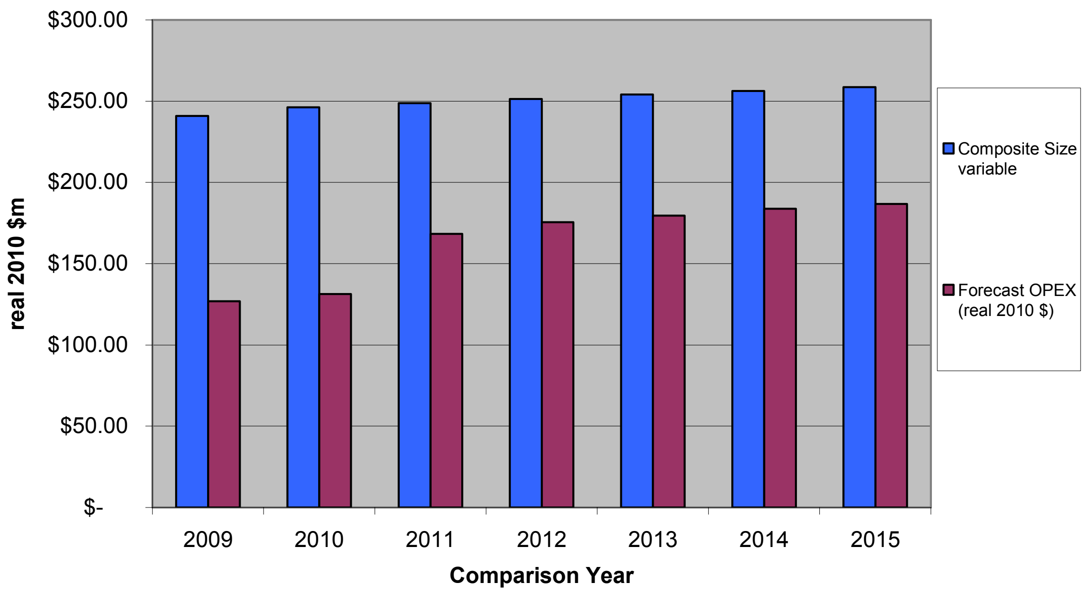
*0.131*customers + 3.363*line length*

In its report on EnergyAustralia, Wilson Cook states that[57]:

> *"For the purpose of our "top-down" analysis, we applied the selected regression model as an evidentially applicable escalator to the FY 2007 level to assess the movement in opex through to FY 2014. However, that analysis was not used as a determinant of opex, only as a test of reasonableness."*

SP AusNet has replicated the analysis undertaken by Wilson Cook for the AER in its assessment of the reasonableness of the NSW DNSPs' opex spend, in order to test the reasonableness of its opex spend for each year of the forthcoming regulatory control period, along with its 2009 Base Year and 2010.

Figure 7.13: SP AusNet's 2008 Opex relative to Wilson Cook's revised Composite Size Variable Outputs



In summary, the above benchmarking demonstrates that SP AusNet's Base Year opex costs are efficient, when assessed against its peers. SP AusNet notes that this conclusion is supported by SKM's report for the Victorian DNSPs, along with analysis by Wilson Cook which the AER commissioned in its recent review of the NSW distribution businesses.

[57] Review Of Proposed Expenditure of ACT & NSW Electricity DNSPs: EnergyAustralia's Submissions Of January And February 2009 – pg 15.

7.5.5 SP AusNet's 2009 Base Year Operating Expenditure

To produce forecasts of efficient opex for the forthcoming regulatory control period, it is appropriate to remove costs from 2009 base year to take account of three issues, two of which relate to non-recurrent events:

- February 2009 bushfires and heatwave events; and
- The Global Financial Crisis and the impact that it had on the amount that SP AusNet's management service provider - SPIMS – charged it for actuarial adjustments to SPIMS employees' defined benefit superannuation contributions.

In relation to the bushfire expenditure, whilst the prudency of this expenditure in the 2009 year is unquestionable, it is unlikely that events of the magnitude in 2009 will occur on a regular basis. However, it is prudent for SP AusNet to expect and plan for similar events in the future. SP AusNet therefore proposes to include an allowance to reflect the expected costs (probability * consequence) of future bushfire events (see section 7.9 for more details).

In relation to the global financial crisis, SP AusNet proposes to remove from its Base Year forecasts the $3.26m net cost, charged by its service provider SPIMS during calendar year 2009, for actuarial gain and loss adjustments to the SPIMS employees' defined benefit superannuation plan.

Following the 2008 amendments to the management services agreement, the employee costs that SPIMS on-charge to SP AusNet for management services has included the cost associated with actuarial gains / losses on the superannuation plan recognised by SPIMS during the preceding period. These gains / losses reflect the difference between the outputs provided by the actuary ex ante, which in turn are based on the assumptions for parameters such as pay increases and financial market conditions etc, as well as the actual outcomes for the period. Prior to 2008, SPIMS recognised the impact of such differences on its Balance Sheet through changes in retained earnings, and therefore, fluctuations were not reflected in the management service charge to SP AusNet. This latter approach (treatment via a Balance Sheet adjustment) is the method used by SP AusNet to account for actuarial gains/losses on the defined benefit plans of its own employees.

Overall, SP AusNet proposes to:

- remove this charge from its 2009 actual regulated opex costs; and
- exclude these costs from its 2009 Distribution Regulatory Accounts, along with all future Distribution Regulatory Accounts.

SP AusNet considers that such an approach should be adopted as it:

- provides for a consistent treatment of such costs for both SP AusNet's employee entitlements (currently, Balance Sheet) and SPIMS' employee entitlements (currently, Profit and Loss for SPIMS, which is in turn passed back to SP AusNet as an opex cost);
- removes the need to account for short term fluctuations in this parameter when undertaking regulatory submissions (eg: without this, every 5 years, this opex line item would need to be backed out to ensure the Base Year costs reflect recurrent costs); and
- is consistent with the fact that this charge should be broadly symmetrical over time – that is, gains and losses should net off over time.

Lastly, the final adjustment that SP AusNet has made is to remove $0.038 million from its actual 2009 opex, to reflect a small margin that it paid to a related party service provider in 2009 for maintenance services.

Having regard to the above, SP AusNet proposes to make the following adjustments to its actual 2009 opex.

Table 7.4: Actual Opex Expenditures excluded from SP AusNet's Base Year Forecasts

(2009 $M)	Actual opex incurred in 2009
Bushfire Costs & Heatwave Costs	
• Unbudgeted vegetation management	7.8
• Faults and emergencies response to bushfires	0.76
• GSL and claims impact associated with bushfires	2.1
Defined benefit actuarial adjustment	3.26
Related party margin	0.038

For consistency, SP AusNet has also excluded the costs of these events from the 2009 opex costs it has used to calculate its efficiency carryover amount. In particular, it is noted that as SP AusNet's 2006 EDPR Determination Benchmark opex figures did not include the cost associated with either of the two non recurrent events, this exclusion not only reflects the true recurrent cost incurred by SP AusNet in 2009, which is the intention of the scheme, but it also means that the basis for deriving the 2006 benchmark opex figures are consistent with actual expenditures incurred. This is outlined in more detail in Chapter 9.

SP AusNet's base year opex is set out in the table below.

Table 7.5: SP AusNet's Base Year Forecasts

(Real 2010 $M)	Opex
Latest 2009 estimate	141.13
Less costs of 'non recurrent' events	14.10
Less related party margin	0.04
Base Year Forecasts	**127.00**

7.5.6 Assessment against the NER and the RIN

SP AusNet considers that the above Base Year opex forecasts clearly meet the requirements of the NER and the RIN. The following table provides its explanation.

Table 7.6: SP AusNet's Base Year Forecasts

Component of Clause 6.5.6 (c) of NER	Explanation
Efficiency	SP AusNet has responded to the regulatory and commercial incentives to drive efficiency improvements over the current regulatory control period. SP AusNet's 2009 Base Year costs are consistent with 2008 actual opex costs. Multiple benchmarking sources demonstrate that SP AusNet is efficient, given its operating characteristics.
Prudent	SP AusNet has removed the cost of non recurrent events, to reflect circumstances that a prudent operator would face over the forthcoming regulatory period. SP AusNet has removed the margin paid to one of its related parties embedded within its 2009 Base Year opex costs.
Consistent with demand forecasts	Both energy and maximum demand are not key drivers of SP AusNet's opex costs, therefore, the Base Year opex costs are consistent with the energy/demand forecasts underpinning this Proposal.

In addition, in accordance with paragraph 4.2(b)(iii) of the RIN, SP AusNet notes that it has utilised this base year approach to forecast each opex category and, thus, SP AusNet's total opex forecast for each year of the forthcoming regulatory period.

7.6 Cost Escalation

To forecast opex using the base year approach, it is necessary to estimate cost escalators that reflect future movements in labour and material costs. SP AusNet's assessment of labour and material cost escalators is provided below.

7.6.1 Labour

SP AusNet has split its labour cost escalators into two components, namely:

- an Energy, Gas and Water (EGW) cost escalator for internal and related party labour; and

- an outsourced labour cost escalator.

The real labour cost escalators applying to each category in this Proposal have been derived through a combination of two sources:

- SP AusNet's current EBA agreements, where applicable; and
- independent calculations made by BIS Shrapnel, which takes account of future labour productivity improvements.

To determine SP AusNet's efficient operating expenditure forecasts for the first year of the forthcoming regulatory period, it first needs to escalate its Base Year labour costs to take account of the growth in labour costs that it will incur in the 2010 calendar year.

To determine the real escalator that will apply to internal and related party labour costs for the 2010 calendar year, SP AusNet calculated a simple average of its two current EBAs (for the ETU and APESMA) that are due to expire towards the end of the 2010 calendar year. These EBA rates are:

- 4.75% representing the annual wage increase from September 2009 to September 2010 contained within its ETU EBA; and
- 4.5% representing the annual wage increase from October 2009 to October 2010 contained within its APESMA EBA.

This nominal average was converted to a real number by deducting SP AusNet's 2010 CPI of 1.26%, which is based on the September 2009 CPI/September 2008 CPI, and which it is noted, has been used throughout the Proposal to convert real 2009 dollars to real 2010 dollars. It is also noted that the same outcome occurs whether SP AusNet adjusts its 2009 labour costs using the nominal 2010 wage rises outlined in SP AusNet' EBAs, or whether it converts that nominal rate back to a real rate, and applies this real rate in conjunction with the same assumed CPI rate.

To determine its outsourced labour cost escalator for the 2010 calendar year, SP AusNet applied a weighted average of both its known nominal wage increases for its related parties (eg: where they are subject to contract), adjusted for SP AusNet's assumed CPI figure to convert to a real figure, along with BIS Shrapnel's forecast outsourced real labour cost escalator of 1.9% for that year. The BIS Shrapnel forecast has been applied to the residual labour component, as no other business specific information is available for this labour cost component. The details of the BIS Shrapnel forecasts are outlined in more detail below.

For the years 2011-2015, SP AusNet utilised BIS Shrapnel's independent forecasts to calculate wage cost escalators for both the electricity sector and outsourced services sectors. It is noted that BIS Shrapnel is a widely quoted and respected authority on labour markets. In summary, BIS Shrapnel have stated in their independent report that[58]:

- 'AWOTE EGW Wages' should be used as the appropriate escalator for internal labour costs, while the 'Outsourced Services Wage Cost Escalator' should be used as a proxy of contract/outsourced labour costs;
- the 'Outsourced Services Wage Escalator' is calculated as an average of Construction and Property and Business Services wages; and

[58] BIS Shrapnel - Wages Outlook for the Electricity Distribution Sector in Victoria – page 1.

- in real terms, electricity, gas and water wages growth for the Victorian utilities sector is forecast to average 2.6 per cent per annum over the five years to 2015, while real outsourced services sector wages (which is the average of construction and property and business services wages) is also forecast to average 2.6 per cent per annum.

For further information, refer to the BIS Shrapnel report attached to this Proposal.

Table 7.7: SP AusNet's Real Labour Cost Escalation Rates

Parameter	2010	2011	2012	2013	2014	2015
EGW Real Labour Growth Rates	3.36%*	2.90%	2.60%	2.70%	2.60%	2.40%
Outsourced Real Labour Growth Rates	3.06%/ 3.74%^	2.40%	2.60%	3.00%	2.50%	2.30%

**NOTE: This is based on the average of SP AusNet's two key EBA rates (ASU and ETU), less SP AusNet's calculated YoY CPI figure of 1.26%.*

^3.06 is the weighted average of SP AusNet's known non-related party contractor increases in 2010, and BIS Shrapnel forecasts, whilst 3.74% represents the expected increase in external contractor costs for vegetation management in 2010.

7.6.2 Materials

SP AusNet considers that there is a significant risk of real increases in the cost of materials in the forthcoming regulatory period, particularly given the likely impact of a Carbon Pollution Reduction Scheme (CPRS). However, SP AusNet does not have enough data at present as to the breakdown of the components of its materials (eg: oil, steel) in order to assess the forward looking supply and demand fundamentals for each material's specific cost drivers. Therefore, SP AusNet is not in a position at this time to provide a robust and justifiable model in support of a move away from a CPI inflator for materials opex costs. Therefore, for the purposes of developing this Proposal, SP AusNet has applied no real increase in the cost of materials. SP AusNet will reconsider the impact of the CPRS at the Draft Decision stage of the AER's review if better information on its likely impact becomes available.

Table 7.8: SP AusNet's Materials Real Cost Escalation Rates

Parameter	2010	2011	2012	2013	2014	2015
Materials	0%	0%	0%	0%	0%	0%

7.6.3 Assessment against the NER and the RIN

SP AusNet considers that its approach to forecasting the labour cost escalator for the forthcoming regulatory control period is consistent with satisfying the opex criteria in Clause 6.5.6 of the NER. This is outlined in the table below.

Table 7.9: SP AusNet's Cost Escalators

Component of Clause 6.5.6 (c) of NER	Explanation
Clause 6.5.6 (c) – Prudent	The detailed modelling of labour supply and demand by BIS Shrapnel provides robust evidence in support of the fact that a prudent electricity distribution business will face real increases in the cost of its labour during the forthcoming regulatory control period.
Clause 6.5.6 (c) – Efficiency	BIS Shrapnel's labour cost escalator includes an allowance for the expected productivity improvements that will accrue from the use of that labour. Given the current absence of detailed data on the breakdown of SP AusNet's materials, CPI best estimates the efficient costs that a prudent service operator would incur for materials over the forthcoming regulatory period. It is noted that CPI takes into account all of the supply and demand fundamentals, including the productivity performance of businesses supplying those products, to form an index for a common basket of goods.

For purposes of assessing SP AusNet's compliance with the RIN, the above information is considered to meet the requirements of Paragraph 4.2(b)(ii), 4.2(c)(ii), 4.2(iii) and 4.2 (vii).

7.7 Capex / Opex Trade Off

Clauses 6.5.6(e)(7) and 6.5.7(e)(7) of the NER requires the AER to consider the substitution possibilities between opex and capex in its assessment of a DNSP's forecast expenditure. In this regard, it is useful to note that SP AusNet's work programs explicitly recognise the linkages between its capex and opex and, as discussed below, the cost implications are properly recognised in SP AusNet's forecasting approach.

7.7.1 Capex to Maintain Reliability and Quality.

SP AusNet's reliability and quality related capex program will impact opex forecasts for distribution transformers and other system assets.

Distribution Transformers

Unlike most system assets, the opex associated with responding to distribution transformer failures is primarily a function of the capacity of the transformer, not the age or condition of the transformer. SP AusNet is proposing to increase the number of distribution transformers over the forthcoming regulatory control period, which will increase the average capacity of its fleet. In theory, this will reduce the opex associated with attending capacity related faults and emergencies, which in turn, generally occur during extreme loading events.

However, this opex benefit is already captured indirectly, through the AECOM climate change report. In particular, AECOM recommends that $875,000 be netted off from SP AusNet's expected climate change costs over the forthcoming regulatory control period, as the impact of extreme heat events is calculated to be greater in 2009 than what is expected to occur over the forthcoming regulatory control period. The abnormally high costs in 2009 is a direct function of SP AusNet's distribution transformers being overloaded during those extreme events, thus causing a higher number of faults and emergencies than normal. SP AusNet notes that by AECOM removing these costs through this process, no additional change needs to be made to its opex forecasts, as non-recurrent opex that will be mitigated by increasing the capacity of the distribution transformer fleet would only occur in extreme weather events, the costs of which are already excluded from this Proposal through the above process.

Table 7.10: Impact of Distribution Transformer capex on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Reliability – Other System Asset	-0.88	-0.88	-0.88	-0.88	-0.88

Other System Assets

As an asset approaches, or reaches, the end of its economic life, then the expected reliability of that asset reduces, whilst the cost of maintaining and operating that asset will generally increase. Conversely, when an asset, which was at or near the end of its economic life, is replaced, then the level of reliability increases, whilst the cost of operating and maintaining the new asset will generally reduce.

SP AusNet observes that the capital expenditure objectives outlined in Clause 6.5.7(a)(3) and (4)) require that its capex program allows it to maintain existing levels of service. The results of this are that the increasing age and deteriorating condition of some network assets will be offset by a reduction in the age, and therefore, enhanced condition (through replacement) of other network assets.

A by-product of this is that the reduced opex costs associated with replacing assets that are at or near the end of their economic life, will be offset by the increased opex costs associated with maintaining and operating older assets that aren't replaced during the forthcoming regulatory period. It is for this reason that SP AusNet has not sought an increase in its opex as a result of 'ageing assets', nor has it sought to reduce its opex forecasts for the perceived reduction in opex costs when older assets are replaced with newer assets.

It is noted that this approach is also consistent with SP AusNet's capitalisation policy, which, in general, capitalises the costs of fixing an asset that has been identified as faulty in an inspection program. This approach means that maintenance, in particular, is not particularly correlated to the consequence of failure, rather the probability of failure, which in turn is primarily driven by the age and condition of an asset.

Table 7.11: Impact of Other System Asset's capex on opex

Parameter (Real 2010 $M)	2011	2012	2013	2014	2015
Reliability – Other System Assets	0	0	0	0	0

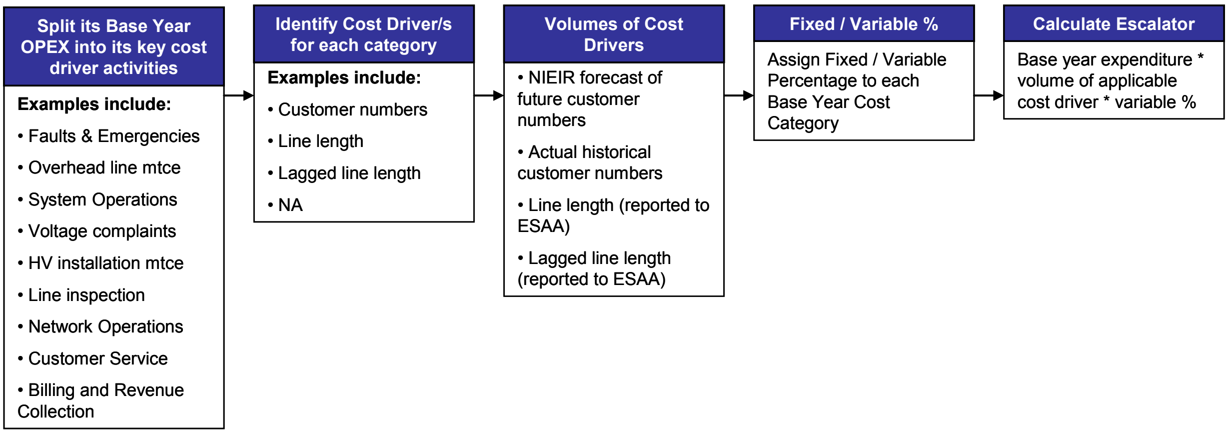
7.7.2 Capacity related capex to provide standard control services to customers

SP AusNet must provide sufficient capacity to serve new and existing distribution customers. Therefore, SP AusNet will incur additional opex as a result of its capex program to service new customer growth, and the customer growth itself. Specifically, additional opex will arise in relation to:

- operating, maintaining and repairing new assets;
- vegetation management for new assets; and
- billing and customer service for new customers.

The following figure outlines SP AusNet's approach to estimating this impact.

Figure 7.14: Process for developing Work Volume Escalators



Source: SP AusNet.

SP AusNet's forecasting approach:

- identifies the cost drivers for each opex category;
- estimates the fixed/variable costs for each category, and apply the cost drivers to the estimated variable portion of SP AusNet's efficient Base Year operating costs;
- includes a scale factor for maintenance such that the productive efficiency benefits that will accrue from doing 'more of the same' work in the maintenance area is included within SP AusNet's forecasts;
- assumes that increases in the cost of providing back office services will be offset by productivity improvements in those areas; and

- factors in the benefit of SP AusNet's capex program on its opex costs.

SP AusNet's approach leads to the following work volume escalation rates.

Table 7.12: SP AusNet's Work Volume Escalation Rates

Parameter	2010	2011	2012	2013	2014	2015
Network operating costs	0%	0%	0%	0%	0%	0%
Billing and revenue collection	0%	0%	0%	0%	0%	0%
Advertising / marketing	0%	0%	0%	0%	0%	0%
Customer service	0%	0%	0%	0%	0%	0%
Regulatory costs	0%	0%	0%	0%	0%	0%
Other network operating costs	0%	0%	0%	0%	0%	0%
SCADA and network control	0%	0%	0%	0%	0%	0%
Routine maintenance	0.78%	1.41%	0.76%	0.76%	0.75%	0.78%
Condition-based maintenance	1.05%	0.98%	1.22%	0.99%	1.01%	1.05%
Emergency maintenance	0.45%	0.33%	0.71%	0.33%	0.34%	0.45%

Source: SP AusNet.

The above table illustrates that SP AusNet has assumed that the increasing costs associated with providing back office services to support its business over the forthcoming regulatory control period will be offset by productivity savings within those business units. Moreover, SP AusNet has not factored into its opex forecasts the impact of having to provide direct customer services to an estimated additional 60,000 customers from 2009. In making this assumption, SP AusNet has not only factored in underlying productivity improvements in this area of its business, but also, the impact that its IT capex program will have on the costs associated with undertaking these functions.

Lastly, SP AusNet's maintenance costs are primarily a function of SP AusNet's ever expanding network, which is required to service its significantly increasing customer base. This includes the construction of 6 zone sub-stations, 2 of which occur in 2011, thus causing the spike in the annual growth rate for routine maintenance in that year.

7.7.3 Information Technology Capex

The planned replacement of existing IT systems during the forthcoming regulatory control period will have a consequential effect on IT opex costs. In particular, additional opex costs will arise in relation to:

- providing on-going support;

- training users of the new systems; and
- administering and licensing new IT systems.

SP AusNet's modelling of IT opex costs also includes the cost reductions that stem from, amongst other things:

- phasing out of obsolete IT systems; and
- cessation of contracts with third party service providers.

More detailed information with regards these opex costs changes are outlined in the 'IT Strategy' document which is provided as an appendix to this Proposal.

In addition, SP AusNet notes that the implementation of new IT systems will deliver the following benefits:

- improved data capture and analysis;
- improved safety outcomes for customers and its staff;
- improved customer service levels, in particular, by providing customers with a self service portal to access their relevant information; and
- operating efficiencies through either reducing opex requirements, or through offsetting business as usual opex cost escalators.

The key example of the latter is the Customer Self Service program. This involves a suite of projects, including the Customer Self Service, Call Centre Platform Upgrade and the CIS Upgrade, which are designed to enable SP AusNet to improve the level of service that it provides its customers, whilst also enabling SP AusNet to reduce its forecast opex costs, relative to a business as usual situation. It is the benefits of this enabler, in particular, that SP AusNet has used to offset the expected increase in its customer services opex costs that would have occurred as a result of its having to service an additional 65,000 customers between 2009 and 2015.

Further information with regards to these expected benefits of each of SP AusNet's IT programs is provided in the 'IT Strategy' document.

Table 7.13: Impact of IT capex Program on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Impact on IT opex	6.81	7.32	7.32	9.18	8.28

7.7.4 Non system General Capex

SP AusNet analysis shows that it is economic to continue its leasing arrangements for its facilities and its fleet of vehicles, trucks etc (entered into towards the end of the current regulatory period). Therefore, no capex costs associated with these two expenditure items have been included in this Proposal. Notwithstanding this, it is noted that the trade off from this decision to not purchase these items is that:

- all of SP AusNet's major facilities will continue to be leased, with no change to the number of assets being leased, however, there are marginal changes in the real costs of leasing two facilities – Lilydale and South Morang – which have been included in the opex forecasts. These reflect changing circumstances in relation to both of those facilities; and
- SP AusNet's fleet opex costs are still expected to increase over the forthcoming regulatory period, as existing fleet that is currently owned (SP AusNet purchased some fleet in 2008) by SP AusNet reaches the end of its economic life and is replaced with new, leased fleet. This change has been modelled based on the expected useful lives of all existing fleet items, and along with the lease costs on a like-for-like replacement of that fleet.

Table 7.14: Impact of Non System General capex program on opex

(Real 2010 $M)	2011	2012	2013	2014	2015
Leasing of fleet	-$0.39	$0.52	$0.81	$1.55	$2.0
Leasing of facilities	$0.29	$0.30	$0.88	$0.88	$0.88

7.7.5 Impact of Larger Capex Program on Opex

SP AusNet's proposed increase in its capex program will:

- increase the amount of opex costs that are incurred by SP AusNet to deliver these programs, and which are subsequently capitalised, as these costs are partially variable; and
- reduces the overall percentage overhead that is applied to direct capital expenditure, as SP AusNet's larger capex program will result in this capitalised overhead amount being allocated across a larger pool of capital projects.

This Proposal includes a reduced overhead capitalisation rate of 16% for the forthcoming regulatory control period, relative to the historical average of 26.5% for the period 2006-2009.

Table 7.15: Impact of Increased capex Program on Capitalisation Rate

Parameter	Current Period Average	2011	2012	2013	2014	2015
Impact of increased capex program on Capitalisation Rate	26.5%	16%	16%	16%	16%	16%

7.7.6 Assessment against the NER and the RIN

SP AusNet considers that its approach to forecasting the impact that its CAPEX program will have on its OPEX forecasts is consistent with the NER.

The following table provides its explanation.

Table 7.16: SP AusNet's Capex/Opex Trade off

Component of Clause 6.5.6 (c) of NER	Explanation
Clause 6.5.6 (a)(1) – An operating expenditure objective is to 'meet or manage the expected demand for standard control services over that period'	As new customers connect to SP AusNet's distribution system, demand for standard control services will rise (eg: through increased line length, increased customer service interactions), the cost of which should be considered when developing operating expenditure forecasts, in order to comply with the 'meet or manage expected demand' objective of the NER.
Clause 6.5.7 (a)(3) and (4)) (Capex objectives) and 6.5.6 (a)(3) and (4) of the NER (Opex objectives), which require Capex and Opex programs to: (3) maintain the quality, reliability and security of supply of standard control services; (4) maintain the reliability, safety and security of the distribution system through the supply of standard control services".	See Section 7.7.1 for details.
Clause 6.5.6 (c) – Prudent	SP AusNet considers that any prudent service operator would increase its resourcing in response to an increase in demand for its standard control services, to ensure that it can maintain existing levels of service to all customers.
Clause 6.5.6 (c) – Efficiency	SP AusNet has only assessed the incremental costs of providing standard control services to new customers. Furthermore, this incremental cost is based on SP AusNet's efficient Base Year forecasts. SP AusNet has included the expected operational savings resulting from its broader capex program, in particular, the impact that its IT capex program for

Component of Clause 6.5.6 (c) of NER	Explanation
	Customer Service will have on avoiding increased Customer Service opex costs over the forthcoming regulatory control period.
Clause 6.5.6 (c) – Operating expenditure forecasts must be developed given 'a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives'	SP AusNet has utilised the customer number forecasts provided by its independent consultant (NIEIR) to underpin its customer number volume driver. Future line length is derived from SP AusNet's 'Capacity' Asset Management Strategy, which in turn is influenced by the growth in customer numbers provided by NIEIR.

For the purposes of assessing SP AusNet's compliance with the RIN, the above information, and accompanying modelling, is considered to meet the requirements of Paragraph 4.2(b)(ii), 4.2(c)(ii), 4.2(iii), 4.2(vii).

7.8 Step Changes and Other Cost Changes

In addition to the Base Year opex forecasts discussed in previous sections, SP AusNet is proposing to include the efficient costs of:

- meeting certain regulatory and statutory obligations ('Step Changes'); and
- providing other discrete outputs to its customers and/or the community ('Other Cost Changes').

These are outlined in more detail below.

7.8.1 Step Change definition

The term 'Step Change' is defined in the RIN as:

> *"a new, changed or ceased regulatory obligation or requirement".*

A regulatory obligation or requirement is defined in Section 2D of the NEL. This primarily relates to obligations or requirements placed upon a business under the NEL or the NER, or an obligation or requirement imposed upon a business by the AER in accordance with the NER.

Therefore, in developing this Proposal, SP AusNet has included a Step Change if a new regulatory obligation or requirement has been placed upon SP AusNet that would require SP AusNet to either:

- provide a certain output to the community, not otherwise provided in 2009; or
- incur additional costs, over and above those incurred in 2009, to provide existing levels of service.

7.8.2 Other Cost Changes definition

SP AusNet notes that the above definition does not cater for those changes that SP AusNet may propose to make in order to enhance the level of service that it provides to customers, the community (eg: safety), or to respond to changes in its external environment.

SP AusNet considers that the broader requirements of the NEL and the NER require consideration of such proposals by the AER, despite the fact that they are not defined as Step Changes in the RIN. As such, SP AusNet has included 'Other Cost Changes' in the following circumstances:

- Change in External Environment: a situation where there is a change in SP AusNet's external environment that will cause SP AusNet to incur additional costs; or
- SP AusNet initiated: a situation where SP AusNet demonstrates that there is a net benefit to the community from SP AusNet incurring opex to achieve certain outcomes on behalf of the community. This has been further split out into safety related and customer related outcomes.

7.8.3 Step Changes

The following sections outline SP AusNet's proposed Step Changes and Other Cost Changes. More detailed information on each change can be found in SP AusNet's 'Step Change and Other Cost Change' document, attached to this Proposal.

Compliance

The following table outlines SP AusNet's forecast cost increases that relate to changes in statutory requirements, changes imposed by the AER under the NER, or an obligation or requirement under the NEL or NER.

Table 7.17: Step Changes - Compliance

Step Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Electricity Safety (Bushfire Mitigation) Regulations	$2.03m	Yes	Subsequent to the 2008/09 bushfire mitigation audit by Energy Safe Victoria, SP AusNet has been requested to either provide a detailed risk assessment for maintaining a five year inspection cycle for Private Overhead Electric Lines (POELs) or adopt a three year cycle in accordance with regulation 7(a) of the Electricity Safety (Bushfire Mitigation) Regulations. A subsequent investigation has found SP AusNet does not have sufficient asset details of customer POELs to undertake the required risk assessment and will therefore be required to implement a three year inspection cycle of POELs that will incur a step change in maintenance costs.
Customer Framework Changes	$0.33m	No	The NECF will provide a national framework for the majority of the non economic regulation matters currently regulated by the various Victorian ESC Codes and Guidelines. There will be an identifiable and significant regulatory and associated resource including legal resource expended from late 2009 until most likely the end of the second year of the regulatory period for SP AusNet involvement in: • finalising the MCE/SCO NECF • DPI/ESC's development and finalising the DPI/ESC's details of the transitional arrangements including the regulatory design of the residual Victorian instruments; and assessing, and incorporating as necessary, changes in the related national operational process documents eg CATS Procedures. • drafting and negotiating the new contractual arrangements for customers and retailers

Step Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
AEMC Distribution Planning Framework Requirements	$2.09m	Yes	The increased workload to meet the requirements of the new AEMC distribution planning framework is substantial, and includes the following activities: • Compiling with a much more onerous annual Distribution System Planning Report (DSPR); • Publishing a non-network engagement strategy; • Increasing the number of RIT-D's required to be completed each year; and • Increasing the work involved in undertaking 'joint planning' for connection assets.

7.8.4 Other Cost Changes

Change in external environment

The following table outlines SP AusNet's forecast cost changes that are related to changes in external circumstances.

Table 7.18: Changes in external circumstances

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Insurance	$16.66m	Yes	SP AusNet has forecast a step change in its insurance costs over the 2011-2015 period, relative to those that have been incurred in the 2009 Base Year.
Quality of Supply Investigations	$5.66m	Yes	The Advanced Metering Infrastructure (AMI) will provide transparency of network supply quality to a level never experienced before, which in turn is assumed to lead to a higher level of quality of supply complaints.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Climate Change	($1.83m)	Yes	SP AusNet engaged climate change experts, AECOM, to undertake a review of weather related impacts that climate change will have on the distribution network over the 2011 to 2015 period. AECOM's final report is titled 'Assessment of Climate Change Impacts on SP AusNet Electricity Network 2011-2015', and is attached to this Proposal. The reason this results in a cost reduction is because it includes the expected benefits (in terms of reduced opex) of SP AusNet undertaking its distribution transformer replacement program, which inturn will reduce the impact of extreme weather events. See Section 7.7.1 for more details.

SP AusNet Initiated - Safety

The following table outlines SP AusNet's proposed Step Changes that are driven by its desire to enhance the level of safety that it provides to its customers and staff.

Table 7.19: SP AusNet initiated Cost Changes - Safety

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Vegetation management ('Enhanced Safety')	$21.96m	Yes	Whilst legislation in Victoria prescribes minimum clearance distances for vegetation to powerlines, SP AusNet proposes to address an increasing bushfire risk profile by reducing the number of tree related incidents from 17 per annum to 10. This will be achieved using a risk based approach toward targeted removal of high risk vegetation outside the clearance space in high bushfire risk areas.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Power cable test programme	$1.65m	Yes	SP AusNet proposes to implement a prioritised cyclic test and monitoring programme for all underground power cables to reduce the risk of failures, and to more accurately forecast long-term asset condition, remaining life and replacement profiles. This will improve the safety of both SP AusNet's workers, and the surrounding community.
Condition monitoring	$5.86m	Yes	SP AusNet proposes to enhance its asset condition monitoring to improve safety, reduce failure risk and more reliably forecast timely asset replacement requirements.
Power transformer refurbishment	$4.13m	Yes	SP AusNet proposes to enhance its existing programme of intensive condition assessment of each transformer and regulator's incipient and end-of-life condition. The assessment is to determine the existing condition of each of the transformers. This condition assessment is an essential step in analysing the risk of failure and/or planning for refurbishment or replacement before failure. The transformer condition and ranking are used as inputs to the asset planning process, which includes impact of failure; coordination with other projects; customer requirements; risk and economic analysis models; and development of efficient projects leading to alternative scenarios for management decisions on refurbishment or replacement.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Substation earthing systems	$1.08m	No	Recently, ESV, through the Blue Book forum, has requested electricity generation, transmission and distribution utilities in Victoria to confirm the integrity of their installed earthing systems with respect to electrical safety. SP AusNet has implemented an earth grid current injection programme to address this requirement and plans to complete this programme in all zone substations by 2015. Five zone substations (including three in 2009) have already had this testing completed and it is planned to do a further three during 2010. As the testing will be included in the proposed rebuild works for seven zone substations, this will leave 40 stations to test between 2011 and 2015, the incremental costs of which have been included in this Step Change.
Substation site clean-up works	$0.78m	No	Proposed network augmentation projects will drive the redundancy of zone substations YPS (11kV switchyard and associated multistorey control building), YN, YC, MDG, SFS and UWY. Hence, asset retirement and site clean-up works will be required at these substations for safety and environmental reasons. Development works for a new zone substation YAL (to replace the existing Sub YPS and 66/11/6.6kV assets at Sub YN) include demolition of existing assets to enable the capital works to proceed. However, the demolition of Sub YN and the control building at Sub YPS is not included in these works.
Process and Configuration Management	$1.09m	Yes	Process and configuration management includes the development and maintenance of configuration standards for protection and control schemes and devices, and also the processes and procedures for protection and control setting and database management. More specifically, this includes: • Database management: • Protection Setting Review: • Maintenance and Configuration Standards.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Substation Civil Infrastructure Works	$1.09m	Yes	SP AusNet will begin to rectify civil infrastructure issues that have developed in stations. The condition issues address impact on zone substation security, reliability and safety. Key expenditure items include: • Cyclical replacement of locks and keys for every station and the installation of padlocks on primary switchyard equipment; • Replacement of exterior signage and internal operational signage as signs fade or are vandalised; • Re-cladding and restoring asbestos clad buildings where replacement is not economic will enhance security, safety, reliability and extend the life of the building; and • Rectify switchyard roads, drainage and cable trenches that compromise the reliability, safety and environmental compliance of the station.
Substation Fire System Works	$0.74m	Yes	SP AusNet will complete annual fire preparedness at its sub stations prior to the fire danger period. This programme includes cleaning gutters and managing fuel and vegetation within each station and liaising with local fire authorities for each station. It also covers the hydrant testing requirements that are now required every five years and repairs required after testing discovers defects along with audits of the suitability of the water supplies at each site.

SP AusNet Initiated - Customer

The following table outlines SP AusNet's forecast cost changes that are driven by its proposal to enhance the level of service provided to its customers.

Table 7.20: SP AusNet initiated Cost Changes - Customer

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
SMS Communication to Customers during outage events	$3.03m	Yes	SP AusNet is enhancing its Information Technology systems in 2010 to allow it to SMS customers with information with regards to: • Planned outage events; • Unplanned outages; • Load shedding events (where the affected area is known); and • Extreme events. The costs associated with this Step Change relate to the actual cost of the SMS.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
Enhanced Customer Communication in Extreme Storm Events	$0.92m	Yes	Immediately following the April wind storm of 2008, SP AusNet's Corporate Communications team initiated a post-storm communications group comprising representatives from all DBs, VENCorp and ESV. The objective of the group was to keep ahead of any recommendations that were to come out of the review into the wind storms and be proactive in our approach to implementing improvements. The key recommendations from the Esplin Review were to: • increase customer education about what to do during a power issue, • enhance websites to increase capability of SMS and more customer interfacing information, and • partner with SES and CFA to undertake community education Similar to SP AusNet's existing Bushfire Mitigation program, SP AusNet is proposing a storm preparedness campaign in order to help manage customers' expectations if power is lost and to inform them of their responsibilities. The proposal would involve enhanced customer communication to prepare them for all emergencies including storms, floods, fires etc. This would be done via print, TV and radio advertising, brochure development and delivery, and a 'retainable' item such as a fridge magnet with our faults line on it.

Cost Change	Total Cost over Reg Period (Real 2010 $M)	Recurrent	Description
PSAIDI Reduction	$21.96m	Yes	SP AusNet's objective is to achieve the regulatory target of 34 minutes PSAIDI as set by the Essential Services Commission. Based upon a forecast PSAIDI of 95 minutes over the 2011-2015 review period due to increased network investment requiring increased network planned interruptions and the objective of achieving the regulatory PSAIDI target (34 minutes) as desired by the Essential Services Commission, SP AusNet will require an additional $21.96 million (real $2010) over the next review period for additional generator hire and installation.

7.8.5 Other Possible Cost Changes

SP AusNet notes that there are two specific obligations that are likely to be placed upon it during the next regulatory period that would cause it to incur a material increase in its opex costs in the next regulatory period, relative to its 2009 Base Year. These two potential obligations are:

- Electricity Safety (Electric Line Clearance) Regulations
- Management of Electromagnetic Fields

SP AusNet has not included the costs associated with meeting these external obligations within this Proposal. Notwithstanding this, SP AusNet considers that by the time of the Draft Decision, it will have received confirmation as to the outcomes associated with each of these respective new obligations. As such, it reserves the right to include the costs associated with these obligations within its response to the AER's Draft Decision.

Details of these two likely obligations are outlined in SP AusNet's 'Step Change and Other Cost Change' document, attached to this Proposal.

7.8.6 Assessment against the NER and the RIN

SP AusNet considers that the inclusion of these forecast costs in this Proposal is consistent with the requirements of the NEL and the NER.

This is outlined in further detail in the following table.

Table 7.21: Assessment against the NER

Relevant NER of NEL Clause	Type of Step Change	Explanation
Clause 6.5.6 (a) (2) of the NER states that an operating expenditure objective is to *"comply with all applicable regulatory obligations or requirements associated with the provision of standard control services"*	Step Change - Compliance	Consistent with this operating expenditure objective, SP AusNet has included the efficient costs to comply with all relevant regulations, Acts of Parliament, Codes etc that place obligations upon it to do something, develop something or provide something to its customers or to the broader community, where that obligation is not currently placed upon SP AusNet, or where the full costs associated with that obligation are not already reflected in the 2009 Base Year.
Clause 6.5.6 (a) (3) of the NER states that an operating expenditure objective is to *"maintain the quality, reliability and security of supply of standard control services"*	Changed External Environment	SP AusNet has included the costs of a number of changes in its external environment that it believes will necessitate it to incur additional costs in order to maintain existing levels of service. When assessing these costs, SP AusNet has been cognisant of the need to ensure that it can demonstrate that the costs included are consistent with those costs *'that a prudent operator in the circumstances of SP AusNet would require to achieve the operating expenditure objectives',* as required by Clause 6.5.6 (c) (2) of the NER.

Relevant NER of NEL Clause	Type of Step Change	Explanation
Section 7 of the NEL states that: *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity"*	SP AusNet initiated change	Despite the operating expenditure objectives outlined in Clause 6.5.6 (a) of the NER being prefaced on a 'maintain case', SP AusNet considers that the overarching objective of the NEL requires AER to *'promote efficient investment in'* the electricity system. From an allocative efficiency perspective, this requires that investments be made where the benefits to society of providing the service underpinned by that investment outweigh the costs. Therefore, SP AusNet has proposed a number of Step Changes in the level of service it proposes to provide, where it has deemed that the incremental benefits to the community outweigh the costs to the community of providing that service. Moreover, such an approach is entirely consistent with competitive markets, where a business will seek to enhance the level of service that it provides to its customers, if the incremental benefit to the individual customer from the provision of that service (which equates to their willingness to pay) outweighs the incremental cost to that business of providing that service.

For purposes of assessing SP AusNet's compliance with the RIN, the above information, and accompanying modelling, is considered to meet the requirements of Paragraph 4.2(b)(ii), 4.2(c)(ii), 4.2(iii), 4.2(vii).

7.9 Self Insurance

SP AusNet proposes a self-insurance allowance to compensate it for bearing certain risks that are not accounted for in the WACC, nor compensated for elsewhere in this Proposal.

An allowance for self-insurance risk is supported by regulatory precedent. For example, the AER's guidance to transmission businesses in January 2007 specifically allowed for the inclusion of a self-insurance risk premium, subject to certain conditions being met. In its recent electricity transmission decision for SP AusNet, the AER allowed the inclusion of a self-insurance risk premium, and in doing so, stated:

> *"For risks associated with the provision of prescribed transmission services that are not compensated for through the WACC or elsewhere in its revenue proposal, a TNSP may propose to "self-insure", and seek a self-insurance allowance for this purpose."*[59]

[59] AER 2008, Final decision, *SP AusNet transmission determination 2008-09 to 2013-14*, January, p 137.

The AER's Final Decisions for the NSW and ACT electricity distribution businesses also provided an allowance for the costs to each business of bearing certain asymmetric risks.

SP AusNet engaged an appropriately qualified actuary, to undertake a valuation of its self insured risks. In undertaking this quantification, SP AusNet provided a significant amount of data in order to ensure that they were able to undertake a robust quantification.

The table below summarises the results of the self insured risk quantification, adjusted:

- Down for the amount for liability that is already included in SP AusNet's base year; and
- Up for growth in underlying volumes.

Table 7.24: Self Insurance – RIN Details

Self Insured Risk	Description	Why compensation should be provided?	Quotes / Details	Not recovered elsewhere
Liability	Liability risks include all amounts which SP AusNet is legally liable to pay (including liability assumed bySP AusNet under contract or agreement) for compensation by reason of or arising out of Personal Injury, Property Damage, Advertising Liability, and Financial Loss.	SP AusNet has previously maintained lower levels of self retained retention in respect to liability insurance. Given recent bushfire/wildfire events in Australia and California, underwriters globally are becoming more risk adverse due to increases in loss history. The result of this is that SP AusNet now bears a higher burden of self insurance, which was previously insurable	Recent estimates from the London market	SP AusNet has removed the 2009 actual opex costs to undertake its self insurance quantification from its forecast self insurance opex costs. This risk is not mitigated through any cost pass through provision.

The RIN requires that SP AusNet:

> *"provide a resolution of the Board of SP AusNet to self insure that includes each risk for which self insurance is sought and that SP AusNet is in a position to credibly self insure against those event".*

The Board has resolved to self-insure these risks. This resolution is attached as an Appendix to this Proposal.

7.10 Debt Raising Costs

To raise debt, a company has to pay financing costs or transaction costs over and above the debt margin allowed in the cost of capital. Such costs are dependent on market conditions.

Debt raising costs are not expensed through the Profit and Loss Statement, rather they are reported in financing charges in SP AusNet's Regulatory Accounts. Therefore, a separate benchmark debt raising cost forecast needs to be included for the forthcoming regulatory control period.

These costs have been accepted in the AER's Final Decision New South Wales distribution determination 2009-10 to 2013-14 (NSW Final Determination). In that Determination, the AER concluded that the benchmark debt raising costs for corporate bond issues could range from 10.4 bp per annum for a single corporate bond issue of $200 million, to 8.0 bp per annum for 25 corporate bond issues of $5,000 million in total.

ETSA Utilities as part of its ETSA Utilities Regulatory Proposal 2010-2015 engaged the Competition Economists Group (CEG)[60] to provide an expert opinion on direct debt raising costs. This expert opinion considered matters including the appropriate criteria that should be applied when selecting sources of data from which the cost of raising debt should be determined and how these criteria could be applied in the current context. This Report is attached as an Appendix to this Proposal.

On the basis of CEG's report it has been determined that the appropriate benchmark for SP AusNet's direct debt raising costs is 12 bp per year.

In addition to direct debt raising costs, SP AusNet faces additional costs that have arisen as a result of the reassessment of risk resulting from the Global Financial Crisis. As a result, credit rating agencies have increased their focus on refinancing risk and have lengthened the time a company needs to have funding in place prior to the repayment of maturing debt.

For example, prior to the crisis, Moodys and Standard & Poors were comfortable to allow a 3 month gap between raising funding and maturing debt. Given pre-financial crisis debt margins costs were low, the carrying cost of early financing was immaterial prior to the end of 2007. In contrast, post-financial crisis, the debt margins now incurred are very material.

The credit rating agencies have communicated to SP AusNet that they expect replacement funding to be in place at least 6 months prior to the maturity of the debt. This means that funding must be committed, and cannot be subject to negotiation. The credit agencies expect the refinancing process to have begun at least 9 months before debt is maturing, so that the usual 2 to 3 months for completion of credit analysis by banks and/or investors, and documentation have been concluded 6 months in advance of when the debt is due. This means that interest costs or commitment fees are being incurred on the replacement debt for 6 months before the funding is actually required. In acknowledgement of this change in the philosophy of the agencies, SP AusNet formally adopted the following guideline under the Refinancing Risk section of it's Treasury Risk Policy at its May 2009 Board meeting (the relevant Board Paper extracts have been supplied confidentially, in support of this proposal):

> *"The timing of each refinancing will be determined on a case-by-case basis.*

[60] CEG, Debt and Equity Raising Costs – A Reort for ETSA, June 2009.

For amounts greater than A$100 million, financing facilities will be put in place 6 months before maturity of the debt being replaced or in the case of new debt 6 months before funding is required.

For amounts less than A$100 million, financing facilities will be put in place 3 months prior to the expiration of the existing debt or in the case of new debt 3 months before funding is required.

"In place" is defined as meaning all documentation has been completed and settlement has occurred or if settlement has not occurred (eg. committed but undrawn bank debt facilities) funding is committed and is not subject to a material adverse change in the market."

This is also supported by the following extract from the attached Standard & Poors article (the article has been supplied in support of this proposal):

"It's not possible to generalize, but if the refinancing of a significant impending debt maturity had not been completed, committed, or underwritten three months prior to the maturity date, then a rating action would be likely. And at some point ahead of that date we would likely reflect the potential upcoming refinancing risk in an outlook change or a Credit Watch placement." [61]

This means that if a company wishes to avoid the risk of a negative rating action, it needs to have funding in place well ahead of the deadlines earmarked by the rating agencies. A negative rating action would increase the risk that a company will be unable to refinance its debt on maturity, may eliminate access to some types of funding and would increase the cost of those funds.

Therefore, SP AusNet has included within its Proposal forecast early debt raising costs. It is assumed that a DNSP will annually refinance one tenth of its debt three months prior to maturity, at the benchmark cost of debt, and invest the early refinanced debt in Treasury notes over those three months. SP AusNet has applied the average cost of debt and Treasury note interest rate as measured over the first 15 business days in October 2009, and proposes that these values be recalculated over the confidential proposed period used for the AER's Final Decision. For the purpose of this Proposal, the early debt refinancing cost is calculated to be 16.6 bb per annum on SP AusNet total benchmark debt.

The combined margin has been applied to the 60% of the RAB as per the benchmark gearing assumption set out on the AER's SORI and results in a debt raising cost allowance as shown in the table below.

Table 7.25: Debt Raising Costs

Parameter (Real 2010 $M)	2011	2012	2013	2014	2015
Debt Raising Costs	3.46	3.67	4.00	4.26	4.55

[61] Standard and Poors, Ratings Direct, 22 April 2008, p. 7.

7.11 GSL Costs

As outlined in Chapter 4, SP AusNet has calculated two sets of GSL 'volumes'. The proposed volumes are based on:

- SP AusNet's proposed exclusion major event day boundary of 3.2β; and
- the AER's standard exclusion methodology and 2.5β.

The table below outlines the costs for SP AusNet's proposed exclusion threshold of 3.2β.

Table 7.26: GSL Costs

Parameter (Real 2010 $M)	2011	2012	2013	2014	2015
GSL Costs – 3.2β threshold (include climate change impact)	4.02	3.99	3.95	3.91	3.87

SP AusNet accepts the payment amounts that were outlined in the AER's STPIS to apply to DNSPs.

Table 7.27: Proposed GSL Payments

(Nominal $)	Payment
Frequency of interruptions	$80
Duration of interruptions	$80
Total duration of interruptions	Level 1 - $100 Level 2 - $150 Level 3 - $300
Streetlight repair	$25
New connections	$50 per day to a maximum of $300
Notice of planned interruptions	$50

To calculate the GSL costs SP AusNet has:

- overlaid a 3.2β threshold on SP AusNet's faults history from 2004-2008 years;

- determined the number of GSL Payments that would have been made, if a 3.2β threshold had been in place for those years;
- multiplied the number of payments that would have been made by the payment amounts outlined in the table above;
- escalated the average incidents per customer over the review period, by the expected increase in customer numbers over the forecast regulatory control period; and
- adjusted for the impact of climate change, consistent with the methodology outlined in 4.4.2 of this Proposal.

7.12 Demand Management Costs

SP AusNet is proposing to undertake a number of demand management programs. The costs and explanations for these programs are outlined in Chapter 8. The costs have been reproduced in the table below.

Table 7.28: Demand Management Costs

(Real 2010 $M)	2011	2012	2013	2014	2015
Demand Management Costs	2.02	2.20	2.13	2.22	2.19

7.13 S-Factor Adjustment

SP AusNet has included an S-Factor adjustment to account for the payout of the current S-Factor regime. This calculation is detailed in Chapter 4 of the Proposal.

Table 7.29: S-Factor adjustment Costs

(Real 2010 $M)	2011	2012	2013	2014	2015
S-Factor adjustment	-	2.17	2.17	2.17	2.17

8 Demand Management

This chapter describes SP AusNet's demand management (DM) and distributed generation (DG) initiatives for the forthcoming regulatory control period. These projects are reflected in SP AusNet's opex and capex forecasts and demonstrate that SP AusNet has considered efficient non-network alternatives in the development of its opex and capex forecasts.

The chapter is set out as follows:

- Section 8.1 outlines the regulatory requirements related to the consideration of demand management and non-network alternatives;
- Section 8.2 sets out SP AusNet's over-arching demand management approach for the 2011-15 regulatory control period;
- Section 8.3 sets out SP AusNet's proposed suite of DM and DG projects for approval in its 2011-15 opex and capex allowance, which includes expenditure to establish resources to plan, deliver and manage non-network programs and meet regulatory requirements, defer capex, deliver demand management programs and build experience and test technology through broad-based trials; and
- Section 8.4 sets out the key features of the AER's DMIS, how these will operate and SP AusNet's preferred approach in relation to aspects of the application of the DMIS.

8.1 Regulatory Requirements

8.1.1 NER Requirements

The NER requires the AER to accept a DNSP's opex and capex forecasts if the total of the forecast expenditure reasonably reflects the opex and capex criteria in clauses 6.5.6(c) and 6.5.7(c). The concepts of efficiency and prudency are at the core of these criteria and, therefore, efficient and prudent DM and DG initiatives should be included in the expenditure forecasts.

Clause 6.6.3 of the NER allows the AER to develop and publish an incentive scheme or schemes to provide incentives for DNSPs to implement efficient non-network alternatives or to manage the expected demand for standard control services in some other way. Clause 6.3.2(a)(3) of the NER requires the AER's distribution determination for the Victorian DNSPs for the next regulatory control period to specify how a DMIS will be applied to the Victorian DNSPs.

The proposed opex for non-network solutions has been excluded from the EBSS for the forthcoming regulatory control period, consistent with the AER's decision that

> *"The EBSS excludes all costs associated with non-network alternatives. This removes the potential impact of the EBSS on such decisions, which may otherwise discourage the Victorian DNSPs from considering demand side management."*[62]

This chapter addresses these rule requirements by discussing:

[62] AER, *Final Framework and Approach Paper for Victorian Electricity Distribution Regulation*, May 2009, p 111.

- SP AusNet's demand management approach and proposed expenditure to meet and manage the expected demand for standard control services over the 2011-15 regulatory control period;
- details of SP AusNet's consideration of efficient non–network alternatives in developing its operating and capital expenditure proposal and proposed non-network projects resulting from that process; and
- how SP AusNet considers the DMIS should be applied.

8.1.2 RIN Requirements

This chapter addresses and satisfies paragraphs 9.1-9.5 of the RIN which require SP AusNet to:

> *"9.1 Identify the policies and strategies and procedures provided in the response to paragraph 1.1 (c)(i) which relate to the selection of efficient non-network solutions.*
>
> *9.2 Explain:*
>
> *(a) the extent to which the provision for efficient non-network alternatives has been considered in the development of the forecast capex proposal and the forecast opex proposal; and*
>
> *(b) how expenditure allocated to demand management or other non network alternatives in the current regulatory control period under the EDPR has been spent.*
>
> *9.3 Identify each non-network projects that have been:*
>
> *(a) selected during the current regulatory control period; and*
>
> *(b) identified for the forthcoming regulatory control period.*
>
> *9.4 For each non-network project identified in the response to paragraph 9.3, provide a description, including with respect to cost and location.*
>
> *9.5 Identify all capital expenditure in the current regulatory control period that has been deferred due to:*
>
> *(a) the implementation of a non network solution; or*
>
> *(b) being substituted for operating expenditure."*

8.2 SP AusNet's Demand Management Approach

8.2.1 Strategies and Procedures

SP AusNet has established procedures to select efficient non-network solutions for implementation. This involves:

- following established distribution network planning processes and the planning requirements in SP AusNet's Distribution Network Licence and the Victorian Electricity Distribution Code;
- publishing the Annual Distribution Planning Report which sets out the details of network constraints and invites non-network solution proponents to contact SP AusNet to discuss alternative solutions; and

- undertaking internal project analysis and assessment to investigate the costs and benefits of alternative options.

This information has been attached to this submission, in compliance with paragraphs 1.1(c)(i) and 9.1 of the RIN.

8.2.2 Demand Management Approach

Chapter 6 sets out detailed information on the key drivers for network reinforcement. Given these drivers, SP AusNet intends to develop its non-networks experience and expertise in the 2011-15 regulatory control period. SP AusNet has examined the applicability of different non-network alternatives to efficiently support and address network demands, taking into account:

- expected load growth in rural and regional areas, and the relative cost of augmenting lines in those areas;
- likely growth in penetration of refrigerative air-conditioning in residential homes, particularly in SP AusNet's growth corridors;
- de-rating of network assets which occurs during high temperature events, including the impact on the network and the risk of overloading;
- current and expected level of reactive load on the system which contributes to degrading of system power factor; and
- customer profiles, with a significant proportion of SP AusNet's customers being industrial with good potential for demand management.

SP AusNet's approach to demand management for the 2011-15 regulatory control period focuses on four streams of engagement:

- implementing non-network solutions to efficiently defer capex;
- implementing demand management programs to efficiently manage peak demand in the network;
- undertaking broad-based trials to test solutions which could be used to effectively manage SP AusNet's distribution network in the long term; and
- introducing time of use tariffs and critical peak pricing in conjunction with advanced metering.

The proposed programs and associated expenditure related to time of use tariffs and critical peak pricing are set out in further detail in Chapter 7 of this proposal.

8.3 Proposed Demand Management Expenditure

8.3.1 Non-networks Resources, Expertise and Systems

SP AusNet must establish effective organisational arrangements to provide a DM and DG knowledge base and enable SP AusNet to develop and deliver non-network programs. A key part of these arrangements will be establishing a non-networks team to promote efficient non-network solutions.

SP AusNet's non-network planning team will include four permanent full time equivalent personnel. The team will be led by a Senior Non-network Solutions Engineer, supported by two engineers (focussing on non-network planning and technology development) and a contract and customer officer to manage the commercial and customer arrangements. Other role descriptions will be amended to reflect responsibility for administration and planning of DM and DG programs and pilots, and generally to ensure the business actively promotes demand-side alternatives, where it is cost-effective to do so.

The proposed non-networks team will be responsible for the following functions associated with non-network activities:

- research, evaluation and reporting;
- options analysis and assessment;
- planning and program design;
- document preparation and publication;
- contract management; and
- stakeholder and community engagement.
- The group will be responsible for achieving the following objectives:
- integrating non-network options analysis into traditional network planning;
- establishing data, systems, and tools to facilitate non-network planning; and
- managing the non-network strategy.

The group will not be responsible for the day to day project management, administration and implementation of non-networks programs. This will be carried out in the relevant line areas and is therefore separately forecast elsewhere in this chapter.

The non-networks team will be established early in the 2011-15 regulatory control period to enable SP AusNet to:

- meet its regulatory requirements and deadlines;
- start placing the necessary planning processes and systems in place; and
- immediately commence knowledge transfer and capability building.

The team will manage SP AusNet's data, systems and tools to facilitate non-network planning. This will rely upon the collection of better information about SP AusNet's customer base and their end-use services through:

- an end-use load research program, coupled with associated research on appliance penetration trends as a means for identifying the contribution of different types of customers and end uses to peak demand;
- a means for estimating the number of different types of customers served by zone substations and major feeders to enable extrapolation of the load research information to specific network assets that are experiencing congestion and may need load-growth related augmentation; and
- collating data on DM and DG opportunities in medium and large businesses within the SP AusNet service territory to analyse where large quantities of DM or DG capacity could be obtained relatively quickly, and what the relevant costs and barriers to doing so would likely be.

Advice from expert consultants will also be necessary to successfully establish the optimal processes, systems and tools. It is expected that work to establish a knowledge base will need to be undertaken in the first two years of the regulatory control period.

This team will work with the network planning teams to develop SP AusNet's Demand Side Engagement Strategy and administer its planning functions related to delivering efficient non-network solutions. Following the implementation of the AEMC's recommended National Framework for Distribution Planning and Expansion[63], SP AusNet will have additional demand management-related regulatory obligations in the forthcoming regulatory control period including:

- regularly developing and publishing a Demand Side Engagement Facilitation Process Document;
- establishing and maintaining a public database of DM proposals/case studies;
- establishing and maintaining a Demand Side Engagement Register of all demand side option proponents; and
- engaging with DM proponents before a regulatory test process commences.

These new obligations are expected to commence by 2011.

The proposed non-networks team is modest in size compared to DM teams in other DNSPs. For example, Energex currently has a team of 12 working on planning and delivering its non-network solutions, while ETSA Utilities has a team of 8 personnel. However, for SP AusNet's network, a team of four is currently sufficient to start building the business's non-networks capabilities.

SP AusNet's proposed opex requirement for establishing a non-networks team and building the necessary expertise and systems totals $3.75 million, spread evenly over the 2011 to 2015 regulatory control period at $0.75 million per annum. The total expenditure consists of:

- $3.25 million for staffing requirements;
- $0.25 million for formal training and development; and
- $0.25 million for the establishment of data, systems and tools to facilitate non-network planning.

The staffing costs are based on SP AusNet's estimate of the market prices for personnel with the requisite skills and experience as well as associated overheads and superannuation. The budget for training and development, and establishing necessary data information and systems is based on a best estimate of these costs, which has been informed by similar costs incurred by other DNSPs in setting up their non-network capabilities.[64]

The proposed permanent resources and establishment of non-networks capabilities are necessary for the planning and delivery of effective DM and DG programs and broader non-network solution trials. It would be expected that without the above resources, SP AusNet would be unable to optimise the contribution from non-network solutions. As such, the successful delivery of the proposed capex deferral projects, demand management programs, and non-network solutions trials outlined in this chapter is also dependent on the non-networks team forecast expenditure.

[63] AEMC, Final Report Review of National Framework for Electricity Distribution Network Planning and Expansion, 23 September 2009.

[64] See Futura, Non-network Strategies for SP AusNet, November 2009, p 52-58.

8.3.2 Deferring Capital Expenditure

Typically non-network DM and DG solutions have aimed to address specific short term network constraints by reducing demand or supporting the network.

A DM solution generally involves a load curtailment agreement. This is a contract between SP AusNet and a customer (or through a demand aggregator), whereby the customer switches off load at the request of SP AusNet. Load curtailment agreements are used to reduce loads on peak demand days, and are generally dispatched for less than 50 hours per year. SP AusNet will pursue this DM approach with medium to large commercial, industrial, and institutional customers who have loads or processes that can be switched off for a given period of time without having a negative impact on their operations.

SP AusNet has investigated the market prices of DM solutions through tender processes. Contract prices can vary but range from approximately $1200 -1400 per kWh dispatched and an 'availability fee' is applied to have the load accessible. In addition to the costs of the DM, SP AusNet will incur costs to market the programs to customers, establish contracts and commercial arrangements, and administer the program.

A DG solution can also be used to defer network augmentation where local load can be supplied by a distributed generator rather than through the distribution network, with the result that local capacity upgrades may be deferred. Small-scale embedded generators can reduce electrical losses on the system by supplying load and therefore reducing the amount of electricity that must be imported from the network. DG technologies can encompass a wide range of generator technology types and capacities including large gas-fired cogeneration facilities in large customer premises, smaller plants installed in industrial facilities and hospitals without cogeneration.

SP AusNet has identified several locations and associated augmentations projects where DM or DG could potentially be deployed to achieve capex deferral savings. These locations have the following characteristics:

- low load growth;
- relatively costly augmentation; and
- low volume of load at risk.

On SP AusNet's network, long rural 22 kV or 66 kV networks are where these criteria are most well matched. Based on the criteria above, six network augmentation projects scheduled for construction during the regulatory period 2011-2015 have been identified as suitable for deferral through non-network solutions. The total expected capital cost of these projects is approximately $21.7 million in the forthcoming regulatory control period.

SP AusNet proposes to implement a DG solution to defer a $7.4 million upgrade to the Benalla Zone Substation 22kV feeder which was scheduled for 2011. SP AusNet has determined that installing DG as network support will effectively address expected thermal breach on the Benalla-Euroa line while allowing capex to be efficiently deferred until 2014. SP AusNet proposes $1.1 million in opex to implement a DG solution at Euroa to address a likely thermal rating breach on the line due to loading. SP AusNet's options analysis and costings are set out in further detail in the Network Augmentation Planning Report for this project *AMS 20-311* provided in support of this proposal.

Specific solutions have not yet been determined for the remaining projects for deferral, and this will be decided as part of the integrated planning process. From a preliminary review of the locations, SP AusNet envisages that the non-network initiatives implemented at these locations will involve proven network support measures such as standby generator agreements, embedded generation or voluntary load curtailment agreements due to the customer mix and technical parameters of each location.

Given that the exact costs of providing DG or DM solutions at these locations is therefore unknown, SP AusNet is unable to estimate the costs of implementing non-network solutions to defer the identified capex projects. Given this, SP AusNet proposes a budget for implementation of DM and DG to defer capex based on the expected deferral benefit. This is a reasonable estimate of what costs would be efficient in order to defer.

The table below sets out the total potential capex savings for each project based on a 2 year deferral. The analysis provides a reasonable estimate of around $1.4 million of marginal benefit that could be realised from 2 years of deferral. The marginal deferral benefit is also shown, and is based on one year's avoided capex and regulated return costs divided by the amount of load shifting required. Marginal deferral values of more that $100,000 per MVA are generally considered a good indicator of deferral viability based on the expected cost of a demand or generation alternative solution. All the above candidate projects significantly exceed this level, with an average deferral benefit per MVA of $432,000. This provides upside scope to contract useful quantities of DM or network support to meet the network need.

Table 8.1: Estimated value of 2-Year deferral for capex projects[65]

Network Constraint	Scheduled year of construction	Load to shift each year (MVA)	Cost of Project (2010 $K)	Benefit from 2 year deferral (2010 $K)	Marginal Deferral Benefit ($K/MVA)
New Wangaratta (WN8) feeder	2011	0.28	2,300	252	478
New Seymour (SMR7) feeder	2012	0.34	3,300	341	515
New Woori Yallack (WYK13) feeder	2014	0.32	3,400	307	496
New Bairnsdale (BDL10) feeder	2014	0.49	3,400	307	324
New Wangaratta (WN9) feeder	2015	0.24	1,900	160	345
Total				**1,369**	
Average Marginal deferral benefit					**432**

[65] Deferral benefits calculated in accordance with IPART's *Guideline on the Calculation of Avoided Distribution Costs* published on 28 April 2005. A 7% WACC was used.

As such, expenditure requirements for these works are estimated to be $1.3 million over the five year regulatory control period based on a 2 year deferral. SP AusNet has adopted this figure because it considers that 2 year deferral period would be achievable.

SP AusNet forecasts opex to defer capex within the forthcoming regulatory control period as outlined in the table below.

Table 8.2: Summary of capex deferral opex forecast

Program	Activity	Opex (Real 2010$M)	Benefit
Defer Feeder Upgrade on Benalla-Euroa 22kV line	DG	1.10	Network support to manage demand
General capex deferral at identified sites	Generation (network support), embedded generation or voluntary load curtailment.	1.32	Network. Support/ load shifting to manage peak demand
Total		2.42	

8.3.3 DM programs

SP AusNet proposes to include an amount in its opex and capex forecast to cover DM programs which:

- is necessary to meet and manage the expected demand for standard control services over the 2011-15 regulatory control period; and
- meets the National Electricity Objective in that they promote efficient investment in, and efficient operation and use of the network.

The forecast DM programs are based on the least cost means to balance supply and demand by assessing the DM cost to individuals versus the cost of augmenting capacity under the base case scenario.

Hot water system timing

SP AusNet has successfully adjusted hot water time clocks and meters to around 8000 customers on its network to permanently shift load and reduce peak demand in constrained areas such as Leongatha, Wonthaggi, Inverloch & Philip Island.[66] These adjustments have allowed for the deferral of $14.6 million (nominal) worth of capital expenditure on the South Gippsland network in the current regulatory control period. Customers agree to have their water heating times adjusted and do not suffer any amenity or economic impact from this program.

[66] This expenditure of around $320,000 was spread over the current regulatory control period and is not included in SP AusNet's base year opex.

There is further potential for this program to reduce peak demand and deliver efficiency benefits across the SP AusNet network. SP AusNet plans to adjust hot water system timing to another 90,000 customers on areas of the network experiencing peak demand constraints, such as Cann River, Foster, Kinglake, Moe, Merrijig, Myrtleford and the snowfields areas around Mansfield. It is expected that the roll out of hot water timers will allow for the deferral of a $7.1 million (real $2010) project to reconductor the Wangaratta-Myrtleford line scheduled for 2013.

SP AusNet is therefore forecasting $1.25 million for a hot water system load control program in the 2011-15 regulatory control period. This estimate takes into account the expected hot water load available for adjustment and the current cost of this program at around $12.50 per unit. Given SP AusNet's incurred costs on this program to date, SP AusNet has forecast opex in to cover equipment, labour and administrative costs.

SP AusNet's proposed expenditure on hot water system timing adjustments will deliver efficiency benefits by managing peak demand in constrained areas of the network and avoiding network augmentation. This promotes efficient investment in, and the efficient operation and use of, the network.

If this hot water load shifting expenditure is not approved, SP AusNet forecasts an additional allowance of $7.1 million in capex to undertake reconductoring of the Wangaratta-Myrtleford line in 2013.

Direct load control – air conditioning

Valuable experience and benefits would be provided by a trial of Direct Load Control (DLC) on air conditioners. The objective of such a trial would be to test methods for SP AusNet to manage the impact of future expected growth of refrigerative air-conditioning in residential homes on its network.

Air-conditioning penetration in residential homes is expected to increase. It is approximately 70% in Victoria, which is relatively low compared to South Australia, where it is above 90%.[67] This suggests there is potential for significant growth in air-conditioning penetration. In addition, extreme weather events, such as those recently experienced in Victoria over the 2008/09 summer, are likely to accelerate air conditioning take-up. With these types of weather events predicted to continue, and becoming more severe, air-conditioners are likely to be installed in households currently without them, while the numbers and capacities of air-conditioners in existing households are also likely to increase. In addition to placing immense demand on network capacity, this trend will also drive the system peak later into the day and create sharper peaks in demand.

SP AusNet expects these impacts to be exacerbated by:

- de-rating of network assets which occurs during high temperature events; and
- air conditioning placing more reactive load on the system which contributes to degrading system power factor.

SP AusNet intends to target DLC trials in the Cranbourne/Pakenham and Epping/Plenty Valley areas because much of the growth in maximum demand is occurring in these residential growth corridors. For planning purposes, SP AusNet forecasts that the maximum peak demand in these areas will increase from 2.3kW to 4 kW per house in the forthcoming regulatory control period.[68]

[67] ABS Catalogue No. 4602.0.55.001, Table 4.11, p 63.

[68] See SP AusNet AMS 20-12, Capacity.

This growth impacts on the network's demand profile and load duration trend, particularly the temperature sensitive load. SP AusNet's total temperature sensitive load increased from 734 MW in 2007/08 to 944 MW in 2008/09. This represents a 28 per cent increase in just one year. Smaller customers make up approximately 40 per cent of temperature-sensitive load and large customers make up 54 per cent.[69]

SP AusNet is examining two approaches to directly controlling air-conditioners:

- short-term cycling – remote switching of large numbers of air-conditioner compressor motors 'on' and 'off' for short periods of time to reduce coincident peak demand. Often in this type of control strategy, in the case of large split systems and central air conditioners, ventilation fans are allowed to operate continuously to help maintain comfort conditions for occupants; and
- long-term interruption – remote disablement of air conditioners for an extended period of time, say for up to 3 hours, to significantly lower the peak demand.

DLC programs are typically offered to customers on a voluntary basis, with customers being offered financial incentives to participate. Therefore, consumers would only 'purchase' DLC when the benefit to them (ie: the rebate) is greater than their marginal value that they place on consuming that electricity. SP AusNet considers that any incentive would be facilitated through a rebate on a participating customer's summer electricity bills during which the device is utilised. SP AusNet notes that such a rebate scheme:

- maintains the efficiency of its Time of Use tariff structure, as participating customers still see the marginal peak, shoulder and off peak energy price signals throughout the summer period; and
- augments the Time of Use energy tariff structure, as its focuses on demand reductions at peak periods, as opposed to reductions in energy consumption during the defined summer period.

SP AusNet has forecast $2.2 million to deliver this program. The program will roll out to up to 2000 customers in the Cranbourne/Pakenham and Epping/Plenty Valley areas. SP AusNet forecasts peak demand growth to be around 9 per cent per annum in these areas. If this program enables SP AusNet to reduce each customer's peak demand by an average of 0.5-1 kW, this would lead to a reduction in peak demand of 1-2MW across specific locations in these regions and assist in managing expected peak demand.

The proposed budget would be in the form of opex to cover the costs of:

- project management, marketing and administration (approximately $0.10 million);
- technical support and operation (approximately $0.15 million);
- procurement and installation of equipment necessary to facilitate the remote control of air conditioning units (approximately $1.01 million); and
- compensation to customers for their participation (the rebates) (approximately $0.76 million).

These costs are based on SP AusNet's estimate of the market prices for the marketing and labour required to implement the program and the expected contract prices for customer

[69] See Futura, Non-network Strategies for SP AusNet, November 2009, pp 10-15.

participation. The forecast also reflects similar costs incurred by other DNSPs in implementing DLC trials.

SP AusNet notes that an additional cost component of this project would be to complete studies to assess the most appropriate central load control platform for controlling large numbers of air-conditioners and suitable relay technologies. However, this cost is accommodated in the budget for the non-networks team resourcing proposal.

SP AusNet's proposed expenditure on DLC of air conditioners will deliver efficiency benefits by managing peak demand and avoiding augmentation to cater for peak demand. This program is necessary to meet and manage the expected demand for standard control services over the 2011-15 regulatory control period.

Total DM Program Expenditure

SP AusNet's total proposed expenditure on DM programs to be implemented in 2011-15 amounts to $3.29 million as set out in the table below.

Table 8.3: Total proposed expenditure on DM programs

Program	Activity	Opex ($2010M)	Benefit
Hot water system load control	Set timers on hot water systems in constrained areas of the network	1.26	Load shifting to manage peak demand
Direct Load Control of air conditioning	Pay rebates to participants. Install and access communications device on AC units for homes in target areas.	2.03	Load shifting to manage peak demand
Total		**3.29**	

8.3.4 Non-network Solution and Technology Trials

SP AusNet intends to conduct a number of non-network solution and technology trials in the forthcoming regulatory control period. These will enable the testing and demonstration of programs and technologies under controlled conditions and provide SP AusNet with hands-on experience in the development of effective DM and DG programs for its network. Importantly, these pilots and trials are expected to provide the opportunity for program refinement prior to full-scale implementation.

This approach is consistent with the AER's intended use of the DMIS to:

> *".. increase the current stock of knowledge and experience with network demand management, to encourage greater consideration of non-network alternatives to augmentation in the decision making processes of DNSPs. The DMIS also aims to provide incentives for DNSPs to conduct research and investigation into innovative techniques for managing demand so that, in the future, demand management projects may be increasingly identified as viable*

alternatives to network augmentation and reflected in a DNSP's main expenditure proposals."[70]

The DMIA, while useful, will be insufficient to cover the cost of SP AusNet's proposed DG and DM trials. In light of this, SP AusNet is seeking approval of necessary and efficient demand management expenditure which is above that provided under the DMIS. SP AusNet proposes to include an amount in its opex and capex forecast to cover trial activities which will provide long-term benefits for the network. It is considered that these programs will assist in SP AusNet in:

- meeting and managing the expected demand for standard control services; and
- meeting the National Electricity Objective in that they promote efficient investment in, and efficient operation and use of the network.

The proposed expenditure for trials takes into account the DMIA by netting off the cost of the program against the DMIA.

CSIRO trial of energy storage and distributed generation

Pilots to test and demonstrate different DG and energy storage solutions will provide a range of long term benefits to both users and industry. SP AusNet intends to explore the potential of energy storage and embedded generation in particular, given the physical characteristics of the network and operating environment.

Energy storage provides a tool to balance supply and demand through the day and provides a good opportunity to integrate large amounts of renewable energy. In this context large-scale storage technologies may be an alternative to network augmentation solutions. Storage could be installed at the end of long lines to reduce demand at the load point, thereby improving network stability and lowering losses. Another relatively new technology for this type of application is small scale renewables incorporating storage technology such as fuel cells, flow batteries, flywheels, and ultrabatteries.

SP AusNet proposes to undertake a demonstration of the role of energy storage in rural networks, comprising large (MW-scale) storage installations supporting rural networks, residential (kW-scale) storage installations in participating households, and significant generation. The trial would involve review and selection of a test system, selection of a suitable rural site for the trial and design, installation, testing and evaluation.

The key R&D objectives of the project are:

- pioneer and demonstrate new design and operating practices for electricity networks;
- develop cutting-edge mw-scale storage technology to a commercial-ready state;
- develop intelligent management methods for networks and storage that integrates multiple storage technologies; and
- achieve network support and reliable supply from renewable energy sources.

SP AusNet's forecast expenditure for this project is $4.05 million, approximately $1 million opex and $3 million capex. The opex estimate reflects the labour resources required to develop, design, model and assess this project, as well as install and operate equipment. The capex is required to contribute towards the capital costs of large (MW-scale) energy storage (around

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[70] AER, Demand management incentive scheme, Jemena, Citipower, Powercor, SP AusNet and United Energy, 2011-15, 23 April 2009, p 3.

$2 million for a 1MW unit). This estimate is based on the market cost of the different storage technologies available, including flow batteries, flywheels, and ultrabatteries which range from $2 million to $2.2 million per MW unit. The remainder is to fund renewable generation installations, such as wind or photovoltaic cells, the size and quantity of which will be decided as part of the project design.

This trial has the potential to provide multiple benefits including:

- mitigating the peak demand by drawing on storage at peak times;
- increasing the total energy supplied each day along a constrained line; and
- allowing "islanding" of a network region to increase security of supply.

Energy storage will assist in security of supply, particularly during extreme weather events such as bushfires. In this respect, this project would further the National Electricity Objective in that it would promote efficient investment in, and efficient operation and use of, electricity services with respect to quality, safety, reliability and security of supply of electricity. Further this program will help SP AusNet meet and manage the expected demand for standard control services over the 2011-15 regulatory control period and in the long term.

This trial will be undertaken in conjunction with the CSIRO and a supporting storage provider. At this stage it is envisaged these parties will contribute around 30% of the total costs of the project "in kind" and that SP AusNet's forecast expenditure will contribute around 70% of the total project cost. This makes this trial particularly good value to customers who will not have to fund the full cost of the project.

A contract and final budget are still to be finalised, pending regulatory approval of this proposal. SP AusNet notes that the timeframes for this project rely upon "in principle" regulatory approval by June 2010 (ie: through the AER's Draft Determination). Further details on this project are provided in the CSIRO document entitled *Network storage demonstration project brief* provided as part of this proposal.

SP AusNet expects that the technologies and practices developed by this project will be applied to other regions in the SP AusNet network and shared amongst Australian network operators through industry forums.

Officer Smart Network Development

VicUrban is currently developing a large site surrounding the Officer train station, in Melbourne's south east, involving a mix of commercial, community and residential development centres. VicUrban anticipates that approximately 15,000 people will live in the precinct, and 6000 jobs will be created from the development. VicUrban intends to "deliver a new paradigm of urban development" through the Officer development, focusing of five key platforms for innovation:

- new urban form;
- new sustainable infrastructure system;
- a strong local economy;
- green travel network; and
- a healthy, resilient community.

SP AusNet has been working with VicUrban[71] on the development of a sustainable infrastructure system for the Officer precinct and has identified a good opportunity to trial smart network technologies and solutions as part of this project. Smart networks incorporate computer-based electronics into utility networks to enhance information and price signals to customers. SP AusNet believes the Officer project offers a great opportunity to design a smart network which allows SP AusNet to effectively manage load growth on the network. Generally, SP AusNet is interested in ensuring smart networks are developed in a holistic and efficient manner. To the extent that this project is research and development, SP AusNet will only fund the expected demand management learnings and benefits.

As such, SP AusNet seeks approval of expenditure to trial smart networks technology and systems. SP AusNet has estimated that a total of $1.92 million will be required to undertake this project. Around $1.57 million will be required in capex to purchase technology and equipment for this project, and $0.35 million in opex to deliver the project. The proposed budget would cover the costs of approximately:

- integration design and planning ($50,000 opex);
- system operation and support ($250,000 opex);
- information analysis and evaluation ($50,000 opex);
- SCADA and communications ($50,000 capex);
- additional protection & control, network sensors ($100,000 capex);
- 100kW of zinc-bromine batteries ($400,000 capex); and
- 20 fuel cells to be rolled out to 10 homes ($1 million capex).

Electric Driveway project

SP AusNet has been working in partnership with the CSIRO to examine the integration of electric vehicles into the distribution network and customers' homes. The project covers:

- modeling and projecting future scenarios of electric vehicle uptake;
- developing and demonstrating field trials of how electric vehicles may be integrated into the home energy system; and
- stakeholder engagement and communications to the market and policy-makers.

SP AusNet anticipates that electric vehicles have the potential to stimulate a huge growth in demand. By engaging in this project, SP AusNet seeks to harness the future demand management benefits of a well considered network model for facilitating electric vehicles. To the extent that this project is research and development, SP AusNet will only fund the expected demand management learnings and benefits. It is expected that other benefits from this type of project, such as reduced car emissions, will be accommodated by grant funding.

To date, SP AusNet has been providing resources for this work on an 'in kind' basis and these costs have not been included in SP AusNet's benchmark opex. Therefore SP AusNet is seeking a total of $0.2 million in opex to allow SP AusNet to continue to participate in this project. The

[71] Victorian Urban Development Authority, a body corporate established under the *Victorian Urban Development Authority Act* 2003.

budget covers the completion of the project by year 2012 of the forthcoming regulatory control period.

Total proposed trials expenditure

Table 8.4 below summarises the proposed DM Trials expenditure.

Table 8.4: Summary of DM trials Expenditure

Trial	Project	Likely benefits	Expenditure ($2010M)		Total ($million)
			Capex	Opex	
DG and energy storage trials	Test and demonstrate large scale electricity storage for network support and renewable energy generation integration	Network support, quality of service, safety and security of supply.	3.04	1.01	4.05
Officer smart network pilot project	In partnership with VicUrban, undertake a smart network pilot project to build understanding and practical experience in managing a smart network.	Quality of service, operational efficiency, carbon emission reduction, network support.	1.57	0.35	1.92
Electric driveway project	Examine the integration of electric vehicles into the distribution network and customers' homes	Quality of service, operational efficiency, carbon emission reduction, network support.	0.00	0.23	0.23
Total			4.61	1.57	6.18
Total proposed trial expenditure after DMIA			**3.18**	**0.00**	**3.18**

The total proposed expenditure for non-networks trials is $6.18 million, comprised of $4.61 million in capex and $1.57 million in opex. SP AusNet intends to fund $1.57 million worth of opex and $1.43 of capex for this suite of trials with the $3 million provided by the DMIA. As such, the total proposed expenditure for ex ante approval is $3.18 million (capex).

8.3.5 Tariffs

SP AusNet proposes to introduce two new Distribution Use of System tariffs to use the functionality of AMI meters to provide cost reflective price signals to residential and small commercial customers, particularly during peak summer demand periods. These tariffs are:

- Time of Use tariff for Residential and Small Commercial Customers; and
- Critical Peak Demand Price for large LV customers, HV customers, and sub-transmission customers.

The key attributes of both tariffs are outlined in more detail in Chapter 7 of this proposal.

The key cost associated with delivering these efficient price signals (to residential and small commercial customers) is the cost of the AMI meter, and the communication mechanism associated with that meter, both of which are recovered under the AMI regulatory process. However, the cost of making the other system and process changes that are required in order to facilitate the introduction of both proposed tariffs are not recovered through the AMI process and are therefore applicable to recovery through the 2011-15 price cap determination.

SP AusNet proposes $1.32 million in opex expenditure to implement these tariffs:

- customer notification systems (SMS, pager, email) and one full time equivalent staff resource at the network operations centre to monitor and manage the notification process (totalling $250,000 per annum); and
- resources to update and maintain additional tariff tables (PV2) (totalling approximately $10,000 per annum).

SP AusNet notes that there is an estimated $100,000 in capex costs associated with these tariff programs which are included in the capex proposal.

These tariffs are expected to drive:

- reductions in overall energy use and a shift in energy use away from peak periods to 'off peak' periods; and
- reductions in peak demand, which in turn will allow the deferral of some reinforcement capex.

It is considered that these tariffs will assist in SP AusNet in:

- meeting and managing the expected demand for standard control services; and
- meeting the National Electricity Objective in that they promote efficient investment in, and efficient operation and use of, the network.

8.3.6 Total Proposed Non-Networks Expenditure

The total budget for SP AusNet's non-network activities is $17.04 million, however, SP AusNet intends to fund $3 million worth of expenditure for non-networks trials with the DMIA. As such, the total non-network expenditure forecast is $14.02 million ($10.84 million in opex, $3.18 million in capex). The table below summarises forecast expenditure for each of the items discussed above.

Table 8.5: Summary of ex ante DM and non-network expenditure

Budget Item	Proposed Opex ($million)	Proposed Capex ($million)	Total
Establishing a non-networks team and attaining the necessary expertise and systems	3.80	0.00	3.80
Deferral of capex	2.43	0.00	2.43
DM programs	3.29	0.00	3.29
Trials	0.00	3.18	3.18
Tariffs	1.32	-	1.32
Total	**10.84**	**3.18**	**14.02**

8.4 Demand Management Incentive Scheme (DMIS) for Victoria

8.4.1 Context for DMIS

The 2006 EDPR Determination provided the following limited measures to remove barriers to the implementation of DM and non-network initiatives to manage peaky load in the current regulatory control period:

- the mandated roll-out of interval meters. It was considered these would improve tariff design and provide information about network constraints to enable a much more efficient and effective demand side response;
- the provision of $0.6 million of revenue (operation and maintenance) for ‘the trial of demand management initiatives during the 2006–2010 regulatory period’;
- the exclusion (for a trial period only) of distributed (embedded) generation or other approved demand management initiatives from the service incentive scheme; and
- the provision of further information, to be included in the DNSP’s Annual Planning Reports, on current and emerging network constraints. The provision of such information is intended to ‘assist in the establishment of demand management and non-network solutions’,

SP AusNet has responded to these measures in the following ways.[72] SP AusNet is on track to roll out smart meters across its distribution network between 2010-13, subject to regulatory approval of the project costs. SP AusNet will have spent all of the $0.6 million allowance provided by the ESC for use on DM initiatives by the end of the 2006-10 regulatory control period. The initiatives include:

- approximately $0.32 million on adjusting hot water time clocks and meters in the Leongatha, Wonthaggi, Inverloch & Philip Island areas to reduce hot water peak demand. These adjustments have allowed $14.6 million worth of reconductoring capex on the South Gippsland network to be deferred in the current regulatory control period.
- $0.075 million in DG to provide network support and defer $6.4 million worth of network augmentation capital expenditure on the Euroa line at Violet Town;
- approximately $0.23 million on pole-mounted capacitors to improve power factor correction on the Euroa, King Valley and Nagambie lines; and
- in kind contribution to the Econnect project which investigated the potential impacts of embedded generation on the distribution network. This work is captured in the CSIRO's 2008 Report entitled *Impacts and Benefits of Highly Distributed Embedded Generation in Australian Electricity Distribution Networks.*

SP AusNet also reports on current and emerging network constraints in its Annual Planning Reports to encourage the provision of alternative non-network solutions.

8.5 SP AusNet Proposed Use and Application of DMIS

The AER's Framework and Approach Paper sets out the AER's likely approach to the application of a demand management incentive to the Victorian DNSPs for the next regulatory control period.

The DMIS requires SP AusNet to include in this regulatory proposal a description of how SP AusNet proposes the DMIS should apply for the relevant regulatory control period. Where SP AusNet's proposed application differs from that set out in the Framework and Approach Paper, SP AusNet has explained the difference in approach and reasons for it. SP AusNet's proposed approach must also satisfy the requirements of the NEL and NER.

SP AusNet intends to use the DMIA to trial broad-based demand management, non-network solutions, and smart network technologies throughout the regulatory control period as outlined in this chapter. The delivery of these projects depends on the proposed non-networks team resourcing.

8.5.1 Foregone Revenue

Part B of the DMIS allows for recovery of foregone revenue related to non-tariff programs.

Part B allows a DNSP to recover any forgone revenue resulting from a reduction in the quantity of energy sold that is directly attributable to the implementation of a non-tariff demand management program approved under part A of the DMIS. Approved forgone revenue will be provided to a DNSP in the second regulatory year of the subsequent regulatory control period.

[72] These figures are in 2009 dollars.

SP AusNet will seek recovery of any foregone revenue related to a DMIS project where it is applicable.

8.5.2 Annual Reporting against the DMIA

SP AusNet will report to the AER annually for assessment and approval of DMIA projects.

An optional pre-approval process within the regulatory control period is also available. This is aimed at providing DNSPs with more certainty about the likelihood of their DMIA spending being approved. However, it is in addition to the ex post assessment process and does not substitute it.

8.5.3 Exclusion from Efficiency Benefit Sharing Scheme (EBSS)

SP AusNet will exclude DM opex approved under the DMIS from the efficiency carry-over mechanism.[73]

8.5.4 Treatment of Demand Management capex

The AER's final DMIS decision states that any DMIA capex spent within-period which has not been approved as part of the distribution capex determination will be treated as opex and not rolled into the RAB.

SP AusNet notes that the business is not seeking a commitment for DMIS capex to be rolled into the RAB mid-period. Rather, it is seeking confirmation of the principle that in establishing the opening RAB at the start of the 2016-20 regulatory control period, all actual capex (whether it be demand management related or otherwise) will be treated equally and rolled into the RAB as long as it satisfies Schedule 6.2.1(e) of the NER. In particular, any DM/DG capex spent above the DMIS cap which will not have been recovered during the period will be automatically rolled into the RAB, without ex post assessment, subject to it being properly allocated to standard control services in accordance with the Cost Allocation Method. This gives effect to one of the major principles behind the ex ante regulatory framework.

8.5.5 Excluding Demand Management from Service Standards Incentive Scheme

Non-network solutions and network solutions are often not perfect substitutes and can provide different levels of reliability. While a lower level of reliability may be acceptable from a non-networks alternative if it is more economic than the network alternative, SP AusNet considers that the AER should allow for any non-performance from non-network solution to be excluded from SP AusNet's service standards performance data. To do otherwise would establish a potential barrier to the emergence of non-network solutions.

The ESC previously allowed the exclusion of DG or other approved DM initiatives from the service incentive scheme. Continuing this exclusion mechanism would allow DNSPs to effectively manage their financial risks in relation to non-network solutions and support further uptake of alternative options.

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[73] AER, Final Decision: Demand management incentive scheme, Jemena, Citipower, Powercor, SP AusNet and United Energy, 2011-15, 23 April 2009, p 10.

9 Efficiency Benefit Sharing Scheme

This chapter outlines:

- SP AusNet's calculations of the revenue increments / decrements for each year of the forthcoming regulatory control period arising from the application of the ESC's efficiency carryover mechanism during the current regulatory control period; and
- a description of how SP AusNet proposes the Efficiency Benefit Sharing Scheme (EBSS) should apply for the forthcoming regulatory control period.

The remainder of this chapter is structured as follows:

- Section 9.1 provides a summary of the revenue increments / decrements for the forthcoming regulatory period that arise from the application of the ESC's efficiency carryover mechanism. This section also provides a summary of the RIN requirements relating to the EBSS, and demonstrates how SP AusNet has met these requirements;
- Section 9.2 outlines the regulatory requirements underpinning the calculation of the current regulatory control period's efficiency carryover amount, along with the detailed calculation of SP AusNet's efficiency carryover amount for the current regulatory control period;
- Section 9.3 provides an overview of the regulatory requirements and associated guidance relating to the EBSS for the forthcoming period; and
- Section 9.4 outlines the EBSS that SP AusNet proposes to adopt for the forthcoming regulatory control period, including its proposed uncontrollable cost categories and the resulting benchmark operating expenditure amounts for the purpose of the EBSS.

9.1 Summary of Efficiency Carry Over Amounts and RIN Compliance

The table below outlines SP AusNet's proposed efficiency carryover amounts for the forthcoming regulatory control period.

Table 9.1: Efficiency carry over amounts for forthcoming regulatory period

(Real 2010 $M)	2011	2012	2013	2014	2015
Efficiency Carryover Amount	13.8	-22.0	-5.0	2.1	0.0

The table below outlines the RIN requirements, and provides explanatory information regarding SP AusNet's compliance with each requirement.

Table 9.2: Efficiency benefit sharing scheme - Compliance with RIN requirements

RIN Paragraph	Matter addressed	Comments
10.1(a)(i)	Capitalisation Policy – 2001/05,2006/10 and 2011/15	SP AusNet confirms that there has been no change in its Capitalisation Policy in the previous regulatory control period, not in the current regulatory control period. Furthermore, SP AusNet confirms that it does not propose any change to its Capitalisation Policy in the forthcoming regulatory control period.
10.1(a)(ii)	Excluded cost categories (2011-2015)	SP AusNet proposes the following 'uncontrollable cost categories' be excluded from the calculation of the 2016 efficiency carryover amount. (For completeness, the list set out below is inclusive of the uncontrollable cost categories specified by the AER in the June 2008 EBSS): • Liability Insurance Premiums • Self insured risks • Debt raising costs • Non-network alternatives • Cost Pass Through Events • Change in classification of a service • Adjustments for changes in responsibilities (eg: licence changes, law).

RIN Paragraph	Matter addressed	Comments
10.1(a)(iii)	Proposed efficiency benefit sharing scheme base year (2011-2015)	2011 - $154.15 million 2012 - $160.87 million 2013 - $164.65 million 2014 - $168.43 million 2015 - $171.20 million

RIN Paragraph	Matter addressed	Comments
10.1(a)(v) and 10.1(b)	Adjustments to 2006-2010 benchmark OPEX to calculate Efficiency Carryover Amount	SP AusNet confirms that it has calculated its efficiency carryover amount for the forthcoming regulatory period in accordance with the growth adjustment formula in the 2006 EDPR Determination[74]. It is noted that the principles on changes to capitalisation policy contained in the 2006 EDPR Determination are not applicable to SP AusNet, as the company has not changed its capitalisation policy. SP AusNet also notes that in order to calculate its efficiency carryover amount, it has made three downward adjustments to its actual operating and maintenance expenditure for the 2009 year. These were: $10.62 millions ($2009) for the incremental costs associated with the February 2009 bushfires, $3.26 million ($2009) for the costs that SP AusNet has paid to SPIMS for the actuarial adjustment pertaining to its defined benefits superannuation contribution, and. $0.038 ($2009) to reflect a small margin that it paid to a related party service provider in 2009 for maintenance services. SP AusNet believes that the removal of such costs: Is consistent with the 2006 EDPR Determination requirements, particularly as the 2006 EDPR Determination benchmark opex amounts did not include any allowance for the costs associated with these two types of events, and the 2006 EDPR Determination explicitly focuses on changes in ‘recurrent’ operating expenditure – which these items are clearly not; and Provides for a consistent treatment of these costs within this Proposal, as SP AusNet has removed these costs from its Base Year operating expenditure forecasts, as they are not deemed to be ‘recurrent’ in nature.

[74] Electricity Distribution Price Review – October 2006 – Final Decision – page 437.

9.2 Regulatory Requirements underpinning 2006-2010 Efficiency Carryover Amount

SP AusNet's annual revenue requirement for each year of the forthcoming regulatory control period contains a revenue increment calculated in accordance with the ESC's 2006 EDPR Determination. The regulatory requirements governing the calculation of these revenue increments, and their inclusion in SP AusNet's revenue building blocks for the forthcoming regulatory period are set out in the following instruments:

- the NER;
- the RIN; and
- the ESC's 2006 EDPR Determination.

The applicable requirements are outlined in further detail below.

9.2.1 National Electricity Rules

Clause 6.4.3(5) of the NER provides for a building block determination to include:

> *"the revenue increments or decrements (if any) for that year arising from the application of the efficiency benefit sharing scheme, the service target performance incentive scheme and the demand management incentive scheme – see paragraph (b)(5)".*

As noted below, paragraph 10.1 of the RIN provides that for the purpose of this Proposal, the EBSS is the efficiency carryover mechanism put in place by the ESC in the 2006 EDPR Determination. Accordingly, SP AusNet has included revenue increments and decrements (efficiency carryover amounts) in this Proposal which have been accrued under the ESC's efficiency carryover scheme during the current regulatory control period.

9.2.2 Regulatory Information Notice

Paragraph 10 of the RIN outlines the AER's detailed requirements in relation to SP AusNet's EBSS. SP AusNet's compliance with the RIN is documented in section 9.1 above.

As already noted, paragraph 10.1(a)(iv) requires SP AusNet to identify, for the purpose of the EBSS, all carryover over amounts accrued under the ESC's efficiency carryover mechanism.

9.2.3 2006 EDPR Determination Requirements

It is noted that the ESC provided clear guidance in the 2006 EDPR Determination in relation to how the efficiency carryover mechanism (ECM) should be calculated for the 2006-2010 regulatory period, for inclusion in the 2011 regulatory submission.

The issues that are specifically covered include:

- application of the ECM to operating and maintenance expenditure;
- the non-application of the ECM to capital expenditure;
- the requirement to adjust outturn operating expenditure for changes in a business' capitalisation policy;
- the application of negative carryover amounts; and
- the adjustment of regulatory benchmarks for any differences in outturn growth relative to assumed growth.

Each of these matters is discussed in more detail below.

9.2.4 Operating and Maintenance Expenditure

In the 2006 EDPR Determination, the ESC established an efficiency carryover mechanism for the current regulatory control period. More specifically, the ESC stated that:

> *"…the efficiency carryover amounts for operating and maintenance expenditure to be included in the 2011 revenue requirements and arising from efficiency gains achieved in the 2006-10 regulatory period will be calculated as follows:*
>
> *An efficiency gain (or loss) in operating and maintenance expenditure in any year during the 2006-10 regulatory period is to be calculated as the reduction (or increase) in the level of recurrent operating and maintenance expenditure compared to the forecast for that year. Recurrent in this sense is taken as the underspend (overspend) between forecast and actual in year one, then the incremental underspend (overspend) in subsequent years."*[75]

SP AusNet has calculated its efficiency carryover amount for operating and maintenance expenditure based on the underspend (overspend) between forecast and actual in year one, then the incremental underspend (overspend) in subsequent years, subject to making the following adjustments to actual operating and maintenance expenditure to ensure that only 'recurrent' operating expenditure is included in the calculations:

- $10.62 millions ($2009) for the incremental costs associated with the February 2009 bushfires, and
- $3.26 million ($2009) for the costs that SP AusNet has paid to SPIMS for the actuarial adjustment pertaining to its defined benefits superannuation contribution.

Excluding these costs from the efficiency carryover calculation is consistent with the 2006 EDPR Determination benchmark opex amounts, as the ESC did not make any allowance for opex that may be incurred by SP AusNet from time-to-time in relation to bushfire events, as:

- the ESC's self insurance allowance only related to SP AusNet's liability exposure[76] (not property damage); and
- the 'movement in provisions methodology' that the ESC used to capture the cost to SP AusNet of uninsured events[77] relies on: (a) events having been incurred between 2000 and 2004; and (b) the costs of such events being captured as a provision, and not opex in the year that they are incurred. Whilst SP AusNet incurred around $300,000 in opex due to a bushfire event in 2003, it was expensed in that year, and therefore, was not captured as a provision. It is noted that no bushfire event occurred in 2004, therefore, no allowance would have been provided for in the 2004 Base Year costs used in the 2006 EDPR Determination.

It is consistent with the 2006 EDPR Determination benchmark opex amounts as no allowance for costs associated with any defined benefit superannuation adjustment was included in that benchmark. It is also consistent with the ESC's requirement that any efficiency carryover

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[75] Electricity Distribution Price Review 2006-10 October 2005 Price Determination as amended in accordance with a decision of the Appeal Panel dated 17 February 2006 Final Decision Volume 1 – page 431.

[76] Ibid, pg 203.

[77] Ibid.

mechanism only focuses on changes in 'recurrent' operating expenditure – which these events are not. It provides for a consistent treatment of 'non-recurrent' costs within this Proposal, as SP AusNet has removed these costs from its Base Year operating expenditure forecasts as they are not deemed to be 'recurrent' in nature, which is a requirement of the RIN if a base year approach is adopted (see paragraph 4.2 (ix)(2)).

The approach is consistent with regulatory precedence, in particular the results of United Energy's appeal of the ORG's 2001 Electricity Distribution Pricing Decision, namely[78]:

- Paragraph 5.2 of the Reasons, which required that the efficiency carryover mechanism must compare accounts "produced on a comparable basis"; and
- Paragraph 5.3 of the Reasons, state: "it follows that the basis of coverage of the actual 1999 accounts should be the same as the basis and coverage of the 1999 benchmark forecast amounts".

SP AusNet has not made any other adjustments to its actual operating expenditure.

9.2.5 Capital Expenditure

In its 2006 EDPR Determination, the ESC made it clear that an efficiency carryover mechanism would not apply to capital expenditure for the current regulatory control period. More specifically, the ESC stated that:

> *"to be consistent with the obligation to ensure a fair sharing of efficiency benefits, the Commission has therefore decided not to apply an efficiency carryover mechanism to capital expenditure during the 2006-10 regulatory period[79]".*

In accordance with this aspect of the ESC's 2006 EDPR Determination, SP AusNet has not calculated an efficiency carryover amount for capital expenditure.

9.2.6 Capitalisation Policy

In its 2006 EDPR Determination, the ESC alluded to the need to have regard to changes in a business' capitalisation policy when calculating a efficiency carryover amount for the current regulatory control period. More specifically, the ESC stated that:

> *"To measure efficiencies arising from the 2001-05 regulatory period, the Commission has considered the capitalisation policies of the distributors when comparing them with those underpinning the benchmarks during the 2001-05 period to ensure they are measured on a like basis. This may be required again if policies for capitalising overheads change in the 2006-10 regulatory period relative to those assumed in developing the 2006-10 expenditure forecasts. However, the Commission does not currently envisage that this will require more intrusive delineations between the reporting of operating and capital expenditures. Instead, the Commission will continue to require transparency and information to support the approach adopted by each distributor."[80]*

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[78] http://www.esc.vic.gov.au/NR/rdonlyres/D87DB2E2-A1F9-4375-B72F-0B72B577F55C/0/sub_UE_appealconspaper_20001110.pdf

[79] Ibid., page 432.

[80] Ibid,. pg 433.

SP AusNet confirms that has not changed its capitalisation policy during the current regulatory period.

9.2.7 Negative Carryover Amount

SP AusNet notes the following in relation to the adoption of a "zero floor" on negative carryover amounts:

> *"The Commission has consulted on the treatment of negative carryover amounts during this price review and reaffirms that there will be no zero floor on negative carryover amounts in calculating the efficiency carryover amounts for the 2006-10 regulatory period that are to be applied in the 2011 regulatory period[81]".*

In accordance with this aspect of the ESC's 2006 EDPR Determination, SP AusNet has not adopted a zero floor on negative carryover amounts when calculating its efficiency carryover amount.

9.2.8 Future Growth Adjustment

SP AusNet notes the following comments in relation to the adjustment of 2006 benchmark operating expenditure forecasts for differences in actual growth rates relative to assumed growth rates[82]:

> *"The Commission's framework and approach proposed the identification of a potential method for adjusting the expenditure forecasts for differences between actual and forecast demand growth when calculating the efficiency carryover amounts for the 2011 regulatory period. While these adjustments will not impact the 2006-10 determination, establishing a method for these adjustments that is consistent with the growth adjustment principles in this price review provides greater certainty to distributors and other stakeholders regarding the calculation of the efficiency carryover amounts to be applied in the 2011 regulatory period".*

The ESC provides further details of the method by which this adjustment should take place as follows[83]:

> *"The Commission considers that the following growth adjustment coefficient is appropriate for use in future calculation of the efficiency carryover mechanism. This coefficient is the same as that used in applying the rate of change to the expenditure forecasts.*
>
> *Growth adjustment = PFP coefficient weightings x % change in growth*
>
> *= 0.431(log natural change in customers) + 0.272(log natural change in peak demand) + 0.296(log natural change in consumption)*
>
> *Where:*
>
> *0.431 is the PFP coefficient weighting associated with customer numbers*
>
> *0.272 is the PFP coefficient weighting associated with peak demand*

[81] Ibid, pg 434.

[82] Ibid, 435.

[83] Ibid, pg 436.

> *0.296 is the PFP coefficient weighting associated with consumption."*

Lastly, the ESC notes the imprudency of attempting to codify the adoption of the above formula[84]:

> *"In considering this growth adjustment coefficient for use in the calculation of future efficiency carryover amounts, the Commission is cognisant of the fact that the future necessarily involves uncertainty and that it is neither prudent nor possible to make permanent now the future application of this aspect of the efficiency carryover mechanism. This coefficient therefore represents a guide to inform future debate and decisions on this issue and give greater certainty as to the merit assessment made during this review"*

SP AusNet has adopted the formula specified in the ESC's 2006 EDPR Determination to calculate the efficiency carryover amounts that determine the revenue increments / decrements to be included in SP AusNet's annual revenue building blocks for the forthcoming regulatory period.

9.2.9 2006-2010 EBSS Calculation to apply to 2011-2015 Revenue Requirement

In accordance with the requirements of paragraph 10.1 (iv) of the RIN, the following table shows the calculation of the efficiency carryover amounts that are to be included in SP AusNet's annual revenue requirements for each year of the forthcoming regulatory period. The detailed calculations are contained in the PTRM model submitted in conjunction with this Proposal.

[84] Ibid.

Table 9.3: 2011-2015 efficiency carryover amount calculation

CARRYOVER

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OPERATING AND MAINTENANCE EXPENDITURE											
O&M benchmark ($m 1/7/04)		106.7	109.4	112.3	115.1	118.3					
O&M benchmark ($m 31/12/2010)		127.3	130.5	134.0	137.4	141.1					
Adjustment to O&M Benchmark		1.4	1.4	2.4	3.4	0.0					
O&M Actual (MOD)		82.5	104.5	117.4	125.4	131.3					
O&M Actual (Real 2010)		92.90	113.18	124.75	127.00	131.26					
Underspend\(Overspend)		35.8	18.8	11.7	13.8	9.9					
Incremental gain		35.8	-17.0	-7.1	2.1	0.0					
Efficiency											
2006							35.8				
2007							-17.0	-17.0			
2008							-7.1	-7.1	-7.1		
2009							2.1	2.1	2.1	2.1	
2010							0.0	0.0	0.0	0.0	0.0
							13.8	**-22.0**	**-5.0**	**2.1**	**0.0**
											-11.1

Actual

	Cust Nos			T/Peak			Volume			
2005	573,445	5.7585		1466	3.1662		7063			
2006	582,744	5.7655	1.61%	1542	3.1881	5.03%	7403	4.70%	3.45%	-1.27%
2007	592,278	5.7725	1.62%	1611	3.207	4.36%	7520	1.57%	2.35%	-0.02%
2008	601,848	5.7795	1.60%	1717	3.2346	6.36%	7731	2.77%	3.24%	-0.92%
2009	611,994	5.7867	1.67%	1872	3.2723	8.68%	7756	0.33%	3.18%	-0.92%
2010	622,862	5.7944	1.76%	1830	3.2625	-2.27%	7781	0.31%	0.23%	
Average	592461	5.77	1.63%	1642	3.21	6.11%	7494	2.34%	**3.06%**	

Benchmark

	Cust Nos			T/Peak			Volume		
2005	567,635	5.7541		1467	3.1664		7180		
2006	578,028	5.7619	1.81%	1500	3.1762	2.25%	7374	2.68%	2.19%
2007	588,383	5.7697	1.78%	1541	3.1877	2.65%	7588	2.86%	2.33%
2008	599,514	5.7778	1.87%	1584	3.1998	2.77%	7784	2.55%	2.32%
2009	610,696	5.7858	1.85%	1630	3.2121	2.84%	7967	2.32%	2.25%
2010	622,258	5.794	1.88%	1678	3.2249	2.94%	8174	2.56%	2.37%
Average	588852	5.77	1.83%	1544	3.19	2.63%	7579	2.60%	**2.27%**

-0.78%

Source: SP AusNet's PTRM.

SP AusNet has assumed that the efficiency gain for the last year of the current regulatory control period is zero. This reflects an assumption that opex in 2010 is equal to SP AusNet's proposed base year opex for 2009, adjusted by the annual efficiency gain implied by the original expenditure benchmarks for 2009 and 2010. This assumption is required as SP AusNet's pricing determination for the forthcoming regulatory period will be finalised prior to the end of the current regulatory control period, therefore, actual data for 2010 will not be available for the purpose of this calculation. This approach is consistent with the approach adopted by the ESC in its previous regulatory decisions.

9.3 Regulatory Requirements Governing the EBSS for the Forthcoming Period

The regulatory requirements that govern the EBSS that is to apply over the forthcoming regulatory control period are set out in:

- the NER; and
- the AER's Efficiency Benefit Sharing Scheme, published in June 2008.

Further details of the requirements are set out below.

9.3.1 National Electricity Rules

Section 6.3.2 of the NER requires the AER's building block determination for a DNSP to include a decision as to:

> *"how any applicable efficiency benefit sharing scheme, service target performance incentive scheme, or demand management incentive scheme is to apply to the Distribution Network Service Provider."*

Section S6.1.3(3) of the NER states that a building block proposal must contain:

> *"a description, including relevant explanatory material, of how the Distribution Network Service Provider proposes the efficiency benefit sharing scheme should apply for the relevant regulatory control period."*

In accordance with these requirements, section 9.4 of this Proposal outlines SP AusNet's proposed efficiency benefit sharing scheme for the next regulatory control period.

9.3.2 AER's Efficiency Benefit Sharing Scheme

The AER's Framework and Approach Paper states the following:

> *"The AER's distribution EBSS was released in June 2008 and is available on the AER's website. The AER's likely approach is that the AER's EBSS will be applied to the Victorian DNSP's in the next regulatory control period[85]".*

Two key points from the AER's final decision on the EBSS (June 2008) are that the EBSS will:

- apply to defined operating expenditure gains and losses, and
- not apply to efficiency gains and efficiency losses that relate to capital expenditure and distribution losses.

Under the AER's final decision on the EBSS (June 2008), the following information is required to be provided in this Proposal:

- capitalisation policy – including proposed changes and their associated impacts on forecast operating expenditure;
- demand growth – the methodology to adjust forecast operating expenditure for outturn demand growth which is to be applied at the end of the 2011-15 regulatory control period;
- proposed cost category exclusions for uncontrollable costs and an explanation as to why these costs are uncontrollable; and

[85] AER – Final Framework and Approach (June 2008) – page 5.

- forecast operating expenditure for the current regulatory control period (including disaggregated forecasts for non-network alternatives and cost categories proposed to be excluded).

Information relating to each of these matters is provided below.

9.4 EBSS to apply for the forthcoming Regulatory Control Period

9.4.1 2011-2015 – Capitalisation Policy

SP AusNet is not proposing any change to its Capitalisation Policy for the forthcoming regulatory control period.

9.4.2 2011-2015 – Demand Growth Adjustment

SP AusNet proposes that no adjustment be made to the EBSS calculation to account for differences between forecast and actual energy consumed, as this is not considered a material driver of SP AusNet's costs.

SP AusNet's proposed opex forecasts are also not directly related to its maximum demand forecasts, therefore, it proposes no adjustment factor in the future EBSS scheme for this parameter.

Lastly, SP AusNet notes that there is a small relationship between forecasts customer numbers and opex. In total, SP AusNet proposed growth rate for maintenance expenditure is 0.68% per annum on average, of which, 0.27% is related to the lagged customer numbers, and 0.41% is related to the forecast customer numbers.

Therefore, SP AusNet proposes a growth adjustment that reflects the percentage difference between actual customer numbers and forecast customer numbers, multiplied by 0.41%, multiplied by the proportion of SP AusNet's that is maintenance expenditure over the next regulatory control period. This percentage is 36.16%.

The formula is therefore:

*((Actual Customer numbers)/(Forecast customer numbers))-1*0.41%*37.45%*

9.4.3 Uncontrollable Cost Category and operating expenditure in Base Year

The AER has specified a number of cost categories in its proposed scheme that will be excluded from the EBSS[86]. SP AusNet supports the AER's proposal to exclude these cost categories from the EBSS that will apply in the forthcoming regulatory control period.

In addition, the AER has stated in its Framework and Approach Paper that:

> *"EBSS allows the Victorian DNSPs to propose cost categories which it considers to be uncontrollable for exclusion from the scheme. These categories must be proposed by a Victorian DNSP in its regulatory proposal for consideration in the AER's distribution determination."*[87]

[86] Electricity distribution network service providers – Efficiency benefit sharing scheme – June 2008 – page 7.

[87] AER Final Framework and Approach – May 2009 - page 112.

The AER further allows that:

> *"DNSPs who propose uncontrollable operating expenditure categories will be required to maintain and provide disaggregated operating expenditure figures in support of any proposed uncontrollable operating expenditure categories to allow proper administration of the EBSS. The AER notes that outturn operating expenditure for uncontrollable cost categories will not be assumed to be efficient for the purposes of forecasting costs for future regulatory control periods. Therefore, the efficiency of base year costs for these categories will need to be established in a DNSP's regulatory proposal."* [88]

The following table outlines SP AusNet's proposed 'uncontrollable cost categories' – inclusive of those already proposed by the AER in the EBSS. In accordance with paragraph 10 (b)(iv) of the RIN, the table also sets out SP AusNet's reasons for its proposed exclusion and why the cost category is uncontrollable.

Table 9.4: Uncontrollable Cost Categories

Category	Reasons for Exclusion
Insurance Liability Premiums	SP AusNet is subject to significant volatility in insurance liability premiums. Whilst some volatility will be a function of SP AusNet's own risk management activities, a significant proportion is driven by exogenous variables. For example, insurance liability premiums can materially change as a result of: • A large scale event occurring to another similar business, thus causing a re-rating of all businesses within that industry; • Prevailing financial market conditions, which may increase the cost of capital for insurers, thus driving insurance premiums higher; and • Competition within the insurance and re-insurance market. As such, even though premiums are negotiated annually, the insurance market is primarily driven by longer term factors, therefore, an increase in a liability premium in one year may not be offset by a reduction in premiums in the following year. Unless insurance costs are excluded from the EBSS, changes in insurance liability premiums would lead to longer term efficiency gains or losses being recorded by SP AusNet, despite the fact that the cost of insurance is primarily outside of SP AusNet's control.

[88] Ibid, pg 112-113.

Category	Reasons for Exclusion
Self Insurance Costs	SP AusNet notes that the inclusion of an allowance for the cost of self-insured risk will compensate SP AusNet for the expected long term cost associated with asymmetric risks, where those risks have a less than 100% probability of occurrence in any one year. As a result, in any one year there may be a material difference between the costs embedded within the benchmark opex allowance and actual opex incurred by SP AusNet in relation to those risks. Accordingly, any out-performance (in a given year) that is related to such events is not representative of an on-going efficiency gain; rather, it is representative of the timing difference between when an event occurs, and the long term expected cost associated with that event. As such, the costs of these events should be removed from the EBSS calculation for the forthcoming period regulatory control.
Debt raising costs	Consistent with the AER's 2009 NSW Final Decision, SP AusNet proposes that the costs associated with raising debt should be removed from the EBSS calculation for the forthcoming period regulatory control. SP AusNet considers that removal of such costs from the EBSS is appropriate because actual costs will fluctuate depending on market conditions, and these costs are generally beyond the control of SP AusNet management.
Non-network alternatives	Proposed by the AER in its Final EBSS.
Cost Pass Through Events	Proposed by the AER in its Final EBSS.
Change in classification of a service	Proposed by the AER in its Final EBSS.
Adjustments for changes in responsibilities (eg: licence changes, law)	Proposed by the AER in its Final EBSS.

Based on the uncontrollable cost categories described above, the following table outlines the benchmark operating expenditure that will be used to calculate SP AusNet's efficiency carryover amount for the forthcoming regulatory control period.

Table 9.5: Benchmark opex for the purposes of calculating the EBSS in 2016

Opex Parameter (Real 2010 $M)	2011	2012	2013	2014	2015
Benchmark opex	168.38	175.55	179.61	183.82	186.81
Less uncontrollable cost categories:	14.23	14.68	14.96	15.39	15.61
Benchmark opex for the purposes of calculating EBSS for 2011-2015 regulatory period	**154.15**	**160.87**	**164.65**	**168.43**	**171.20**

**Represents the liability premium included in the base year, plus SP AusNet's proposed Step Change for its liability premium.*

10 Opening Regulatory Asset Base

This chapter sets out the calculation of the opening RAB and its roll forward for the forthcoming regulatory period. The RAB calculation is highly relevant to the calculation of the return on capital and depreciation elements of the building block proposal. The RAB calculation presented in this chapter complies with the requirements of the NER and the AER's roll forward model.

The following sections of this chapter explain SP AusNet's RAB calculation, together with relevant background information, as follows:

- Section 10.1 sets out the relevant regulatory requirements for establishing the opening RAB for the forthcoming regulatory control period;
- Section 10.2 sets out the key underlying assumptions in establishing the RAB for forthcoming regulatory control period;
- Section 10.3 describes the establishment of an opening RAB as at 1 January 2006;
- Section 10.4 outlines the rolling forward of the asset base to 1 January 2011 using depreciation established in the 2006 EDPR Determination (adjusted for actual inflation) and actual capex and inflation up until 2008 and forecasts of capex and inflation for 2009 and 2010;
- Section 10.5 sets out information relating to provisions contained in the ESC's 2006 EDPR Determination, which, in certain circumstances allow the regulator to compensate a DNSP for any financing costs associated with actual capital expenditure undertaken during the current regulatory period that exceeds the regulatory allowance specified in that Determination; and
- Section 10.6 concludes the chapter by providing a summary of the derivation of the RAB value as at 1 January 2011.

10.1 Regulatory Requirements

Clause S6.2.1 of Schedule 6.2 of the NER established a value for SP AusNet's RAB of $1,307.2 million (as at 1 January 2006 in July 2004 dollars). Clause S6.2.1(c)(2) requires this value to be adjusted for any difference between the estimated and actual capital expenditure for the previous regulatory control period. This adjustment must also remove any benefit or penalty associated with any difference between the estimated and actual expenditure.

Consistent with current AER modelling practice, SP AusNet has interpreted the benefit (or penalty) referred to in the NER as meaning the additional (or foregone) return on capital that results from the difference, if any, between forecast and actual capex.

Clauses S6.2.1(e) and (f) set out the method of rolling forward the RAB from the opening value established in Clause S6.2.1(c). Specifically, this method requires that the opening RAB value must be:

- increased by the amount of actual and forecast capital expenditure incurred during the previous control period and allocated properly in accordance with the DNSP's approved cost allocation methodology (Clauses S6.2.1(e)(1), (2) and (4));

- reduced by the amount of the depreciation of the RAB during the previous regulatory control period calculated in accordance with the previous determination (Clause S6.2.1(e)(5));
- reduced by the disposal value of any asset disposed of in the previous control period (Clause S6.2.1(e)(6)); and
- reduced where an asset that previously provided standard control services no longer does so or increased where an asset that did not provide standard control services now does so, due to a change of classification (Clauses S6.2.1(e)(7), (8) and (f)).

Clause 6.5.1(e)(3) also requires that the opening asset base be adjusted for actual inflation consistently with the method used for indexation of the control mechanism for standard control services during the current regulatory control period.

Finally, in accordance with Clause S6.1.3(7) of the NER, the DNSP must supply the AER with a completed roll-forward model illustrating the details, amount, calculations and other inputs used to establish the RAB for each regulatory year of the relevant regulatory control period.

10.2 Key Assumptions

The following key assumptions underlie SP AusNet's calculation of its opening RAB:

- forecast net capex for 2009 is $260 million; and
- forecast net capex for 2010 is $256 million.

It is also assumed that these forecasts will be updated in SP AusNet's response to the AER's Draft Decision and be subsequently reflected in the AER's Final Decision.

10.3 Establishing the opening RAB at 1 January 2006

As noted in section 10.1 above, SP AusNet's unadjusted opening RAB is established at 1 January 2006 under Clause S6.2.1(c)(1) of the NER as $1,307.2 million, in July 2004 dollars. SP AusNet has converted the real value set in the NER to dollars of the day (nominal) in order to perform the roll forward on a nominal basis in accordance with the AER's current modelling practice. Consistent with the assumptions and methodology underpinning Clause S6.2.1(c)(1) of the NER and the 2006 EDPR Determination, the escalation has used the ratio of the ABS published September Quarter All Groups CPI for 2005 divided by the March Quarter All Groups CPI for 2003.

In accordance with Clause S6.2.1(c)(2), SP AusNet has adjusted this value for the difference between estimated and actual capital expenditure for calendar year 2005, being the year that immediately preceded the start of the current regulatory control period. As SP AusNet's actual capex for the calendar year 2005 was higher than that assumed in the 2006 EDPR Determination SP AusNet's calculations remove the penalty associated with the foregone return on the above-benchmark capex.

For transparency, SP AusNet has separated these adjustments in its submitted Roll Forward Model as follows:

- SP AusNet has converted the real value set out in Clause S6.2.1 of the NER to derive the opening RAB value expressed in dollars of the day (nominal). Therefore, the opening

RAB as at 1 January 2006, pursuant to Clause S6.2.1(c)(1) of the NER is $1,345.1 million in dollars of the day;

- SP AusNet has adjusted this value for the $27.0 million actual capital expenditure which was in excess of the regulatory allowance for calendar year 2005, resulting in an actual opening RAB as at 1 January 2006 of $1,372.1 million;
- SP AusNet has calculated the foregone return on the higher capex over the current regulatory control period ($16.5 million) and capitalised it into the opening 1 January 2011 RAB for the forthcoming regulatory period; and
- when converting real to nominal values SP AusNet has escalated for inflation consistent with the requirements of Clause 6.5.1(e)(3) which requires that the established opening asset base, be adjusted for actual inflation consistently with the method used for indexation of the control mechanism.

10.4 Rolling forward the RAB to 1 January 2011

Under the NER Clauses S6.2.1(e) and (f) establish the methodology to be used for the roll forward of the RAB.

The agreed roll-forward approach for the current regulatory control period adjusts for outturn inflation, actual capital expenditure and disposals and the inflation adjusted depreciation allowed for in the 2006 EDPR Determination.

10.4.1 Actual and Forecast Net Capex, 2006 to 2010

To roll forward from the opening RAB as at 1 January 2006, SP AusNet has used actual asset additions (net of disposals) for the period 2006 to 2008 and forecast of capex (net of disposals) for 2009 and 2010, in accordance with Clauses S6.2.1(e)(1), (2), (4) and (6) of the NER. Actual and forecast net capex for the current regulatory control period is shown in the table below.

Table 10.1: Net Capex, 2006 to 2010

(Nominal $M)	2006	2007	2008	2009	2010
Capex	120.0	129.7	188.2	260.7	256.2
Disposals	2.0	1.6	0.9	0.2	0.1
Net capex	**118.0**	**128.1**	**187.3**	**260.5**	**256.1**

10.4.2 Actual and Forecast Economic Depreciation, 2006 to 2010

Consistent with current AER modelling practice, SP AusNet has used economic depreciation when rolling forward the asset base over the current regulatory control period. Economic depreciation is calculated by determining the nominal depreciation, and offsetting the CPI indexation for each asset class. The calculation of each of these elements is set out below.

Actual and Forecast Straight Line Depreciation, 2006 to 2010

As stated in section 10.1, Clause S6.2.1(e)(5) requires that the roll forward from the RAB be reduced by the amount of the depreciation of the RAB during the previous regulatory control period calculated in accordance with the previous determination. Under the 2006 EDPR Determination, the RAB in the current control period was to be reduced by the inflation-adjusted depreciation allowance contained in that Determination. Accordingly, the amount of nominal depreciation for the current regulatory control period is shown in the table below.

Table 10.2: Nominal Depreciation, 2006 to 2010

(Nominal $M)	2006	2007	2008	2009	2010
Nominal Depreciation	75.0	85.9	93.2	103.0	109.8

Actual and Forecast Indexation, 2006 to 2010

As stated in Section 10.1, Clause 6.5.1(e)(3) requires that the established opening asset base, be adjusted for actual inflation consistently with the method used for indexation of the control mechanism. Under the 2006 EDPR Determination[89], the price cap is escalated using the following ratio:

> *"CPI for a particular calendar year means:*
>
> *a) the Consumer Price Index: All Groups Index for the Eight State Capitals as published by the Australian Bureau of Statistics for the September Quarter immediately preceding the start of the relevant calendar year*
>
> *divided by*
>
> *b) the Consumer Price Index: All Groups Index for the Eight State Capitals as published by the Australian Bureau of Statistics for the September Quarter immediately preceding the September Quarter referred to in paragraph (a).*
>
> *minus one."*

SP AusNet has applied this definition of CPI to escalate its RAB for the current regulatory control period. The CPI and escalation factor are shown in the table below.

Table 10.3: Escalator for the RAB, 2006 to 2010

	2006	2007	2008	2009	2010
September CPI $_{(t-1)}$	149.8	155.7	158.6	166.5	168.6
September CPI $_{(t-2)}$	145.4	149.8	155.7	158.6	166.5
Escalator	**0.0303**	**0.0394**	**0.0186**	**0.0498**	**0.0126**

[89] ESCV, *EDPR 2006-10, Final Decision Volume 2*, October 2006, p. 70.

Consistent with current AER modelling practice and the indexation methodology used by the ESC in the 2006 EDPR Determination, SP AusNet has applied the indexation to the actual RAB. This indexation is shown in the table below.

Table 10.4: Indexation, 2006 to 2010

(Nominal $M)	2006	2007	2008	2009	2010
Indexation	41.5	57.4	29.0	83.6	24.2

Economic Depreciation, 2006 to 2010

The calculation of economic depreciation (nominal straight line depreciation minus RAB indexation) for the current regulatory control period is shown in the table below.

Table 10.5: Economic Depreciation, 2006 to 2010

(Nominal $M)	2006	2007	2008	2009	2010
Nominal Depreciation	75.0	85.9	93.2	103.0	109.8
Less Indexation	-41.5	-57.4	-29.0	-83.6	-24.2
Economic Depreciation	**33.5**	**28.6**	**64.2**	**19.4**	**85.6**

10.5 Summary

The written-down value of the rolled forward RAB as at 1 January 2011 is $2,107.3 million. The roll-forward calculation is summarised in the table below.

Table 10.6: Asset Base Roll Forward, 2006 to 2010

(Nominal $M)	2006	2007	2008	2009	2010
Opening RAB	1,372.1	1,456.6	1,556.1	1,679.3	1,920.4
Net capex	118.0	128.1	187.3	260.5	256.1
Economic Depreciation	-33.5	-28.6	-64.2	-19.4	-85.6
Closing RAB	1,456.6	1,556.1	1,679.3	1,920.4	2,090.9
Foregone return (2005)					16.5
RAB as at 1 Jan 2011					**2,107.3**

In compliance with Clause S61.3(7) of the NER, a roll-forward model illustrating the details, amounts, calculations and other inputs used to establish the RAB for each regulatory year of the relevant regulatory control period has been submitted to the AER in support of this Proposal.

11 Depreciation

This chapter sets out the depreciation elements of SP AusNet's building block proposal. The depreciation building blocks are determined in accordance with the NER.

For the purposes of this Proposal, SP AusNet has separated the consideration of the appropriate remaining lives for the sunk assets as of 1 January 2011 and the appropriate standard depreciation lives to be applied to capex for the forthcoming regulatory control period.

The chapter is set out in the following sections, together with relevant background information, as follows:

- Section 11.1 sets out the relevant regulatory requirements for establishing the depreciation schedules for forthcoming regulatory control period;
- Section 11.2 sets out the key underlying assumptions in establishing the depreciation schedules for forthcoming regulatory control period;
- Section 11.3 sets out the proposed remaining lives for the existing asset base;
- Section 11.4 provides the proposed standard lives to be applied to new capex undertaken in the forthcoming regulatory control period;
- Section 11.5 sets out the proposed depreciation methodology to be applied to new capex in the forthcoming regulatory control period; and
- Section 11.6 concludes the chapter by providing a summary of the of the proposed depreciation schedules.

11.1 Regulatory Requirements

Clause 6.5.5(a) of the NER requires that depreciation for each regulatory year must be calculated using:

> *"the value of the assets as included in the regulatory asset base, as at the beginning of that regulatory year; and*
>
> *the depreciation schedules nominated by the DNSP, providing that those schedules satisfy the following requirements, which are set out in Clause 6.5.5(b) as follows:*
>
> *the schedules must depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets;*
>
> *the sum of the real value of depreciation over the economic life of an asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB; and*
>
> *the economic life of the assets and the depreciation methods underpinning the calculation of depreciation of a given regulatory control period must be consistent with those determined for the same assets on a prospective basis in the distribution determination for that period."*

As noted in Clause 6.5.5(b), all three requirements must be addressed in the nominated depreciation schedules if these are to be accepted by the AER. It is also noted that the first and third requirements of Clause 6.5.5(b) are directly relevant to the setting of the appropriate asset lives that are used in establishing the depreciation schedules.

11.2 Key Assumptions

The following key assumptions underlie SP AusNet's calculation of its depreciation:

- forecast net capex for 2009 is $260 million; and
- forecast net capex for 2010 is $256 million.

SP AusNet will update the depreciation calculation in response to the AER's Draft Decision to the extent that any of the above assumptions prove to be incorrect.

11.3 Proposed Remaining Lives for the Sunk Asset Base

As noted in Section 11.1 above, Clauses 6.5.5(b)(1) and (3) are directly relevant to the setting of asset lives for use in depreciation calculations. Therefore, the method used to establish the proposed lives for the sunk asset base is explained below (with reference to the 2006 EDPR Determination) and then tested against those requirements.

11.3.1 The 2006 EDPR Determination

The 2006 EDPR Determination established the following remaining asset class lives for SP AusNet, and employed these lives to determine SP AusNet's forecast depreciation allowance. These lives (set out in the table below) were also applied as standard lives to the capex that was undertaken during the current regulatory control period.

Table 11.1: Depreciation lives used in the 2006 EDPR Determination

Asset Class	Remaining Life
Sub-transmission	33
Distribution	33
SCADA	5
Non System – IT	5
Non System – General	1

The ESC described its approach to depreciation as being 'hands off', and accepted the distributors' proposed lives without any change. In adopting this approach, the ESC recognised that "depreciation rates affect only timing rather the value of cashflows" but also noted, that nonetheless, "the choice of depreciation rates will affect the stability of prices over time"[90].

SP AusNet considers that both these observations are pertinent to the consideration of the proposed approach to depreciation in the forthcoming regulatory control period.

11.3.2 Proposed Remaining Lives

The sunk asset base as of 1 January 2011 will contain assets and capex undertaken in the previous regulatory period and as such will have asset lives determined in the 2006 EDPR Determination.

SP AusNet is proposing to continue to apply the remaining lives specified in the 2006 EDPR Determination (adjusted for the elapsed time since 1 January 2006) to the sunk asset base as at 1 January 2011. The proposed remaining lives are set out in the table below.

Table 11.2: Proposed Remaining Lives for assets in existence at 1 January 2011

Asset Class	Remaining Life
Sub-transmission	29.2
Distribution	29.1
SCADA	na
Non System – IT	3.8
Non System – General	0.5

The calculation of the remaining lives has been supplied in file SPA - PTRM Opening RAB Weighted RL.xls submitted in support of this proposal.

The requirements of Clause 6.5.5(b)(1)

As already noted, Clause 6.5.5(b)(1) of the NER requires that the depreciation lives must reflect *"the nature of the assets or category of assets over the economic life of that asset or category of assets."*

To address this requirement, SP AusNet has tested the lives set out in the table above against the asset records in both internal financial and engineering systems. Both of these systems indicate that the proposed lives are within the reasonable range of economic and technical lives.

Furthermore, this confirms the high-level analysis undertaken by the ESC for the 2006 EDPR Determination, which established that SP AusNet's depreciation rate (the percentage of RAB depreciated per year) would be stable over the decade from 2001 to 2010 and was at the lower

[90] 2006-10 EDPR Final Decision Volume 1 Statement of Purpose and Reasons, p. 329.

end of range established from each DNSP proposal approved by ESC (5.8% in a range of 5.8-6.8%)[91].

SP AusNet considers that maintaining the existing lives for the sunk assets satisfies the requirements of Clause 6.5.5(b)(1) of the NER.

The requirements of Clause 6.5.5(b)(3)

Clause 6.5.5(b)(3) requires that the economic life of the assets and the depreciation methods underpinning the calculation of depreciation of a given regulatory control period must be consistent with those determined for the same assets on a prospective basis in the distribution determination for that period.

SP AusNet's proposed remaining lives are consistent with and continue to preserve the asset lives and depreciation methodology established in the 2006 EDPR Determination.

SP AusNet considers that maintaining the existing remaining lives (adjusted for the elapsed time) for the sunk assets satisfies the requirements of Clause 6.5.5(b)(3) of the NER.

11.4 Proposed Standard Lives for New Assets

This Section proposes standard lives for new assets created during the forthcoming regulatory period. As previously noted, Clauses 6.5.5(b)(1) and (3) are directly relevant to the setting of asset lives for use in depreciation calculations, and the proposed standard lives set out below are tested against these requirements.

11.4.1 Proposed Standard Lives

New assets are created by the proposed capex program. Standard asset lives must be determined for these assets to allow depreciation schedules to be calculated.

SP AusNet is proposing the standard lives contained in the table below for new assets created after 1 January 2011.

Table 11.3: Proposed Standard Lives

Asset Class	Standard Life
Sub-transmission	45
Distribution	50
SCADA	5
Non System – IT	5
Non System – General	1

[91] 2006-10 EDPR Final Decision Volume 1 Statement of Purpose and Reasons, Table 8.4 on p. 330.

These lives are supported by information from the following three key sources:

- the SP AusNet (Oracle) Financial Systems and associated AASB standards.. These systems hold asset information once the assets are cleared from Work in Progress and capitalised onto the asset register. Asset registers are held (and the associated life is calculated) at a higher level of aggregation than the engineering systems;
- a report on service lives for fixed assets commissioned in November 2007 from William Buck[92] which included recommendations on accounting lives for SP AusNet's distribution network (attached as an Appendix). The report contains a wide sample of benchmark standard lives from multiple sources including regulatory decisions. The Report recommended that accounting lives be aligned with technical lives to minimise the occurrence of write-offs due to early retirement and zero value assets because of accelerated depreciation;
- the SP AusNet (Maximo) Engineering Systems. Asset information is aggregated to a high level of detail, however information is also stored in relation to different fleets within an asset class, so that different technical lives can be assigned to those fleets to more closely match their individual characteristics.

A discussion of each asset class is provided below.

Sub-transmission

Sub-transmission assets consist mainly of zone substation equipment; such as switchgear, transformers; and reactors and poles and conductors operating at 66 kV. The asset class also contains shorter life assets such as secondary, remote SCADA and communication systems. The higher voltage sub-transmission assets are under higher electrical stresses than distribution assets and, therefore, can be expected to have a shorter effective life.

The table below shows the range of lives from the various information sources outlined above. This establishes a reasonable range from which to select a regulatory standard life.

Table 11.4: Reasonable Range of Sub-transmission Standard Lives

Information Source	Standard Life
Financial Systems (Oracle)	43
William Buck Report:	
• Primary	40-45
• Secondary	20
• Poles and Conductors	40-60

[92] William Buck Final Report *SP AusNet Service Life Review for Key Fixed Assets*, November 2007.

Engineering Systems • Zone Substation Equipment • Poles and Conductors	 43-57 50-70

Distribution

Distribution assets consist mainly of outdoor and indoor distribution substation equipment such as pole mounted switchgear, pole mounted distribution transformers and reactors and poles and overhead and underground conductors operating at 22 kV and below. The assets class also contains shorter life assets such as secondary, remote SCADA and communication systems.

The table below shows the range of lives from the various information sources outlined above. This establishes a reasonable range from which to select a regulatory standard life.

Table 11.5: Reasonable Range of Distribution Standard Lives

Information Source	Standard Life
Financial Systems (Oracle)	49
William Buck Report: • Distribution Equipment • Poles and Conductors • Pole Top Structures • Secondary	 30-45 40-60 30-60 20
Engineering Systems • Overhead/Outdoor • Underground	 47-67 44-68

SCADA

Modern SCADA assets consist mainly of digital control and communication systems and supporting IT. As explained in Section 6.5.5, this asset category only contains the network control hardware, software and associated IT system components of SCADA. As such it is essentially a sub category of IT.

The table below shows the range of lives from the various information sources outlined above. This establishes a reasonable range from which to select a regulatory standard life.

Table 11.6: Reasonable Range of SCADA Standard Lives

Information Source	Standard Life
Financial Systems (Oracle)	3-10
Engineering Systems	na

Non system – IT

Non-system IT asset information is held in the SP AusNet financial system.

The table below shows the range of lives from the financial system. This establishes a reasonable range from which to select a regulatory standard life.

Table 11.7: Reasonable Range of non-system IT Standard Lives

Information Source	Standard Life
Financial Systems (Oracle)	3-5

Non system – General

SP AusNet's non-system assets almost exclusively contain tools and equipment and other short-lived assets. Other longer-lived assets usually held in this category such as vehicles and non-system land are not applicable for the forthcoming regulatory period as leasing options are being proposed.

The table below shows the standard life of assets in this class based on information contained in the financial system.

Table 11.8: Reasonable Range of Non-system General Standard Lives

Information Source	Standard Life
Financial Systems (Oracle)	1

11.4.2 The Requirements of Clause 6.5.5(b)(1)

Clause 6.5.5(b)(1) of the NER requires that depreciation lives must reflect "the nature of the assets or category of assets over the economic life of that asset or category of assets".

To address this requirement, SP AusNet has tested the standard lives against the lives used in internal financial and engineering information systems and external benchmarks. These systems and benchmarks support the proposed lives, which fall within the reasonable range of economic and technical lives.

SP AusNet considers that the information set out above demonstrates that the proposed standard lives for new assets satisfy the requirements of Clause 6.5.5(b)(1) of the NER.

11.4.3 The Requirements of Clause 6.5.5(b)(3)

Clause 6.5.5(b)(3) establishes a principle that depreciation lives for sunk assets should be preserved over time and, in particular, that for a regulatory period, the depreciation calculation and economic lives must be consistent with the relevant regulatory decision.

SP AusNet intends to use the proposed standard lives and depreciation methodology established in the AER's forthcoming determination to calculate depreciation in the forthcoming regulatory control period.

On this basis, SP AusNet considers that the proposed standard lives for new assets satisfy the requirements of Clause 6.5.5(b)(3) of the NER.

11.5 Proposed Depreciation Methodology

SP AusNet has calculated its depreciation schedules using a straight line depreciation methodology and the proposed remaining and standard lives outlined above.

ON the basis of the information set out above, SP AusNet considers this proposed methodology meets all three requirements of Clause 6.5.5(b) of Chapter 6 of the NER.

11.6 Proposed Depreciation Schedules

The proposed depreciation for the regulatory period from 1 January 2011 to 31 December 2015 is shown in the table below.

Table 11.9: Nominal Economic Depreciation, 2011 to 2015

(Nominal $M)	2011	2012	2013	2014	2015
Nominal Depreciation	146.5	117.7	131.4	141.5	137.6

12 Return on Capital and Estimated Cost of Corporate Tax

The assessment of an adequate return on capital (weighted average cost of capital, or WACC) is of critical importance to SP AusNet and its customers. Failure to provide an adequate post-tax return will damage incentives for investment, and will ultimately deny customers the economic benefits that flow from distribution network investment.

The importance of providing a stable return on investment has been recognised in the provisions of the NER that relate to the WACC. Notably, the NER seek to provide greater certainty regarding the methodology and parameters that are to be applied in estimating the cost of capital.

This chapter sets out SP AusNet's calculation of the WACC. SP AusNet's calculations have been undertaken in accordance with the applicable provisions of the NER, as well as the SORI on the Revised WACC Parameters published by the AER on 1 May 2009. Having regard to the requirements set out in those regulatory instruments, this chapter is structured as follows:

- Section 12.1 sets out the regulatory requirements that govern the establishment of SP AusNet's WACC and its allowance for the cost of corporate tax for the forthcoming regulatory control period;
- Sections 12.2 to 12.8 set out parameter values and methodologies that SP AusNet has adopted in the calculation of its WACC for forthcoming regulatory control period;
- Section 12.9 sets out information relating to the estimated cost of corporate tax, and in particular the imputation credit value (gamma) that SP AusNet proposes to adopt; and
- Section 12.10 concludes the chapter by providing a summary of the proposed WACC parameter values.

12.1 Regulatory Requirements

Clause 6.5.2 of the NER contains provisions governing the determination of SP AusNet's WACC for the purposes of the current review. In particular, subject to Clause 6.5.4 (discussed below), Clause 6.5.2 defines:

- the formula for determining the weighted average cast of capital (in Clause 6.5.2(b));
- the meaning of the nominal risk free rate (in Clauses 6.5.2(c) and (d)); and
- the meaning of the debt risk premium (in Clause 6.5.2(e)).

Clause 6.5.4 provides for certain matters relating to the WACC to be reviewed periodically by the AER. Following such a review, the AER must issue a SORI setting out the values, methods and credit rating levels to be applied in the determination of a WACC for Distribution Network Service Providers. In accordance with these requirements, the AER issued a SORI on 1 May 2009, which applies to the current review. The various matters set out in the SORI and in Clause 6.5.2 of the NER are summarised in Table 12.1 below.

Table 12.1: WACC Parameters set out in the SORI and Clause 6.5.2 of the NER

Parameter	Value/Methodology	Where specified
Gearing	60% debt to total assets	SORI Clause 3.6
Beta	0.8	SORI Clause 3.4
MRP	6.5%	SORI Clause 3.5
Measurement period for the nominal risk free rate and Debt Risk Premium	Either: a period ('the agreed period'), being one which is as close as practically possible to the commencement of the regulatory control period, proposed by the relevant Distribution Network Service Provider, and agreed by the AER (such agreement is not to be unreasonably withheld), or a period specified by the AER, and notified to the provider within a reasonable time prior to the commencement of that period, if the period proposed by the provider is not agreed by the AER under paragraph (i), and is also to be calculated in accordance with Clauses 6.5.2(c)(1), 6.5.2(c)(2)(iii) and 6.5.2(c)(2)(iv) of the NER.	SORI, Clause 3.2
Nominal Risk Free Rate	The annualised yield on Commonwealth Government bonds (CGS) maturing in 10 years from any day in the measurement period (see below). If necessary the 10 year yield is to be determined by linear interpolation of the yields on the two CGS closest to the 10 year term and which straddle the 10 year expiry date.	NER 6.5.2(c) and (d); SORI Clauses 3.2(a) and 3.3
Debt Risk Premium	The margin between the annualised nominal risk free rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a maturity equal to that used to derive	NER Clause 6.5.2(e)

	the nominal risk free rate and a credit rating from a recognised credit rating agency (see below).	
Credit Rating for the purpose of determining the Debt Risk Premium	BBB+	SORI Clause 3.7
Gamma	0.65	SORI Clause 3.8

It is important to note that Clause 6.5.4(g) states:

> *"A distribution determination to which a statement of regulatory intent is applicable must be consistent with the statement unless there is persuasive evidence justifying a departure, in the particular case, from a value, method or credit rating level set in the statement."*

Clause 6.5.4(h) states:

> *"In deciding whether a departure from a value, method or credit rating level set in a statement of regulatory intent is justified in a distribution determination, the AER must consider:*
>
> *1. the criteria on which the value, method or credit rating level was set in the statement of regulatory intent (the underlying criteria); and*
>
> *2. whether, in the light of the underlying criteria, a material change in circumstances since the date of the statement, or any other relevant factor, now makes a value, method or credit rating level set in the statement inappropriate."*

Clause 6.5.4(i)(2) states:

> *"If the AER, in making a distribution determination, in fact departs from a value, method or credit rating level set in a statement of regulatory intent, it must demonstrate, in its reasons for the departure, that the departure is justified on the basis of the underlying criteria."*

Relevantly, Clause S6.1.3(9) states that a building block proposal must contain:

> *"the provider's calculation of the proposed rate of return, including any proposed departure from the values, methods or credit rating levels set out in an applicable statement of regulatory intent."*

The purpose of the SORI is to provide certainty regarding the WACC. However, the NER provisions set out above also accommodate the adoption of values other than those set out in the SORI, where such a departure will ensure the adoption of appropriate WACC parameter values, having regard to the requirements of the national electricity objective. In view of these considerations, SP AusNet considers that a high standard must be satisfied in order for a value, method or credit rating level set out in the SORI to be deemed to be inappropriate. Accordingly, SP AusNet interprets the provisions set out above as follows:

- Where it proposes to adopt a value, method or credit rating level other than the one set out in the SORI, SP AusNet must identify the material change in circumstance that has occurred since the publication of the SORI, which demonstrates that a value, method or credit rating level set out in the SORI is now inappropriate;

- The provisions do not envisage the re-litigation of arguments already addressed in the SORI; and
- In effect, the provisions require SP AusNet to identify evidence which has become available since the publication of the SORI, and which (if available during the WACC review) would have led to a different decision being made by the AER in relation to a value, method or credit rating level set in the SORI.

As set out in further detail in the following sections, SP AusNet's proposed WACC - including those parameters where SP AusNet proposes to depart from the values specified in the SORI – has been calculated in accordance with the above regulatory requirements.

Clause 6.5.3 of the NER prescribes the approach to be taken in estimating the allowance for the cost of corporate income tax. In particular, this clause provides that the allowance for the cost of corporate income tax of a DNSP is to reflect, amongst other things:

- an estimate of the taxable income for each regulatory year that would be earned by a benchmark efficient entity as a result of the provision of standard control services if such an entity rather than the DNSP, operated the business of the DNSP, such estimate being determined in accordance with the post-tax revenue model; and
- gamma, which is the assumed utilisation of imputation credits.

In addition, Clause 11.17.2 applies to the calculation of the estimated cost of corporate income tax for the purposes of distribution determinations that are to take effect on 1 January 2011 for Victorian DNSPs. That clause provides that for the purpose of calculating the estimated cost of corporate income tax, the AER must adopt the taxation values of assets carried over from the ESC distribution pricing determination for the 2006-10 period, and subject to any changes in the relevant changes in the taxation laws or rulings:

- the classification of assets, and the method of classification, adopted for the ESC distribution pricing determination; and
- the same method of depreciation as was adopted by the ESC for the ESC distribution pricing determination.

12.2 Gearing Level

In accordance with Clause 3.6 of the SORI, SP AusNet proposes to adopt a gearing level (that is, the value of debt as a proportion of the value of equity plus debt) of 0.6.

12.3 Equity Beta

Notwithstanding SP AusNet's view that there is strong evidence[93] to support the continued application of an equity beta value of 1.0, in accordance with the interpretation of the NER set out

[93] Refer, for instance to the Joint Network Industry Submission: AER Proposed Determination - Review of the Weighted Average Cost of Capital (WACC) parameters for electricity transmission and distribution, February 2009.

in section 12.1 above, SP AusNet proposes to adopt the beta value of 0.8 specified in Clause 3.4 of the SORI.

12.4 Market Risk Premium

12.4.1 Background: Recap of AER's decision to adopt an MRP value of 6.5%

The AER's Final Decision on the review of the WACC parameters ("WACC Final Decision") sets out the following reasoning as the basis for the adoption of an MRP value of 6.5% as follows[94]:

> *"As the AER is maintaining a 10-year term for the risk-free rate, for internal consistency, the term of the MRP should also be 10 years. As the NER require the AER to have regard to the need for the rate of return to be forward looking, it is a 10 year forward looking perspective that is therefore of relevance.*
>
> *The NER also require the AER to have regard to the need for the rate of return to be commensurate with prevailing conditions in the market for funds. However, these two requirements are not competing, but rather, when read together, are a requirement to have regard to the need for the MRP to reflect the prevailing expectations of a 10 year MRP, as at the relevant point in time, with that point in time being at the time of the reset determination (rather than at the time of the WACC review). Notwithstanding this statement, the AER has taken into account current financial conditions (at the time of this WACC review) to the extent that these conditions are expected to prevail over the period to which the outcomes of this WACC review apply. Accordingly, the AER should determine each parameter, including the MRP, in such a way as it is relevant for a 10 year perspective from the commencement of the next regulatory control period for each service provider affected by this review."*

The WACC Final Decision proceeds to state that the MRP should be a value that reflects the forward looking long term MRP.

The AER's conclusions are set out as follows[95]:

> *"The AER considers that prior to the onset of the global financial crisis, an estimate of 6 per cent was the best estimate of a forward looking long term MRP, and accordingly, under relatively stable market conditions—assuming no structural break has occurred in the market—this would remain the AER's view as to the best estimate of the forward looking long term MRP.*
>
> *However, relatively stable market conditions do not currently exist and taking into account the uncertainty surrounding the global economic crisis, the AER considers two possible scenarios may explain current market conditions:*
>
> *- that the prevailing medium term MRP is above the long term MRP, but will return to the long term MRP over time, or*
>
> *- that there has been a structural break in the MRP and the forward looking long term MRP (and consequently also the prevailing) MRP is above the long term MRP that previously prevailed.*

94 AER, *Final Decision: Review of the WACC Parameters,* May 2009, page 235.

95 AER, *Final Decision: Review of the WACC Parameters,* May 2009, page 238.

Whilst it cannot be known which of these scenarios explain current financial conditions, both are possible, and both suggest a MRP above 6 per cent at this time may be reasonable. However, having regard to the desirability of regulatory certainty and stability, the AER does not consider that the weight of evidence suggests a MRP significantly above 6 per cent should be set.

Accordingly, the AER considers that a MRP of 6.5 per cent is reasonable, at this time, and is an estimate of a forward looking long term MRP commensurate with the conditions in the market for funds that are likely to prevail at the time of the reset determinations to which this review applies."

Notably, on page 237 of the WACC Final Decision the AER acknowledges that:

"Cash flow based measures currently indicate a forward looking MRP well above 6 per cent, however up until 2008 these measures consistently indicated a forward looking MRP well below 6 per cent."

12.4.2 Overview of Persuasive Evidence to depart from the Value Set out in the SORI

As already noted, Clause 6.5.2(g) of the NER states that:

"A distribution determination to which a statement of regulatory intent is applicable must be consistent with the statement unless there is persuasive evidence justifying a departure, in the particular case, from a value, method or credit rating level set in the statement."

Clause 6.5.2(h)(2) provides that in deciding whether a departure from a value, method or credit rating level set in a SORI is justified in a distribution determination, the AER must consider:

"whether, in the light of the underlying criteria, a material change in circumstances since the date of the statement, or any other relevant factor, now makes a value, method or credit rating level set in the statement inappropriate."

SP AusNet considers that there is persuasive evidence available now that demonstrates that a value of 6.5% for the MRP is inappropriate and that in the particular case of the forthcoming determination for SP AusNet, departure from the 6.5% MRP value specified in the SORI is justified. An overview of this evidence is set out below.

Yield based indicators suggest that the current cost of raising new equity is now well above that implied by the 6.5% MRP value set in the SORI.

As noted above, the WACC Final Decision acknowledged that the NER requires the AER to set a rate of return that is forward-looking and which reflects prevailing market conditions. The AER noted that:

- Each WACC parameter, including the MRP, must be set in such a way as it is relevant for a 10 year perspective (consistent with the term of the risk-free rate) from the commencement of the next regulatory control period for each service provider affected by the WACC review; and
- For parameters such as the MRP, a difficulty arises since the Rules require the AER to lock-in either a value or methodology, but in the case of the MRP – which does vary over time according to economic conditions – there is no adequate method of automatically updating the MRP at the time of each reset determination.

A clear risk arising from the locking-in of a value for the MRP at each WACC review, particularly when market conditions are highly uncertain as they are at present, is that this value may change materially at the time of a reset determination, such that it no longer supports a forward-looking rate of return at that time. There is therefore a degree of tension between the requirement to lock-in a value for the MRP at the WACC review and the requirement to have regard to the need for the rate of return to reflect forward-looking expectations commensurate with prevailing conditions at the time of each reset determination.

The WACC Final Decision acknowledged this tension:

> *"If the MRP varies over time, then by definition, the locking in of a value may not always completely reflect forward looking expectations prevailing at the time of each reset determination. Accordingly, for some reset determinations the actual (unobservable) MRP may be somewhat above this value, though for other reset determinations the actual (unobservable) MRP maybe be somewhat below."*[96]

SP AusNet's forthcoming regulatory control period commences on 1 January 2011, a period that is 14 months away. Whilst there has been emerging evidence of a recovery in economic conditions in the Australian market in recent months, SP AusNet considers that it would be extremely premature to suggest that the market cost of equity has returned to levels that preceded the global financial crisis.

Some authoritative commentators have noted recently that there is a significant risk of a "double dip recession". For instance, on an ABC radio program broadcast on 7 August 2009, Dr Adrian Blundell-Wignall (the deputy director of financial and enterprise affairs at the OECD) stated that the global financial crisis is far from over and the world faces a serious risk of another credit crunch and a double dip recession.[97]

Similarly, in an editorial piece published on 30 October 2009, Peter Schiff (President of US firm Euro Pacific Capital) commented that:

> *"In the end, this stimulus, just like prior doses, will only worsen the condition it is meant to cure. When it wears off, the resulting recession will be even bigger than the one that everyone assumes has just ended."*

In an editorial piece by Nouriel Roubini (Professor of Economics at New York University's Stern School of Business) published in The Financial Times[98] on 23 August 2009 commented that:

> *"In summary, the recovery is likely to be anaemic and below trend in advanced economies and there is a big risk of a double-dip recession."*

In a similar vein, page 3 of the Reserve Bank's August 2009 Statement notes that significant uncertainty remains regarding the economic outlook, with the possibility that the recovery since the March 2009 quarter may be short-lived:

> *"Given the rapidly evolving international financial and economic conditions, the outlook for the Australian economy continues to be subject to considerable uncertainty, although the risks are more balanced than they have been for*

---

[96] AER, Final Decision: Review of the WACC Parameters, May 2009, page 191.

[97] Stephen Long, *World at risk of 'double dip recession'*, 7 August 2009. See http://www.abc.net.au/news/stories/2009/08/07/2649723.htm and http://www.abc.net.au/pm/content/2008/s2649677.htm

[98] http://www.ft.com/cms/s/0/90227fdc-900d-11de-bc59-00144feabdc0.html

> *some time. With confidence globally still fragile, it remains possible that the outlook could again weaken."*

In the WACC Final Decision the AER acknowledged that the additional uncertainty associated with the global financial crisis justified an increase in the MRP above the value prescribed in the NER.

The prevailing market outlook supports the view that any sustained improvement in market conditions is still highly uncertain and a return to pre-crisis conditions is some considerable way off.

Given this outlook, SP AusNet believes that at the time the AER makes its forthcoming determination, it is likely that the return on equity required by investors in the market will reflect a level of risk aversion which exceeds that reflected in the value allowed for the MRP in the SORI[99].

Indeed, market evidence recently compiled by the Financial Investor Group ("FIG") on the cost faced by Australian listed companies with regulated network assets in raising new equity in the current environment (as implied in dividend yields) supports the view that investors are currently expecting a (pre-tax) return on equity in the range of 15 per cent to 18 per cent[100]. By contrast, using a risk free rate of 5.5 per cent, a corporate tax rate of 30 per cent and the SORI values for the MRP and equity beta implies a pre-tax return on equity of 15.2 percent, which is at the bottom end of the range required by the market.

SP AusNet notes that setting an appropriate cost of capital must ultimately be guided by the requirements of investors, noting that the long term interests of consumers will not be served if inadequately low levels of network investment are caused by the regulator setting an inadequate allowance for the WACC. Failure to allow regulated businesses a reasonable opportunity to earn a return which is consistent with that expected by investors will mean that capital will be diverted to other investment opportunities where capital – which is currently expensive and scarce – can be more productively employed.

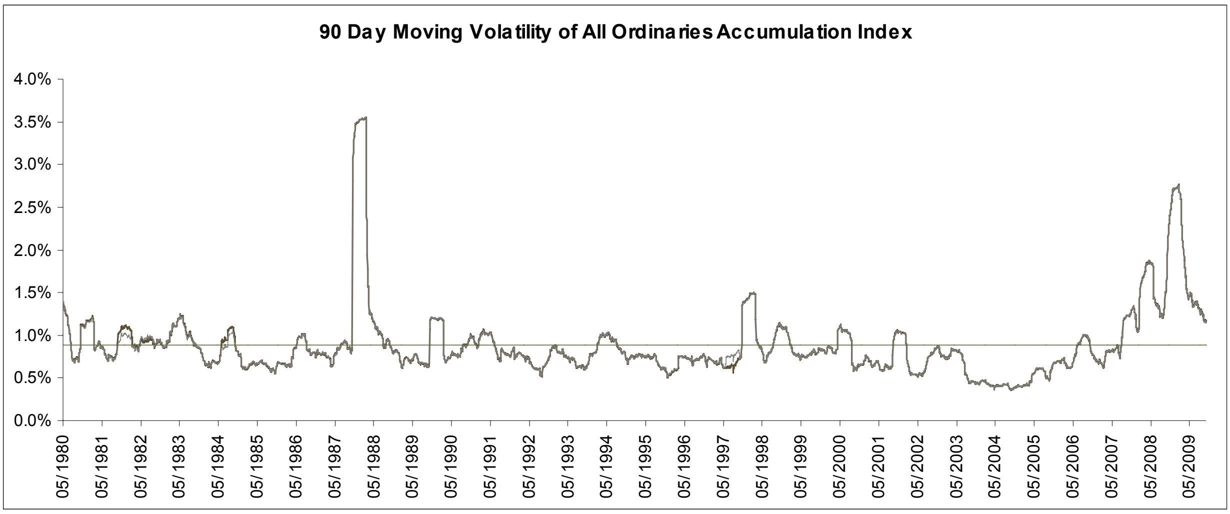
SP AusNet considers that the ongoing uncertainty regarding the outlook for the global economy and capital markets, coupled with the available evidence on the cost of equity faced presently by regulated utilities provide persuasive evidence that demonstrates that a value of 6.5% for the MRP is inappropriate and that in the particular case of the forthcoming determination for SP AusNet, departure from that value is justified.

Equity and debt markets have, over recent months, and are still, exhibiting an unusual period of high risk relative to historical norms. The chart below which has been extracted from a study by Dr. Stephen Bishop and Professor Robert Officer of Value Adviser Associates, captures this through the volatility trend in the ASX All Ordinaries Accumulation Index since 1980.

[99] This implicitly requires holding the equity beta constant at the value allowed in the SORI.

[100] The Financial Investor Group, Supplementary Submission to the ERA regarding its Draft Decision on Western Power's Proposed Revisions to the Access Arrangement for the South West Interconnected Network, Revised Final Version 22 October 2009, page 6.

Figure 12.1: Volatility of Stock Market



Source: Dr. Bishop, S and Professor R. Officer (Value Adviser Associates), Market Risk Premium, Estimate for 2011-2015, October 2009 (Bishop and Officer (2009).

SP AusNet considers that the unique environment within which the AER is undertaking its review of this Proposal justifies a departure, in this particular case, from the MRP value specified in the SORI. In particular, the ongoing uncertainty regarding the global capital market outlook and the impact of this uncertainty on investors' required returns, coupled with the new evidence presented herein, constitute relevant factors (pursuant to clause 6.5.4(h)(2)) that justify a departure from the SORI's MRP value. SP AusNet's view is supported by the following conclusions of Bishop and Officer, which are set out in their report dated October 2009 (a copy of which is provided as an appendix to this Proposal):

> *"The "MRP" will change over time to reflect the "market's" view of the risk and attitudes to risk. A positive risk premium exists because future return outcomes are not known. We doubt whether the distribution of premiums is constant over time. Consequently we do not believe that a constant MRP reflecting the long term average is appropriate under current economic circumstances in particular.*
>
> *In the past we have recommended the use of the long term average historical MRP. This is not because we believe it to be stable over time but because there has been neither a well developed theory to predict and explain changes nor has there been a supportable empirical base for moving away from the long term average.*
>
> *Three factors have combined to change this departure from our prior recommendations to use a long term average MRP to reflect a forward MRP:*
>
> *a) A period of unusual economic circumstances in the form of the global financial crisis;*
>
> *b) The availability of a forward view of market risk though the implied volatility of options on the stock market index;*
>
> *c) Promising research guiding the time period of departures from the norm.*

> *While still an evolving area for research we are of the view that advances to date and the recent events in the economy warrant a departure from the use of the long term average."*[101]

Bishop and Officer proceed to state that:

- their estimate of the current forward looking MRP is 12.0 per cent per annum;
- their best estimate of the MRP over the regulatory period (i.e. January 2011 - December 2015) is in the range of 7 to 10.6 per cent per annum; and
- they recommend adopting an MRP of 8.0 per cent for the regulatory period.

These views were formed by reference to the forward view of volatility implicit in the pricing of options on the ASX 200 index and by the current high spreads in yields on corporate debt. In relation to their implied volatility analysis, Bishop and Officer:

- develop a measure of implied volatility based on the S&P/ASX 200 index options with a three month horizon;
- demonstrate that there is a sufficiently strong relationship between their measure of the implied volatility of the stock market and realised volatility, as well as between realised volatility and realised market return; and
- apply the required rate of return per unit of risk implied from the relationship between realised volatility and realised market return[102], to the measure of implied volatility to derive a forward-looking MRP.

Based on this analysis, Bishop and Officer estimate that the implied MRP is currently 12.2 per cent per annum, which is substantially above the long term historical average MRP of 7.0 per cent per annum.[103]. However, they acknowledge that the MRP is not stationary and changes over time. Further analysis conducted by Bishop and Officer (and set out in their report, which is appended to this Regulatory Proposal) led them to recommend an MRP of 8.0 per cent over the 2011-2015 regulatory period.

Bishop and Officer also analysed spreads on bond yields to derive a forward view of the MRP. As there is some degree of consistency between spreads on corporate bonds and the risk premium required by equity investors, the observed corporate bond spreads can provide a good indicator of the likely required equity market returns. Analysing BBB-rated seven year corporate bonds, Bishop and Officer note that current spreads are at elevated levels and substantially above historical levels. Their analysis confirms that there is a high degree of consistency between their implied stock market volatility measure and the spread on BBB-rated seven year corporate bonds, which is currently at elevated levels.

In a similar vein, it is noted that an examination of the relativity between the required rates of return on debt and equity as implied in the SORI also provides new evidence that the rate of return on equity is currently understated.

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[101] Dr. S Bishop and Professor R Officer (Value Adviser Associates), Market Risk Premium, Estimate for 2011-2015, October 2009 (Bishop and Officer (2009)).

[102] The analysis necessarily requires the use of constant required rate of return per unit of risk. Bishop and Officer (2009) estimate this rate to be about 50 basis points.

[103] Bishop and Officer (2009) page 10.

Based on prevailing yields on 10 year Commonwealth Government Securities (5.5 per cent), the implied post-tax nominal cost of equity using the values in the SORI for the MRP and equity beta is approximately 10.7 per cent. By contrast, the credit spreads for 10 year BBB+ debt as estimated by Bloomberg currently indicate that the required post-tax nominal return on 10 year BBB+ rated debt is around 9.3 per cent. That is, using the current SORI values, it would appear that shareholders are willing to invest for a rate of return that is only 140 basis points higher than the rate at which financiers are willing to provide fixed rate BBB+ rated 10 year debt.

This result seems anomalous, particularly given the substantially higher levels of risk that equity holders bear relative to debt providers. Furthermore, the relative historical risk premiums between debt and equity investment in the Australian market do not support this result.

SP AusNet considers that the information and analysis set out above (and in the report of Bishop and Officer, appended) provides persuasive evidence available that demonstrates that a value of 6.5% for the MRP is inappropriate, and that in the particular case of the forthcoming determination for SP AusNet, departure from the 6.5% MRP value specified in the SORI is justified. SP AusNet's proposed MRP is set out below.

12.4.3 SP AusNet's Proposed MRP

As noted above, the AER is obliged to provide SP AusNet with a rate of return which is set to appropriately reflect market conditions at the time of its determination. The new evidence provided in this Proposal indicates that the SORI value for the MRP significantly understates the MRP that is likely to prevail over the forthcoming regulatory period. Therefore, if it were to be applied to set SP AusNet's cost of capital over the forthcoming regulatory period, there would be insufficient incentives for efficient investment in electricity distribution infrastructure over the period, and this would be contrary to the long term interests of consumers and hence the National Electricity Objective.

SP AusNet considers that there is a strong case for the AER to depart from the SORI value for the MRP for this particular determination, given:

- the on-going uncertainty regarding the outlook for global economic and capital market conditions in the context of the global financial crisis;
- the new evidence presented regarding investors' forward-looking required rates of return in the present environment of on-going high uncertainty; and
- SP AusNet's contention that under these circumstances, applying the MRP value specified in the SORI would deliver an outcome that is inconsistent with the National Electricity Objective and the Revenue and Pricing Principles set out in the National Electricity Law.

SP AusNet considers that the matters noted above are relevant factors (pursuant to clause 6.5.4(h)(2) of the Rules) that justify, in this particular case a departure from the MRP value specified in the SORI.

Based on the evidence presented in this Proposal and the appended report of Bishop and Officer, SP AusNet considers that there is persuasive evidence to adopt a value for the MRP of 8 per cent for the purpose of the AER's determination for the forthcoming regulatory period.

12.5 Measurement Period for Nominal Risk Free Rate and Debt Risk Premium

In accordance with the provisions set out in Clause 6.5.2(c)(2)(i), SP AusNet has proposed the period over which the risk free rate and the Debt Risk Premium are to be measured for the purpose of determining the WACC. SP AusNet has requested that the start date and the end date of the period be kept confidential until after the expiration of the period, in accordance with the provisions set out in Clause 6.5.2(c)(2)(iii).

SP AusNet has submitted a confidential letter setting out the start date and the end date of the proposed measurement period for the purpose of the AER's final decision. That information is submitted in accordance with the requirements of Clause S6.1.3(8) of the NER, and as noted above is to remain confidential until after the expiration of the measurement period.

For the purpose of this Proposal, a 15 business day measurement period commencing on 1 October 2009 and ending on 21 October 2009 has been adopted to enable the calculation of the WACC at the time of lodging this proposal:

12.6 Nominal Risk Free Rate

Adopting the measurement period specified above, and applying the relevant regulatory provisions[104], SP AusNet has determined that the nominal risk free rate for the purpose of this Proposal is 5.47%.

As noted above, for the purpose of the AER's final decision, the nominal risk free rate will be re-calculated over the measurement period proposed by SP AusNet.

12.7 Inflation forecast and Real Risk Free Rate

The NER require a nominal WACC to be applied to the RAB to determine the return on capital. The post tax revenue model (PTRM) provides the relevant revenue building blocks in nominal terms, and then calculates the corresponding revenue requirements for each year of the regulatory control period in nominal terms[105], and in real terms[106] by adjusting for forecast inflation.

Clause 6.4.2 of the NER specifies the contents of the PTRM. In regard to inflation, Clause 6.4.2(b)(1) requires the adoption of a method that the AER determines is likely to result in the best estimates of expected inflation.

In its recent determinations, the AER has adopted a 10-year forecast of inflation based on an average of the RBA's short–term inflation forecasts (which usually cover no more than a 2 year horizon) and the mid-point of the RBA's target inflation band (for the remaining years in the 10-year forecast period).

Applying this methodology, and adopting a forecast period that matches the maturity of the 10 year bond used to establish the risk free rate, SP AusNet has determined that the expected

[104] NER Clauses 6.5.2(c) and (d); SORI Clauses 3.2(a) and 3.3.

[105] Nominal terms means on the dollar amount in a particular year without any adjustment for the effects of inflation.

[106] Real terms means the dollar amount in a particular year adjusted for the effects of inflation, recognising that inflation diminishes the purchasing power of the dollar over time.

inflation rate for the purpose of this Proposal is 2.40%. The data used to calculate this number are set out in Table 12.2 below.

Table 12.2: Forecast inflation

Year ending	Dec 2010	Dec 2011	Dec 2012	Dec 2013	Dec 2014	Dec 2015	Dec 2016	Dec 2017	Dec 2018	Dec 2019	Geometric Mean
Forecast inflation	2.0%	2.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.40%

Source: RBA Statement on Monetary Policy, 7 August 2009, page 75.

This expected inflation rate, when combined with the nominal risk free rate set out in section 12.6 above produces a real risk free rate of 3.0%. It is noted that over the measurement period specified in section 12.5 above, the observed real yield on 10 year Commonwealth capital indexed bonds was 3.0%.

12.8 Debt Risk Premium

12.8.1 Introduction

In its recent decisions, the AER has used Bloomberg fair yield curves as a basis for determining the debt risk premium (DRP). Following the onset of the global financial crisis, difficulties emerged in the use of Bloomberg fair yield curves to obtain estimates of the DRP. In light of these difficulties, the Victorian distributors commissioned Price Waterhouse Coopers (PwC) to prepare a report to:

- propose a methodology to test whether the Bloomberg fair yield curves that the AER has relied on in previous determinations reasonably meets the legislative requirements;
- propose an alternative methodology for calculating the DRP that best meets the legislative requirements; and
- apply the Bloomberg test and the alternative methodology during the first 15 business days in October 2009 (being the measurement period described in section 12.5 above).

The PwC report forms part of this Proposal and a copy is provided as an Appendix.

The remainder of this section provides a summary of the PwC report, and sets out SP AusNet's proposals in relation to the DRP.

12.8.2 Overview of PwC's Findings regarding the Bloomberg Fair Value Curves

The PwC report concludes that the Bloomberg fair value curves provided a reliable basis for deriving a benchmark cost of debt for regulated businesses prior to the onset of the global financial crisis (GFC), and a better benchmark than the main alternative (namely the CBA Spectrum service). However, the Bloomberg method has not performed well since the onset of the crisis and, has materially understated the fair yield on corporate bonds during this period.

The PwC report identifies that Bloomberg's poor performance during this period was a result of the material rise in the level of uncertainty amongst financial institutions about the market value (and hence market yield) of the corporate bonds on issue during this time. This uncertainty was due to trade or new issue in these bonds almost ceasing, which left the institutions without 'pegs in the sand' from which to determine their valuations.

PwC found that this uncertainty was not dealt with well by two (proprietary) aspects of the Bloomberg fair value curve methodologies, in particular:

- Bloomberg prices – the market yields that Bloomberg determined for corporate bonds during the period were systematically lower than the central tendency of the opinions on those yields that were provided by financial institutions; and
- Fitting of curves – Bloomberg determined a high proportion of bonds to be outliers during this period, and the outliers systematically were those with higher yields than comparable bonds.

These factors combined to lead to the Bloomberg curves understating the central estimates of the yields of many of the bonds.

From these findings, PwC derived a series of tests or indicators for use in assessing whether (or, more relevantly, when) Bloomberg may once again be used for the purpose of estimating the DRP. The proposed tests are outlined below.

12.8.3 Tests of whether Bloomberg should be used

PwC defined three tests or indicators to guide whether (or when) markets may once again be sufficiently normal to use the Bloomberg fair value curves to determine the benchmark costs of debt. These tests are:

- The level of dispersion across the opinions of the financial institutions that submit opinions on corporate bond yields to Bloomberg – which is a measure of the general degree of uncertainty about the values of corporate bonds (and implicitly is a measure of the degree of trade in those bonds);
- The difference between the Bloomberg-determined yields for bonds and the central tendency of the opinions provided by financial institutions – which is a test of whether the Bloomberg method for determining bond prices is likely to cause a (statistical) bias; and
- The average difference between the Bloomberg fair value yields for each of the bonds on issue, and the yields that Bloomberg determines for these bonds – this essentially is a test of whether the Bloomberg fair value curve goes through the middle of bond observations being considered, and is implicitly a test of the aggregate effect of Bloomberg's exclusion of outliers.

12.8.4 Application of the Tests to the Proposed Measurement Period

PwC applied the tests described above to the first 15 trading days of October, being the measurement period described in section 12.5.

PwC found that each of these tests is passed, and hence the use of the Bloomberg fair value curve for the measurement period was recommended.

12.8.5 Derivation of a Ten-year DRP

The PwC report notes that as Bloomberg only produces a fair value curve out to a 7 year term to maturity for BBB (as well as A and AA) corporate bonds, some form of extrapolation of the 7 year yield is required to derive an implied yield for a 10 year bond. PwC recommend using a linear extrapolation of the Bloomberg BBB credit margins between the 5 and 7 years to derive an implied BBB+ credit margin for a 10 year bond.

Applying this method to the observed financial data during the measurement period specified for the purpose of this Proposal, PwC recommend using a debt risk premium of 4.71 per cent.

12.8.6 SP AusNet's Proposed DRP for this Proposal

Based on the analysis set out in the PwC report, for the purpose of this Proposal SP AusNet has adopted a value of 4.71 per cent for the debt risk premium.

12.8.7 SP AusNet's Proposal regarding Derivation of the DRP for the Final Decision

As noted in section 12.5, SP AusNet has submitted a confidential letter to the AER setting out the start date and the end date of the proposed measurement period to be applied for the purpose of the final decision. SP AusNet proposes that the methodology set out in the PwC report be applied to determine the DRP for the purpose of the final decision.

It is noted that PwC's methodology addresses the question of how the DRP should be derived if the tests outlined in section 12.8.5 above suggest that the Bloomberg method should not be used.

The PwC report notes that the first question to be asked if the tests are not met is whether the Bloomberg methodology may nonetheless be correcting appropriately for aberrant events or observations. For example, a failure of the first or second test may result from ignoring information from a single financial institution that is obviously erroneous.

Similarly, a failure of third test could result from ignoring a small number of observations that are significant outliers. PwC's report notes that that the question of whether the Bloomberg method remains appropriate should be readily apparent from an examination of the data (noting that PwC's methodology includes a margin for variation when setting the thresholds for the tests).

If the failure of the tests suggests problems with the Bloomberg method, then PwC recommends estimating a fair value curve that corrects for the error. In particular, PwC recommend:

- if Bloomberg classes too many bonds as outliers – then a fair value curve should be estimated that includes all of the relevant bonds, using the Bloomberg prices for those bonds;
- if the Bloomberg prices differ to the central tendency of the opinions provided by financial institutions – then a fair value curve should be estimated using yields for the bonds that reflect a central tendency estimate from the relevant financial institutions' opinions; and
- if there is substantial uncertainty about the value of bonds according to the Bloomberg information – then other sources of information should be used as well to reduce that uncertainty. New issues should be included in the sample set, rate sheets from other financial institutions or data providers (such as AFMA) should be relied upon to improve the precision of bond yield estimates and floating rate and bank debt should also be taken into account, provided that it can be converted in an unbiased manner into equivalent fixed rate debt yields.

PwC's report notes that a difficult matter when estimating a yield curve is to determine the functional form of that curve. While PwC notes that it is difficult to specify a single functional form that would be appropriate in all circumstances, PwC recommend assuming a linear relationship between the credit margin (over Commonwealth Government securities) and term, and including bonds (or equivalents) with a term of 3 years or more in the sample. The PwC report notes that the assumption of an approximately linear function is justified both by theory and historical experience, and not that it is the simplest function to fit to data.

Lastly, for completeness, the PwC report notes that the first two of the three methods for remedying the problems discussed above can be implemented using information only from Bloomberg, and hence should be methods that can be applied and reapplied with only modest effort for any selected period.

SP AusNet has accepted PwC's recommendations regarding the tests and methodology for determining the DRP. As already noted, SP AusNet proposes that the methodology set out in the PwC report be applied to determine the DRP for the purpose of the AER's final decision.

12.9 Estimated Cost of Corporate Tax

12.9.1 Introduction

This section sets out details of SP AusNet's calculations of the allowance for corporate tax. The section focuses in particular on the assumed value of imputation credits.

Clause 6.5.3 provides that the estimated cost of corporate income tax (ETC_t) for each regulatory year (t) must be calculated in accordance with the following formula:

$$ETC_t = (ETI_t \times r_t)(1 - \gamma)$$

where:

ETIt is an estimate of the taxable income for that regulatory year that would be earned by a benchmark efficient entity as a result of the provision of standard control services if such an entity, rather than the Distribution Network Service Provider, operated the business of the Distribution Network Service Provider, such estimate being determined in accordance with the post-tax revenue model;

rt is the expected statutory income tax rate for that regulatory year as determined by the AER; and

γ is the assumed utilisation of imputation credits.

As noted in section 12.1 above, the estimated cost of corporate income tax must also be calculated in accordance with the requirements of Clause 11.17.2 of the NER.

SP AusNet's calculation of the annual allowance for corporate tax has been undertaken in accordance with all applicable requirements set out in the NER.

The remainder of this section sets out information relating to SP AusNet's proposal regarding the assumed utilisation of imputation credits. The section then concludes by presenting SP AusNet's proposed annual allowance for the estimated cost of corporate tax.

12.9.2 Background: Recap of AER's Decision to adopt a Gamma of 0.65

The assumed utilisation of imputation credits (γ or gamma) is set out in Clause 3.8 of the SORI as 0.65. This particular value was adopted by the AER following the conclusion of its review of the WACC parameters in May 2009.

The AER's WACC Final Decision adopts an approach to valuing imputation credits in accordance with the Monkhouse definition. Under this approach, gamma is defined as the product of:

- the "imputation credit payout ratio" (denoted as *F*); and
- the "utilisation rate", or the market value of imputation credits actually distributed (denoted as θ, or theta).

A value for *F* of 1.0 is adopted by the AER in its WACC Final Decision. SP AusNet considers that there are strong grounds to conclude that this value is inappropriate. For instance, although the WACC Final Decision acknowledged that there is some reduction in the value of retained credits (due to the effects of the time value of money) the value for *F* adopted in that Final Decision is founded on an assumption that there is no time-value erosion of retained franking credits. In addition, a paper submitted to the AER by ETSA[107] in June of this year demonstrates that in practice companies cannot effectively distribute retained franking credits, and therefore the value of *F* must be less than 1. However, for the purpose of this Proposal SP AusNet has adopted a value for *F* of 1.0.

In the WACC Final Decision the AER determined that in relation to the value of theta:

- the lower bound estimate is 0.57, based on the AER's best estimate of theta inferred from market prices; and
- the upper bound estimate is 0.74 is based on the AER's best estimate of theta from tax statistics.

The Final Decision considered that it is reasonable to apply equal weight to the lower and upper bound theta estimates, and to round to the nearest 0.05. This generates a point estimate of theta of 0.65, which combined with the assumed imputation credit payout ratio (*F*) of 1.0, produces a value for gamma of 0.65.[108] On this basis, the WACC Final Decision concluded that a reasonable estimate of gamma is 0.65.

In determining that the lower bound of theta (and therefore gamma) is 0.57, the WACC Final Decision stated[109]:

> *"Based on the empirical evidence available, the AER considers that the 2006 Beggs and Skeels study provides the most comprehensive, reliable and robust estimate of theta inferred from market prices in the post-2000 period. Accordingly the AER has placed significant weight on the 2001-2004 estimate of theta from this study, of 0.57."*

The "2006 Beggs and Skeels study" relied upon by the AER is the paper "Market Arbitrage of Cash Dividends and Franking Credits", published in *The Economic Record* in 2006 (Volume 82 (258), 239-252).

It is noted that in adopting the 2006 Beggs and Skeels study, the WACC Final Decision expressed some concerns with, and placed limited weight on a study by Strategic Finance Group (SFG)[110] which had been submitted by the energy network businesses during the AER's WACC review.

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[107] Peter Feros – Tax Partner, Gilbert and Tobin, *Review of WACC parameters: Gamma - ETSA Price Reset,* 22 June 2009.

[108] See pages 467 and 468 of the WACC Final Decision for further details.

[109] AER, *Final Decision: Review of the WACC Parameters,* May 2009, page xix.

[110] SFG Consulting, *The value of imputation credits as implied by the methodology of Beggs and Skeels (2006)*, Report prepared for ENA, APIA and Grid Australia, 1 February 2009.

12.9.3 Overview of New Evidence on the Value of Theta

Following the publication of the WACC Final Decision, the Victorian and South Australian electricity distributors commissioned Associate Professor Skeels (through solicitors Gilbert and Tobin) to provide an independent review[111] of matters relating to the estimation of the value of theta.

In undertaking his review, Associate Professor Skeels has, in SP AusNet's opinion produced persuasive evidence which demonstrates that there has been a material change in circumstances in relation to the estimation of the value for gamma, since the publication of the AER's SORI. The report of Associate Professor Skeels' independent review is provided as an Appendix to this Proposal.

Accordingly SP AusNet proposes, pursuant to Clause 5.5.4(g) of the NER that the gamma value of 0.65 should not be adopted for the forthcoming regulatory control period, and instead, a value of 0.5 should be adopted.

The remainder of this section provides an overview of the new evidence identified by Associate Professor Skeels' independent review, which justifies the departure from the gamma value of 0.65 specified in Clause 3.8 of the SORI. Section 12.9.4 below then sets out, in accordance with the provisions contained in Clause S6.1.3(9) of the NER, the gamma value proposed by SP AusNet.

Associate Professor Skeels has reviewed the SFG report entitled *The value of imputation credits as implied by the methodology of Beggs and Skeels (2006)*, and the associated comments contained in the AER's WACC Final Decision. During the course of his independent review, Associate Professor Skeels sought further information from SFG regarding issues raised by the AER in relation to the SFG report. The main findings and conclusions of Associate Professor Skeels' review are summarised below:

- The essential feature of the AER's analytical approach is the use of a regression-based methodology focusing on the post 1 July 2000 period. The SFG study adopts the same broad strategy;
- In response to questions put to SFG by Associate Professor Skeels regarding scaling and filtering of data, SFG now provides results that allow greater comparability with the results of Beggs and Skeels (2006) and that are much more credible than those presented in the SFG study lodged during the AER's WACC review.
- The Beggs and Skeels (2006) study - which was relied upon by the AER - employs data to 10 May 2004 while the SFG study uses data for the period up to 30 September 2006. The SFG study extends the sample period to include an additional 28 months of data in the post-2000 sub-sample. This represents an important contribution by the SFG study. In particular, by extending the study period, more information is available for use in estimation and, all things equal, one would expect the estimates obtained in the SFG study to more accurately reflect the true population values than do those provided by Beggs and Skeels (2006) on the basis of a smaller sample; and
- The SFG study estimates of theta are of equal significance as those of Beggs and Skeels (2006).

[111] Christopher L Skeels, *A Review of the SFG Dividend Drop-Off Study: A Report prepared for Gilbert and Tobin*, 28 August 2009.

Page 5 of Associate Professor Skeels' independent report proceeds to note the following key findings:

> *"I find that the results presented in Appendix I constitute an empirically valid study of the dividend drop-off problem for Australia and that the SFG estimate of theta of 0.23 represents the most accurate estimate currently available.*
>
> *It is clear that the more recent data used in the SFG results presented in Appendix I favour an estimate of theta that is lower than that of 0.57 which was obtained by Beggs and Skeels on the basis of less recent data. However, it might be argued that the minor methodological differences that remain between the methodology of Beggs and Skeels (2006) and that of SFG bias their estimate of theta downwards. (This is not a position to which I subscribe and I present it only in the garb of a devil's advocate.) Were such a position to be taken then, in my opinion, a compelling case can be made that the empirical evidence overwhelmingly supports the notion that the true value of theta lies between the SFG estimate of 0.23 and the Beggs and Skeels (2006) estimate of 0.57, and that in all probability it lies closer to 0.23 than 0.57."*

The evidence presented in Associate Professor Skeels' independent report is new evidence that was not taken into account by the AER in its recent WACC review. The circumstances relating to the AER's estimate of the value of gamma have changed to the extent that data that was given limited weight by the AER has now been reworked with the assistance of Associate Professor Skeels, and is shown to be the best available data on which an estimate of theta should be based. Importantly, this new evidence is presented by a co-author (Associate Professor Skeels) of the study that the AER had relied upon in determining the lower bound value of theta for the purpose of establishing the SORI.

12.9.4 SP AusNet's Proposed Gamma Value

As noted in section 12.9.2, the AER expressed some concerns with, and placed limited weight on the SFG study. In relation to that study, page 447 of the AER's WACC Final Decision states:

> *"Despite the advantage of providing more up-to-date estimates (i.e. to 2006), the AER has concerns regarding the reliability of the SFG study, and considers that correction of identified deficiencies would likely have a material impact on the results. Accordingly while the AER has given full consideration to the SFG study, limited weight has been placed upon theta estimates generated by the SFG study for the purposes of this final decision".*

The independent report of Associate Professor Skeels confirms that the SFG study adopts an analytical approach (namely, the use of a regression-based methodology focusing on the post 1 July 2000 period) which is consistent with that favoured by the AER in its WACC Final Decision. Associate Professor Skeels' report also notes that once SFG's analysis had been reworked to address the concerns expressed by the AER in the WACC Final Decision, the SFG analysis provides an estimate of theta of 0.23, which represents the most accurate estimate currently available. Importantly, Associate Professor Skeels' independent report states his expert opinion that the more recent data used in the SFG analysis favour an estimate of theta that is lower than that of 0.57 which was obtained by Beggs and Skeels -and which was relied on by the AER in its WACC Final Decision - on the basis of less recent data.

The underlying criteria (as defined in Clause 6.5.4(h)(1) of the NER) applied by the AER in its WACC Final Decision are not stated explicitly. However, the reasoning set out in the WACC Final Decision suggests that the principal underlying criteria include: statistical rigour, independent verification, methodological rigour, and the use of the largest available data set for the post July 2000 period. The analysis and opinions presented by Associate Professor Skeels in his independent report address these criteria.

This new evidence:

- constitutes persuasive evidence that justifies, in accordance with Clause 6.5.4(g) of the NER, departure from the gamma value specified in Clause 3.8 of the SORI; and
- demonstrates a material change in circumstances relating to the estimation of the gamma value since the SORI was issued in May 2009, so that the gamma value specified in that statement is inappropriate, in accordance with the provisions set out in Clause 6.5.4(h) of the NER.

SP AusNet contends that had this evidence been available to the AER at the time of its WACC Final Decision, the AER would have determined that:

- the lower bound estimate of theta is not 0.57; but rather
- the correct lower bound estimate of theta is 0.23.

Accordingly, taking the correct lower bound theta value of 0.23, the upper bound theta value (of 0.74) and the value of *F* (1.0) set out in the WACC Final Decision, and applying the methodology adopted by the WACC Final Decision to select a point estimate of gamma from the reasonable range, the correct gamma value is 0.5.

Based on the evidence presented above and in the relevant accompanying appendices, SP AusNet proposes, pursuant to Clause 5.5.4(g) of the NER, that a gamma value of 0.65 should not be adopted for the forthcoming regulatory control period, and instead, a value of 0.5 should be adopted.

The gamma value of 0.5 is the product of:

- the imputation credit payout ratio (F), which is, for the purpose of this Proposal, 1.0; and
- the market value of imputation credits actually distributed (theta), which is 0.5.

12.9.5 Allowance for the Estimated Cost of Corporate Tax

In accordance with the formulae and other provisions set out in Clauses 6.5.3 and 11.17.2 of the NER, and adopting a value for gamma of 0.5 (on the basis of the analysis presented in the preceding sections) SP AusNet's taxation allowance is shown in Table 12.3 below.

Table 12.3: Allowance for the Estimated Cost of Corporate Tax, 2011 to 2015

($ million)	2011	2012	2013	2014	2015
Tax Allowance	13.9	3.6	6.9	9.4	11.3

12.10 Summary of Proposed WACC Parameter Values

Table 12.4 below sets out the WACC parameters adopted by SP AusNet for the purpose of this Proposal.

Table 12.4: WACC Parameters adopted by SP AusNet

Parameter	Value/Methodology
Gearing	60% debt to total assets
Beta	0.8
MRP	8%
Measurement period for the nominal risk free rate and Debt Risk Premium	The 15 business day period commencing on 1 October 2009 and ending on 21 October 2009, for the purpose of this Proposal. The measurement period to be applied in the final determination has been proposed by SP AusNet in accordance with the provisions set out in Clause 6.5.2(c)(2)(iii).
Nominal Risk Free Rate	5.47%
Expected inflation	2.40%
Real Risk Free Rate	3.0%
Debt Risk Premium	4.71%
Gamma	0.5
Nominal pre–tax return on debt	10.18%
Nominal post–tax return on equity	11.87%
Nominal vanilla WACC	10.86%

13 Cost Pass Through

This chapter outlines SP AusNet's proposed Cost Pass Through Events, the materiality thresholds that are to be applied to those events and the categories of services to which the cost pass through provisions are to apply.

This chapter is structured as follows:

- Section 13.1 summarises SP AusNet's proposals regarding Cost Pass Through Events and their associated thresholds;
- Section 13.2 outlines the regulatory requirements relating to the definition of Cost Pass Through Events;
- Section 13.3 outlines in detail SP AusNet's proposed Cost Pass Through Events;
- Section 13.4 details SP AusNet's proposed materiality thresholds; and
- Section 13.5 describes the categories of services to which SP AusNet's proposed Cost Through Events will apply.

13.1 Summary of SP AusNet's Proposal

SP AusNet proposes that the following thresholds be adopted for the purpose of cost pass through:

- a $250,000 threshold for all nominated pass through events;
- a $250,000 threshold for all pass through events defined in the NER; and
- $1 million threshold for any event that meets the definition of "general nominated pass through event" proposed by SP AusNet (which is broadly consistent with that which was implemented by the AER in its 2009 NSW Final Decision).

In the case of the first two categories, SP AusNet proposes that the full amount of the event should be able to be passed through, as these events are beyond the control of the business, and the business has virtually no ability to mitigate the impacts of such events.

In the case of the third category, SP AusNet proposes that only the incremental costs above the threshold for that event should be recovered through the cost pass through mechanism, as long as these materiality thresholds are adopted.

Table 13.1 below sets out a summary of the Cost Pass Through provisions proposed by SP AusNet.

Table 13.1: Summary of SP AusNet's Cost Pass Through Provisions

Cost Pass Through Event	Definition	Materiality Threshold	Positive and Negative Pass Through Events?	Recovered Through Any Other Mechanism?
Carbon pollution reduction scheme event	An event that results in the imposition of legal obligations on a DNSP arising from the introduction or operation of a carbon emissions trading scheme imposed by the Commonwealth or Victorian Governments during the course of the next regulatory control period and which: • falls within no other category of pass through event; and • materially increases the costs of providing direct control services.	$250,000	Yes	No

Cost Pass Through Event	Definition	Materiality Threshold	Positive and Negative Pass Through Events?	Recovered Through Any Other Mechanism?
Forced load shedding event	As defined in AER's Service Target Performance Incentive Scheme[112]. The costs to SP AusNet of the event are to be calculated in the following manner: Residential and Small Commercial Customers: Expected revenue per customer per minute for summer peak, summer shoulder, winter peak and off peak period assumed in SP AusNet's Pricing Proposal * minutes off supply * number of affected customers in each of those time periods Large Customers: Revenue generated using average maximum kVA for days where no load shedding occurred, less actual revenue generated (using 5 nominated day average, inclusive of load shedding event/s).	$250,000	Yes	No

[112] Service Target Performance Incentive Scheme – Final Decision – May 2009 – page 12.

Cost Pass Through Event	Definition	Materiality Threshold	Positive and Negative Pass Through Events?	Recovered Through Any Other Mechanism?
Legal liability above insurance cap event	Subject to any materiality threshold approved by the AER as part of its Final Decision, SP AusNet shall be able to pass through to customers any costs that it incurs during the 2011-2015 regulatory control period that result from an event that leads to costs that exceed SP AusNet's insurance limits for that event, that would, except for the existence of the insurance cap, have been covered by SP AusNet's insurance policies that were in existence at the time of the event.	$250,000	Yes	No
Premium Feed In Tariffs	SP AusNet is able to pass through to customers the total costs associated with providing credits to Retailers under the Victorian Government's 'Electricity Industry Amendment (Premium Solar Feed-In Tariff) legislation 2009'.	$250,000	Yes	No
S-Factor Payout event	SP AusNet proposes that a pass-through mechanism be used to adjust prices for the difference between the original and post 2010 calculations for SP AusNet's S Factor payout contained within this Proposal.	$0	Yes	No
A regulatory change event	As defined in Chapter 10 of the NER[113]	$250,000	Yes	No
A service standard event	As defined in Chapter 10 of the NER[114]	$250,000	Yes	No

[113] National Electricity Rules, Version 31, page 1009.

Cost Pass Through Event	Definition	Materiality Threshold	Positive and Negative Pass Through Events?	Recovered Through Any Other Mechanism?
A tax change event	As defined in Chapter 10 of the NER[115]	$250,000	Yes	No
A terrorism event	As defined in Chapter 10 of the NER[116]	$250,000	Yes	No
General nominated pass through event	As per the definition contained in the AER's 2009 NSW Final Decision, except for the following: Removal of the reference to the 'specific nominated pass through events' that were approved by the AER in relation to the NSW DNSPs (smart meter event, aviation hazards event), and inserting the relevant cost pass through events proposed by SP AusNet; Changing the definition of materiality to $1 million, instead of the current 1% of revenue; and Altering the definition to allow the "estimated reduction in the revenue as a result of the event" to be included in the pass through amount, in addition to the costs of such events.	$1 million	Yes	No

13.2 Regulatory Requirements

In developing its cost pass through proposals, SP AusNet has given careful consideration to:

- the National Electricity Objective and Revenue and Pricing Principles in the NEL;
- the requirements of the NER;

[114] Ibid., pg. 1021.

[115] Ibid., pg. 1027-1028.

[116] Ibid., pg. 1028.

- the AER's approach to cost pass through arrangements in its 2009 determination for the NSW distribution businesses; and
- the requirements set out in the RIN.

Each of these matters is discussed in turn below.

13.2.1 National Electricity Law

The key objectives of the NEL that SP AusNet has had regard to in developing its proposed Cost Pass Through Events are Section 7 and Section 7A, which are reproduced below:

> *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system.*
>
> *7A—Revenue and pricing principles*
>
> *(1) The revenue and pricing principles are the principles set out in subsections (2) to (7).*
>
> *(2) A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—*
>
> *(a) providing direct control network services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment.*
>
> *(3) A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides. The economic efficiency that should be promoted includes—*
>
> *(a) efficient investment in a distribution system or transmission system with which the operator provides direct control network services; and*
>
> *(b) the efficient provision of electricity network services; and*
>
> *(c) the efficient use of the distribution system or transmission system with which the operator provides direct control network services."*

13.2.2 National Electricity Rules

Section S6.1.3 (Additional information and matters) of the NER state that:

> *"A building block proposal must contain at least the following additional information and matters:*
>
> *(2) a proposed pass through clause with a proposal as to the events that should be defined as pass through events."*

Furthermore, Section 6.12.1 (Constituent decisions) of the NER state that:

> *"A distribution determination is predicated on the following decisions by the AER (constituent decisions):*
>
> *(14) a decision on the additional pass through events that are to apply for the regulatory control period"*

It is noted that the term 'pass through event' is defined in the NER as follows[117]:

> *"Any of the following is a pass through event:*
>
> > *A regulatory change event;*
> >
> > *A service standard event;*
> >
> > *A tax change event;*
> >
> > *A terrorism event.*
> >
> > *An insurance event is a pass through event for a transmission determination (in addition to those listed above).*

An event nominated in a distribution determination as a pass through event is a pass through event for the determination (in addition to those listed above)."

13.2.3 AER's Approach in the 2009 NSW Final Decision

The AER has provided further guidance in its 2009 NSW Final Decision in relation to its assessment of cost pass through proposals. There appears to be two key aspects of this decision.

The first is that the AER has defined eight assessment criteria that it will have regard to in determining whether an event should be nominated as a pass through event, namely whether[118]:

- the event is already captured by the defined event definitions;
- the event is clearly identified as uncontrollable. That is, a prudent service provider through its actions could not have reasonably prevented or substantially mitigated the event;
- despite the event being foreseeable, the timing and/or cost impact of the event could not be reasonably forecast by the DNSP at the time of submitting its regulatory proposal;
- the event is not already insured against (either external or self insured);
- the event cannot be self-insured because a self insurance premium cannot be calculated or the potential loss to the relevant DNSP is catastrophic;
- the party who is in the best position to manage the risk is bearing the risk; and
- the passing through of the costs associated with the event would undermine the incentive arrangements within the regulatory regime.

The second aspect of the AER's 2009 NSW Final Decision classifies nominated pass through events into two categories[119]:

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[117] National Electricity Rules, Version 28, page 970.

[118] AER, NSW Draft decision, pp. 279–280.

[119] AER, NSW Final decision, pp. 277-278.

- specific nominated pass through events – these are foreseeable events that can easily be defined. The AER stated that it considered the aforementioned eight criteria in deciding what events should be specific nominated pass through events; and
- a general nominated pass through event – the AER stated that this will apply to unforeseeable events. This event is a set of broadly defined circumstances, the occurrence of which will constitute a general nominated pass through event. The AER stated that it will determine throughout the next regulatory control period whether an event constitutes a general nominated pass through event.

More specifically, the latter is defined as occurring in the following circumstances[120]:

- an uncontrollable and unforeseeable event that falls outside of the normal operations of the business, such that prudent operational risk management could not have prevented or mitigated the effect of the event, and which occurs during the next regulatory control period; and
- the change in costs of providing distribution services as a result of the event is material, and is likely to significantly affect the DNSP's ability to achieve the operating expenditure objectives and/or the capital expenditure objectives (as defined in the Chapter 6 rules) during the next regulatory control period.

The AER also stated that for the purposes of this definition:[121]

- an event will be considered unforeseeable if, at the time the AER makes its distribution determination, despite the occurrence of the event being a possibility, there was no reason to consider that the event was more likely to occur than not to occur during the next regulatory control period; and
- 'material' means the costs associated with the event would exceed 1 per cent of the smoothed forecast revenue specified in the final decision in the years of the regulatory control period that the costs are incurred.

13.2.4 Regulatory Information Notice

Paragraph 7.1 of the RIN states that SP AusNet must outline the following in this Proposal:

> *"For each pass through event excluding those prescribed in the NER proposed in the regulatory proposal:*
>
> *(a) provide:*
>
> *(i) a description;*
>
> *(ii) the proposed associated materiality threshold;*
>
> *(b) explain:*
>
> *(i) whether the proposed associated materiality threshold applies to both positive and negative pass through events;*
>
> *(ii) why the proposed associated materiality threshold is appropriate;*

[120] Ibid.

[121] Ibid.

(iii) how it differs in definition and scope from the pass through events as defined in the NER;

(iv) how it will not be recovered through any other mechanism.”

13.3 SP AusNet’s Proposed Cost Pass Through Provisions

SP AusNet’s proposed Cost Pass Through Events have been developed in accordance with the provisions and considerations outlined in Section 13.2.

In addition to the events defined as pass through events under the NER, SP AusNet proposes the following ‘specific’ nominated pass through events for the forthcoming regulatory control period:

- a Carbon Pollution Reduction Scheme event;
- a forced load shedding event;
- a legal liability above insurance cap event;
- the costs of providing credits to Retailers under the Victorian Government’s ‘Electricity Industry Amendment (Premium Solar Feed-In Tariff) legislation 2009; and
- S-Factor adjustment mechanism.

In addition, SP AusNet proposes the adoption of a general nominated pass through event for the forthcoming regulatory control period, broadly consistent with that which was implemented by the AER in its 2009 NSW Final Decision.

Each of these events is outlined in more detail below.

13.3.1 Carbon Pollution Reduction Scheme Event

Background

The Commonwealth Government is currently seeking to pass legislation to give effect to its Carbon Pollution Reduction Scheme (CPRS). The CPRS will include the implementation of a market based solution to facilitate a reduction in CO_2 emissions by as much as 25 per cent of 2000 levels by 2020. The Government is proposing to commence the scheme by 1 July 2011[122].

Until the final legislation is passed, it is unclear as to the impact that such a scheme will have on SP AusNet. Consistent with the AER’s 2009 NSW Final Decision, SP AusNet proposes that this be classified as a nominated pass through event.

Furthermore, SP AusNet notes that the costs of such an event have not been included elsewhere in this Proposal.

Given all of the above, SP AusNet believes that passing through the costs associated with such an event will not undermine the incentive arrangements within the regulatory regime.

Proposed Cost Pass Through Provision

SP AusNet proposes the following Cost Pass Through mechanism:

[122] http://www.climatechange.gov.au/emissionstrading/pubs/carbon_pollution_target.doc (page1).

"An event that results in the imposition of legal obligations on a DNSP arising from the introduction or operation of a carbon emissions trading scheme imposed by the Commonwealth or Victorian Governments during the course of the next regulatory control period and which:

- falls within no other category of pass through event; and

- increases the costs of providing direct control services".

SP AusNet proposes a $250,000 materiality threshold for this cost pass through event. The rationale for proposing this threshold is outlined in section 13.4 below.

13.3.2 A Forced Load Shedding Event

Background

SP AusNet has previously been subject to a number of forced load shedding events, where AEMO (or predecessor authorities) or the Transmission Network Service Provider directed SP AusNet's electricity distribution business to shed load in order to maintain system security.

Whilst SP AusNet fully supports the use of load shedding, if and when necessary, to minimise the risk of broader system failure, a decision by AEMO or the Transmission Network Service Provider to curtail load may have a material financial impact upon SP AusNet. This is because SP AusNet is subject to a weighted average price cap form of price control, which exposes SP AusNet to volumetric risk (ie: higher than expected volumes lead to higher revenues, whilst lower than expected volumes lead to lower revenues).

SP AusNet notes that the demand and energy forecasts contained in this Proposal have not incorporated any allowance for load shedding events that are imposed upon SP AusNet's electricity distribution business by either the Transmission Network Service Provider or AEMO. Therefore, SP AusNet is not compensated for the financial impact of such events elsewhere in this Proposal.

Moreover, SP AusNet notes that the impact of a load shedding event will, in the future, have a much greater impact on revenues than they currently have, due to the introduction of:

- a critical peak demand tariff for large customers, which will result in SP AusNet having a greater financial exposure to load shedding events, as these events are likely to occur during the nominated 5 peak days, which in turn would lower the maximum KVA demand recorded for billing purposes; and
- time of use tariffs for residential and small commercial customers, which will result in SP AusNet generating more revenue per KWh of consumption during defined peak and shoulder periods in summer (December through March, 12 pm to 8 pm) than currently occurs. This increased revenue per KWh results in SP AusNet being more exposed to future load shedding events, as load shedding is more likely to occur during defined peak and shoulder periods.

SP AusNet considers that load shedding events resulting from a directive by either the Transmission Network Service Provider or AEMO (ie: those that occur through no fault of SP AusNet's electricity distribution business) should be treated as a nominated cost pass through event for the following key reasons:

- the event is clearly uncontrollable, as SP AusNet's electricity distribution business cannot reasonably prevent or substantially mitigate the event itself, or the impact of the event;

- despite the event being foreseeable, the timing and/or cost impact of the event cannot be reasonably forecast by SP AusNet at this time;
- the event is not insured;
- the event cannot be self-insured because a credible self insurance premium cannot be calculated; and
- the passing through of the costs associated with the event would not undermine the incentive arrangements within the regulatory regime, as SP AusNet has no control over this event at all.

SP AusNet also notes that such events are excluded from the STPIS[123], on the basis that the DNSPs cannot control the impacts of these types of events. Therefore, the adoption of a cost pass through event as outlined above is a consistent treatment of such events under the STPIS.

Proposed Cost Pass Through Provision

SP AusNet proposes the following Cost Pass Through mechanism to apply to load shedding events that result from a directive by either the Transmission Network Service Provider or AEMO. For consistency, SP AusNet proposes the same definition as outlined by the AER in Section 3.3(a)(1)-(7) of its STPIS (May 2009) be applied, in conjunction with the following calculation of foregone revenue:

- Residential and Small Commercial Customers: Expected revenue per customer per minute for summer peak, summer shoulder, winter peak and off peak period assumed in SP AusNet's Pricing Proposal * minutes off supply * number of affected customers in each of those time periods;
- Large Customers: Revenue generated using average maximum KVA for days where no load shedding occurred less actual revenue generated (using 5 nominated day average, inclusive of load shedding event/s).

SP AusNet proposes a $250,000 materiality threshold for this cost pass through event. The rationale for proposing this threshold is outlined in section 13.4 below.

13.3.3 A Liability above Insurance Cap

Background

As part of its self insurance assessment, SP AusNet has sought the quantification of a number of the asymmetric risks that it faces. However, as part of this self insurance quantification, SP AusNet has explicitly not quantified the cost to SP AusNet of the risk of any liability exceeding SP AusNet's current insurance caps. SP AusNet has adopted this approach for two key reasons:

- The complexity associated with developing credible self insured risk quantifications for very low probability events, such as those that are above existing liability limits/caps; and
- The likely catastrophic nature of such an event.

It is for these two reasons that SP AusNet is proposing to capture such events within this Cost Pass Through provision. Moreover, SP AusNet believes that its proposal is consistent with the

[123] Service Target Performance Incentive Scheme – Final Decision – May 2009 – page12.

criteria that the AER outlined in the 2009 NSW Final Decision for determining whether a type of event should be nominated as a pass through event, in particular, the following two criteria:

- the event is not already insured against (either externally or through self insurance); and
- the event cannot be self-insured because a self insurance premium cannot be calculated or the potential loss to the relevant DNSP is catastrophic.

Moreover, SP AusNet believes that the adoption of such a pass through mechanism is consistent with the NEL, particularly Section 7A which requires the AER to provide SP AusNet with a reasonable opportunity to recover at least the efficient costs incurred. The absence of such a pass through event exposes SP AusNet to an unfunded asymmetric risk, as the costs of such an event have not been included elsewhere in this Proposal (because, as already explained, the self insured risk quantification specifically excludes the cost of above-cap events).

In addition, SP AusNet does not consider that passing through the costs associated with such events would undermine the incentive arrangements within the regulatory regime. Therefore, the requirements of Section 7A of the NEL (to provide business with "effective incentives in order to promote economic efficiency" including for "the efficient provision of electricity network services") would not be compromised. In stating this, SP AusNet notes that under its proposed arrangements it would still be exposed to:

- a deductible payment under its insurance policy, and this exposure would provide incentives to SP AusNet to manage the consequences of that event so as to minimise the exposure; and
- reputational damage associated with such an event, which again, provides a incentive to manage the consequences of that event.

Notwithstanding the above, SP AusNet notes that a broad definition of such a pass through event could be vulnerable to exploitation by businesses. Such exploitation could occur if businesses were able to reduce their insurance caps during the forthcoming regulatory period, thus leading to lower premiums and higher efficiency carryover amounts, but with the additional residual risk of the lower insurance cap being borne by customers as a result of the cost pass through event. Such an outcome would be inconsistent with the requirements of the NER and the NEL.

Proposed Cost Pass Through Provision

SP AusNet proposes the following Cost Pass Through mechanism:

> *Subject to any materiality threshold approved by the AER as part of its Final Decision, SP AusNet shall be able to pass through to customers any costs that it incurs during the 2011-2015 regulatory control period that result from an event that leads to costs that exceed SP AusNet's insurance limits for that event, that would, except for the existence of the insurance cap, have been covered by SP AusNet's insurance policies that were in existence at the time of the event.*

SP AusNet proposes a $250,000 materiality threshold for this cost pass through event. The rationale for proposing this threshold is outlined in section 13.4 below.

13.3.4 Premium Feed-in-Tariff

Background

The Victorian Government has recently passed the Electricity Industry Amendment (Premium Solar Feed-In Tariff) Act 2009, which amongst other things, requires distribution businesses to provide a $0.60 c/kWh credit to qualifying customers for all energy that those qualifying customers export back into its distribution system. Under the scheme[124]:

- qualifying customers include households, community organisations and small businesses with energy consumption less than 100 megawatt hours a year; and
- the maximum size system that can be installed to receive the premium feed-in tariff is 5 kilowatts.

The scheme is expected to start on 1 November 2009 and will run for 15 years, or until the total capacity of systems participating reaches 100 megawatts.

The objective of this legislation is to provide a financial incentive for potentially eligible customers to install solar panels. The impact that such an incentive will have on the take-up rates for solar cells is difficult to determine. Moreover, it is difficult to quantify the amount of energy that is likely to be exported into the grid by qualifying customers, as the types of customers electing to install solar cells may have different consumption profiles to the average. For example, customers taking up the offer may be skewed more towards those that are already energy efficient, which in turn would lead them to have a lower energy consumption profile than an average customer, which would mean they export more to SP AusNet's distribution system, which would in turn require SP AusNet to pay more in credits. Alternatively, the offer may encourage a disproportionate amount of customers that have higher than average energy consumption during the summer peak period to take up the offer, as this is then when the solar cells are most effective, particularly once Time of Use tariffs are implemented. Under this scenario, the credits would be lower than average.

Having regard to these considerations, SP AusNet is of the view that it is difficult to develop a reasonable forecast of the likely costs associated with providing credits under this scheme. Moreover, SP AusNet does not want to be seen to be potentially profiting from such a scheme in any way. For these reasons, SP AusNet proposes that the credits that it will be required to be pay as a result of the implementation of this scheme should be treated as a cost pass through.

Proposed Cost Pass Through Provision

SP AusNet proposes the following Cost Pass Through mechanism:

- SP AusNet is able to pass through to customers the total costs associated with providing credits to Retailers under the Victorian Government's 'Electricity Industry Amendment (Premium Solar Feed-In Tariff) legislation 2009'.
- SP AusNet proposes a $250,000 materiality threshold for this cost pass through event. The rationale for proposing this threshold is outlined in section 13.4 below.

[124] http://www.dpi.vic.gov.au/dpi/dpinenergy.nsf/LinkView/7AFCBB81592B8111CA2576350020903D3E1179147BC310BACA257635001F2BEF

13.3.5 S Factor Payout

Background

The process for calculating the revenue payout of the current ESC S Factor regime during the forthcoming regulatory control period, including existing and forecast (2009, 2010 performance) adjustments, is outlined in Chapter 4 of this Proposal.

As 2010 performance will remain unknown until after the AER Final Decision, an adjustment mechanism will need to be incorporated into prices in the forthcoming regulatory control period.

SP AusNet is proposing that the model is rerun once 2010 performance is known. This will generate a new NPV that can be smoothed and compared with the original amount approved in the AER Final Decision.

SP AusNet proposes that a pass-through mechanism be used to adjust prices for the difference between the original and post 2010 calculations for each year from 2012 to 2015. In proposing a Cost Pass Through mechanism, SP AusNet is cognisant of the fact that it is unclear whether a change can be made to the price control mechanism to account for this payout, due to the constraints placed upon the AER by the NER. As such, SP AusNet considers the Cost Pass Through Mechanism to be the most feasible way of 'truing' up the forecast S-Factor payment schedule against the actual calculated payment schedule.

Proposed Cost Pass Through Provision

SP AusNet proposes the following Cost Pass Through mechanism:

The difference between the NPV of SP AusNet's proposed S Factor payout, as outlined in Chapter 7 of this Proposal, and SP AusNet's revised calculation based on actual 2010 performance.

SP AusNet proposes a $0 materiality threshold for this cost pass through event, as this is outside of SP AusNet's control, and is only being adopted to remove the uncertainty for both SP AusNet and consumers with regards to the magnitude of this payout.

13.3.6 General Nominated Pass Through

Background

As already noted, in its 2009 NSW Final Decision, the AER proposed the inclusion of a general nominated pass through event. More specifically, the AER stated that:

> *"A general nominated pass through event occurs in the following circumstances:*
>
> *1. An uncontrollable and unforeseeable event that falls outside of the normal operations of the business, such that prudent operational risk management could not have prevented or mitigated the effect of the event, occurs during the next regulatory control period*
>
> *2. The change in costs of providing distribution services as a result of the event is material, and is likely to significantly affect the DNSP's ability to achieve the operating expenditure objectives and/or the capital expenditure objectives (as defined in the transitional Chapter 6 rules) during the next regulatory control period*
>
> *3. The event does not fall within any of the following definitions:*

‘regulatory change event’ in the NER (read as if paragraph (a) of the definition were not a part of the definition);

‘service standard event’ in the NER;

‘tax change event’ in the NER;

‘terrorism event’ in the NER;

‘retail project event’ in this final decision;

‘smart meter event’ in this final decision (read as if paragraph (a) of the definition were not a part of the definition);

‘emissions trading scheme event’ in this final decision (read as if paragraph (a) of the definition were not a part of the definition);

‘aviation hazards event’ in this final decision.

For the purposes of this definition:

an event will be considered unforeseeable if, at the time the AER makes its distribution determination, despite the occurrence of the event being a possibility, there was no reason to consider that the event was more likely to occur than not to occur during the next regulatory control period

‘material’ means the costs associated with the event would exceed 1 per cent of the smoothed forecast revenue specified in the final decision in the years of the regulatory control period that the costs are incurred.”

SP AusNet proposes to adopt the definition of general nominated pass through event set out in the AER’s NSW 2009 Final Decision subject to the following changes:

- Removing the references to smart meter event and aviation hazards event;
- Inserting SP AusNet’s proposed nominated Cost Pass Through Events;
- Changing the definition of materiality (for the reasons set out in section 13.4); and
- Including foregone revenue, in addition to the direct costs, associated with events that meet the definition of a general cost pass through event.

In the case of the latter, SP AusNet sees no reason to differentiate between cost increases associated with a defined event and revenue reductions associated with such an event. A $1 million opex has the same affect on SP AusNet’s financial viability as does a $1 million revenue reduction. Therefore, SP AusNet proposes that both cost increases and revenue reductions should be considered and treated equally when assessing the impact of events that meet component 1 of the stated definition above.

Proposed Cost Pass Through Provision

SP AusNet proposes the adoption of the same general nominated cost pass through event as the AER approved as part of its NSW Final Decision, subject to making the changes outlined immediately above.

13.4 Materiality Clauses

Neither the NER or the AER's Framework and Approach Paper provide any specific guidance with regard to the materiality threshold that should be applied to cost pass through events that are nominated by electricity distribution companies.

In relation to the issue of materiality, SP AusNet's interpretation of the AER's NSW 2009 Final Decision is that the AER believes that:

- a lower materiality threshold is appropriate for specific nominated events, commensurate with the administrative costs of assessing the pass through application; and
- general pass through events will be defined as being material if the costs associated with the event exceed one per cent of the business' smoothed forecast revenue in the year that the costs are incurred.

In relation to the first point, the AER commented on page 281 of the 2009 NSW Final Decision as follows:

> *"Costs associated with a specific nominated event were not included in the forecast costs at the time of the regulatory determination because, at the time the regulatory proposals were submitted, the precise timing of the event and/or the cost impact of the event could not be forecast on a reasonable basis. In these circumstances, it is appropriate that a lower materiality threshold be adopted that represents the administrative costs of assessing such an application. The costs associated with these events would have been included, without regard to the materiality of the financial impact of the event on the DNSP, had the necessary information been available at the time of the final decision. The costs of assessing a cost pass through may, in certain circumstances, be very low. As specific nominated pass through events are narrowly defined, the AER considers that a low materiality threshold will not undermine incentives to manage expenditure efficiently."*

SP AusNet agrees with the AER's view that the materiality threshold for specific nominated events should reflect the administrative costs of assessing an application and that these costs may be very low in some circumstances. To assess the likely administrative costs of pass through applications, SP AusNet has examined the recent pass through applications to the AER (and previously the ACCC). These pass-through applications have been submitted by TNSPs rather than DNSPs, although it is not expected that the administrative costs will be significantly different between the two types of network service providers.

In addition to considering the AER's likely costs of processing pass through applications, SP AusNet has also estimated the likely costs of preparing an application, as well as the costs incurred by stakeholders in preparing submissions. The inclusion of these costs in the materiality threshold ensures that the full costs of preparing, reviewing and assessing a pass through application are considered in establishing the materiality threshold. The following table sets out SP AusNet's estimate of the likely administrative costs of a pass through application, based on the recent experience of transmission pass through calculations.

Table 13.2: Assessment of typical administrative costs for a pass through application

Cost item	Number since 2002	Estimated average cost	Total ($M)
Preparation of application	13	$100,000	1.3
Submissions	8	$50,000	0.4
Consultant reports for AER	2	$50,000	0.1
AER approval	13	$100,000	1.3
TOTAL	13 applications	$238,000	3.1

The above table shows that since 2002, 13 pass through applications have been received by the AER or the ACCC. For these 13 applications, a total of only 8 submissions have been received from interested parties, and 4 of these submissions related to one particular application. On two occasions, the AER has sought assistance from a consulting firm to review the application. To develop an appropriate materiality threshold, SP AusNet has estimated an allowance for each of these cost items in order to estimate an average cost for a typical pass through application. Based on the above calculations, which indicates that the average cost is approximately $238,000, SP AusNet proposes a materiality threshold of $250,000 for nominated pass-through events.

In relation to the materiality threshold that should be applied to a general pass through event, SP AusNet proposes two major refinements, namely that:

- the 1% of revenue threshold should be lowered to $1 million for general cost pass through events; and
- if this change is adopted, the pass through amount should be measured as the incremental cost to the business (including foregone revenue), over and above this threshold.

In support of the latter proposal, SP AusNet notes that it is not aware of any objective study having been undertaken by the AER, or any regulated business for that matter, to support the appropriateness of the 1% materiality threshold. In theory, such a study would assess the impact that such a threshold would have on the ability of the AER to make regulatory decisions that meet the requirements of the NER and the NEL. SP AusNet believes that in combination, the NER and the NEL require three conflicting objectives to be considered by the AER, namely, that the threshold:

- exceeds the societal costs associated with assessing and implementing any general cost pass through application (all 'efficiency' criteria embedded within the NER and the NEL necessitate this);
- provides businesses with an appropriate financial incentive to efficiently manage such events, if and when they occur, despite the fact that the event is covered by a general

cost through provision (Section 7A of the NEL requires the AER to provide businesses with 'effective incentives in order to promote economic efficiency' including for 'the efficient provision of electricity network services'); and

- provides businesses with a 'reasonable opportunity to recover at least the efficient costs the operator incurs', which is a requirement in the NEL (Section 7A).

In the absence of any such objective study, more subjective evidence should be used to assess the robustness of the 1% threshold against the NER and the NEL. For example, one percent of SP AusNet's revenue equates to approximately $5 million per year. SP AusNet is very confident that $5 million far exceeds the societal costs associated with assessing and implementing the outcomes of any cost pass through application for the types of events that would fall under any general nominated cost pass through provision. For example, assuming an FTE (full-time equivalent staff) rate of $150,000 per annum, this equates to over 33 FTEs per year – clearly, a level that surpasses the resources required to develop, assess and implement even the most complex of cost pass through applications.

In relation to the moral hazard issue, despite the absence of objective evidence, SP AusNet firmly believes that $5 million exceeds the level of opex at which it would cease to manage such a risk due to the protection provided by the cost pass through provision. Moreover, SP AusNet notes that the general nominated pass through definition actually removes, or at least, significantly limits the need to have regard to the moral hazard issue when determining whether the threshold will impact on incentives to efficiently deliver services to end customers.

In particular, for the AER to consider an event under this pass through clause, it must be "an uncontrollable and unforeseeable event that falls outside of the normal operations of the business, such that prudent operational risk management could not have prevented or mitigated the effect of the event, [and it] occurs during the next regulatory control period". Taken literally, if the AER determines that an event is not uncontrollable or unforeseeable, or could have been prevented or the effect mitigated, then it will disallow the pass through application anyway. The adoption of a materiality threshold that far exceeds the societal costs of developing, assessing and implementing a cost pass through application, in order to reduce the potential for moral hazard, appears inconsistent with the above definition, which assumes that the business cannot prevent or mitigate the impact of the event anyway. Therefore, SP AusNet considers that the adoption of a threshold as high as 1% of revenue will not provide for more efficient outcomes than those that would arise under the threshold proposed by SP AusNet. On this basis, the application of a threshold that exceeds the one proposed by SP AusNet is unlikely to be justified on efficiency grounds.

In addition to the above, SP AusNet notes that a general nominated pass through event mechanism must also be assessed in the context of its ability to provide a business with a reasonable opportunity to recover at least the efficient costs it incurs, as required under section 7A of the NEL. To be consistent with this NEL requirement, SP AusNet considers that the application of a threshold that far exceeds the cost to society of assessing and implementing that cost pass through application could only apply, if the cost pass through provision leads to symmetrical outcomes. That is, the expected cost (or the probability of an event multiplied by its cost) of all the likely events that would be captured under the mechanism should, in total, equate to zero. If this were the case, the threshold would not impact upon a business' ability to recover at least the efficient costs it incurs, as any positive amount not passed back to customers due to the existence of a threshold is expected to be offset by a future negative amount that falls under the threshold, and therefore, cannot be passed onto customers.

However, if the distribution of expected costs of all events is asymmetric, then there will be a mismatch between the expected outcomes from such a scheme and the costs that are incurred by the operator to deal with such events (either over-recovery or under-recovery). SP AusNet firmly believes that the definition of a general nominated pass through event will result in the expected cost of these types of events being negative, when considered in the context of the benchmark operating and capital expenditure allowances contained within this Proposal. More specifically, the types of events that SP AusNet considers are likely to be uncontrollable, unforeseeable or could not have been prevented or the effect mitigated by SP AusNet, as required by the general nominated pass through definition, that are not already accounted for in this Proposal, are events such as:

- catastrophic bushfires,
- earthquakes,
- catastrophic storms or tornadoes,
- pandemics,
- strikes, and
- catastrophic floods.

On the basis of the arguments and analysis set out above, SP AusNet considers that the application of a threshold as high as 1% of revenue would be inconsistent with the NEL requirement for the AER to provide SP AusNet with a reasonable opportunity to recover at least the efficient costs it incurs. Moreover, if a threshold as high as 1% of revenue is applied, the potential under-recovery of efficient costs is material, as operating expenditure increases flow directly through to lower profits. Therefore a 1% of revenue threshold translates to reduction in profit of approximately 5% in that year. Having such a sizable proportion of profit at risk as a result of events outside of the business' control is inconsistent with the requirements of the NEL.

Moreover, given the material financial impact that such an event may have on a business, there may actually be an incentive for businesses to not efficiently manage the costs of an event as those costs approach the threshold, in order to ensure that the event actually breaches the threshold (thus providing some potential financial relief to the business). This highlights another issue with the current regime: namely, that exceeding the threshold appears to trigger the inclusion of all costs in the cost pass through mechanism, not the incremental costs above the threshold. As already noted, this may provide perverse incentives to businesses regarding the management and mitigation of the costs of these events, which would be inconsistent with the NER requirements. It would also be inconsistent with section 7A of the NEL which requires, amongst other things, for businesses to be provided with effective incentives in order to promote economic efficiency, including incentives for the efficient provision of electricity network services.

On the basis of the arguments and analysis set out above, SP AusNet proposes that the AER adopts the following thresholds:

- $250,000 threshold for all nominated pass through events;
- $250,000 threshold for all events defined in the NER; and
- $1 million threshold for any event that meets the '*general cost pass through'* event definition.

In the case of the first two categories, the full amount of the event should be able to be passed through, as these events are clearly beyond the control of the business, and the business has virtually no ability to mitigate the impact of such events. As demonstrated by the analysis presented in Table 13.2 above, the $250,000 threshold proposed by SP AusNet is a soundly based estimate of the administrative costs of assessing and implementing these types of pass through applications.

In relation to the general cost pass through threshold, SP AusNet considers that compared to the 1% of revenue threshold applied in NSW, a $1 million materiality threshold, in combination with an approach under which only the costs above the threshold can be recovered, provides an outcome that is much more consistent with the requirements of the NEL and the NER, for the following reasons:

- the incremental cost approach provides a continuous incentive for a business to efficiently manage the costs of events under the threshold, therefore leading to the most efficient outcomes;
- the approach still provides a significant incentive for businesses to manage their responses to any event, which in turn maintains the integrity and effectiveness of incentives under the cost pass through mechanism, notwithstanding the restrictive definition applicable under the mechanism; and
- the approach provides businesses with a reasonable opportunity to recover at least the efficient costs it incurs, as required under section 7A of the NEL.

13.5 Application of Pass Through to Direct Control and Alternative Control Services

Page 56 of the Framework and Approach (Preliminary Positions) Paper published by the AER in December 2008 states that:

> *"The control mechanism must have a basis specified in the distribution determination. This may, but need not, utilise elements of Part C of Chapter 6 of the NER with or without modification. For example, the control mechanism may (but need not) use a building block approach, and may (but need not) incorporate a pass-through mechanism".*

In addition, in the 2009 NSW Final Decision, the AER states that:

> *"The AER considers that it is appropriate to apply the pass through provisions of the transitional Chapter 6 rules to alternative control services, as all direct control services are subject to the distribution determination. Therefore, the events that are nominated in this decision will apply to all direct control services" (page 282).*

SP AusNet agrees with the AER's approach as outlined in the 2009 NSW Final Decision, that is, that SP AusNet's nominated events should apply to all direct control services, namely standard control services and alternative control services. In particular, SP AusNet notes that the costs of providing alternative control services are also exposed to the pass through events described in this chapter.

14 Revenue Requirement

This chapter details the calculation of SP AusNet's annual revenue requirement in accordance with the building block approach outlined in the NER and the AER's PTRM. A summary of the building block components, the unsmoothed and smoothed revenue for each year of the forthcoming regulatory control period is presented.

The remainder of this chapter is structured as follows:

- Section 14.1 summarises SP AusNet's revenue requirement;
- Section 14.2 summarises the key provisions of the NER relating to the establishment of the annual revenue requirement for each year of the forthcoming regulatory control period;
- Section 14.3 presents a summary of each component of the revenue building blocks (which are established in detail in the preceding chapters of this Proposal);
- Section 14.4 details the calculated unsmoothed annual revenue requirement resulting from the building block components;
- Section 14.5 presents SP AusNet's proposed smoothed revenue requirement for each year of the forthcoming regulatory period, including a description of the X factors adopted; and
- Section 14.6 discusses the revenue requirement adjustments that may occur in the forthcoming regulatory control period.

14.1 Summary of Revenue Requirement

The following table summarises SP AusNet's revenue requirements, based on the detailed inputs described and calculated in other chapters of this Proposal.

Table 14.1: Revenue Requirement – Smoothed and Unsmoothed

(Nominal $M)	2011	2012	2013	2014	2015
Unsmoothed Revenue Requirement	525.2	476.3	541.9	591.2	615.5
Smoothed Revenue Requirement	**516.3**	**517.4**	**527.2**	**566.2**	**618.6**

Both the unsmoothed and smoothed revenue requirements provide SP AusNet with a net present value amount of $2018 million.

14.2 Regulatory Requirements

The key regulatory requirements that are relevant to this chapter are sections 6.4.3 and 6.5.9 of the NER. Section 6.4.3 of the NER states the following:

> *"(a) Building blocks generally*
>
> *The annual revenue requirement for a Distribution Network Service Provider for each regulatory year of a regulatory control period must be determined using a building block approach, under which the building blocks are:*
>
> *indexation of the RAB– see paragraph (b)(1); and*
>
> *a return on capital for that year – see paragraph (b)(2); and*
>
> *the depreciation for that year – see paragraph (b)(3); and*
>
> *the estimated cost of corporate income tax of the provider for that year – see paragraph (b)(4); and*
>
> *the revenue increments or decrements (if any) for that year arising from the application of the efficiency benefit sharing scheme, the service target performance incentive scheme and the demand management incentive scheme – see paragraph (b)(5); and*
>
> *the other revenue increments or decrements (if any) for that year arising from the application of a control mechanism in the previous regulatory control period – see paragraph (b)(6); and*
>
> *the forecast operating expenditure for that year – see paragraph (b)(7)."*

Section 6.5.9 of the NER states that:

> *"(a) A building block determination is to include the X factor for each control mechanism for each regulatory year of the regulatory control period.*
>
> *(b) The X factor:*
>
> > *- must be set by the AER with regard to the Distribution Network Service Provider's total revenue requirement for the regulatory control period; and*
> >
> > *- must be such as to minimise, as far as reasonably possible, variance between expected revenue for the last regulatory year of the regulatory control period and the annual revenue requirement for that last regulatory year; and*
> >
> > *- must conform with whichever of the following requirements is applicable:*
> >
> > *(i) if the control mechanism relates generally to standard control services – the X factor must be designed to equalise (in terms of net present value) the revenue to be earned by the Distribution Network Service Provider from the provision of standard control services over the regulatory control period with the provider's total revenue requirement for the regulatory control period;*

(ii) if there are separate control mechanisms for different standard control services – the X factor for each control mechanism must be designed to equalise (in terms of net present value) the revenue to be earned by the Distribution Network Service Provider from the provision of standard control services to which the control mechanism relates over the regulatory control period with the portion of the provider's total revenue requirement for the regulatory control period attributable to those services.

(c) There may be different X factors:

(1) for different regulatory years of the regulatory control period; and

(2) if there are 2 or more control mechanisms – for each control mechanism."

The following sections provide an overview of each of the building block components of SP AusNet's annual revenue requirements. Information relating to the calculation of SP AusNet's proposed X factor is also provided, along with information to demonstrate that the proposed X factor has been determined in accordance with the relevant provisions of the NER.

For further information on the detailed assumptions and calculations underpinning each building block component, including information demonstrating SP AusNet's compliance with the relevant NER requirements, please refer to the chapter of this Proposal specifically pertaining to that building block component.

14.3 Building Block Components

The building block components and their calculated values are described in the sections below.

14.3.1 Regulatory Asset Base

SP AusNet's RAB has been calculated in accordance with the requirements of Clause 6.4.3(1) and Schedule 6.2 of the NER. It reflects the capex forecasts set out in Chapter 6 of this Proposal. The table below sets out a summary of the derivation of SP AusNet's RAB for the forthcoming regulatory control period.

Table 14.2: Regulatory Asset Base for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Opening RAB	2107.3	2293.1	2554.2	2788.6	3030.1
Net capex	281.7	323.8	304.5	316.0	299.6
Economic Depreciation	-95.9	-62.6	-70.1	-74.6	-64.9
Closing RAB	2293.1	2554.2	2788.6	3030.1	3264.7

14.3.2 Return on Capital

Consistent with the requirements of Clause 6.4.3(2) of the NER, and in accordance with the AER's PTRM, the return on capital is calculated by applying the post tax nominal vanilla WACC to the RAB for each year of the regulatory control period. The table below illustrates the calculation of the return on capital building block. The WACC used in this calculation was determined in accordance with the provisions set out in Clause 6.5.2 of the NER, and the SORI published by the AER on 1 May 2009. Full details of the WACC calculation are set out in Chapter 12 of this Proposal.

Table 14.3: Return on Capital for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
RAB	2107.3	2293.1	2554.2	2788.6	3030.1
Return on Capital	228.8	249.0	277.4	302.8	329.0

14.3.3 Depreciation

The calculation of regulatory depreciation was carried out in accordance with the AER's PTRM and Clause 6.5.5 of the NER, and is detailed in Chapter 11 of this Proposal. Consistent with the requirements of Clause 6.4.3(3) of the NER, SP AusNet has incorporated an allowance for depreciation in its building block revenue requirement. The table below lists the regulatory depreciation building blocks for each year of the forthcoming regulatory control period.

Table 14.4: Depreciation for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Nominal Depreciation	146.5	117.7	131.4	141.5	137.6
Less Indexation	-50.6	-55.0	-61.3	-66.9	-72.7
Economic Depreciation	**95.9**	**62.6**	**70.1**	**74.6**	**64.9**

14.3.4 Benchmark Tax Liability

Consistent with the requirements of Clause 6.4.3(4) of the NER, SP AusNet has incorporated an allowance for its benchmark tax liability into its building block allowance. The detailed calculation of the cost of tax was presented in Chapter 12 of this Proposal. The cost of tax calculation accords with the requirements of Clause 6.5.3 of the NER, and is summarised in the table below.

Table 14.5: Benchmark Tax Liability for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Tax Payable	27.8	7.3	13.8	18.8	22.5
Less Value of Imputation Credits	-13.9	-3.6	-6.9	-9.4	-11.3
Benchmark Tax Liability	**13.9**	**3.6**	**6.9**	**9.4**	**11.3**

14.3.5 Revenue Associated with Incentive Schemes

Consistent with the requirements of Clause 6.4.3(5), SP AusNet has incorporated the amounts that have been determined under the efficiency carryover mechanism, the S factor scheme and its demand management innovation allowance, into its building block allowance. The detailed calculation of each of these building blocks was undertaken in accordance with all applicable provisions of the NER, as explained in the relevant chapters of this Proposal. The building block costs are listed in the table below.

Table 14.6: EBSS, STPIS and DMIA for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Efficiency Carryover	14.1	-23.1	-5.3	2.3	0.0
S factor carryover		2.3	2.3	2.4	2.4
DMIA	0.6	0.6	0.6	0.7	0.7
Total Revenue Increment (decrement)	14.7	-20.2	-2.4	5.4	3.1

Note: the SPA PTRM reallocates the DMIA andS Factor payout from Opex to Incentive Schemes but they areaddressed in the opex chapter of the proposal.

14.3.6 Operating Expenditure

Consistent with the requirements of 6.4.3(6) of the NER, SP AusNet has included an allowance for operating expenditure in its building block allowance. As explained in Chapter 7 of this Proposal, the forecast operating expenditure has been prepared in accordance with all applicable requirements of the NER and the RIN. The operating expenditure forecast, excluding the amounts shown in the table above is summarised in the table below.

Table 14.7: Operating Expenditure for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Operating Expenditure	171.8	181.2	189.9	199.1	207.2

Note: the SPA PTRM reallocates the DMIA andS Factor payout from Opex to Incentive Schemes but they areaddressed in the opex chapter of the proposal.

14.4 Unsmoothed Annual Revenue Requirement

The unsmoothed annual revenue requirement for each year of the forthcoming regulatory control period is calculated as the sum of the building block components described above. The addition of these building block components is depicted in the table below.

Table 14.8: Unsmoothed Annual Revenue Requirements for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Return on Capital	228.8	249.0	277.4	302.8	329.0
Depreciation	95.9	62.6	70.1	74.6	64.9
Operating and Maintenance Expenditure	171.8	181.2	189.9	199.1	207.2
Incentive schemes*	14.7	-20.2	-2.4	5.4	3.1
Benchmark Tax Liability	13.9	3.6	6.9	9.4	11.3
Unsmoothed Revenue Requirement	**525.2**	**476.3**	**541.9**	**591.2**	**615.5**

Note: the SPA PTRM reallocates the DMIA andS Factor payout from Opex to Incentive Schemes but they areaddressed in the opex chapter of the proposal.

14.5 Smoothed Annual Revenue Requirement

SP AusNet has calculated a smoothed revenue requirement by applying an X factor for each year of the forthcoming regulatory control period as described in the sections below.

14.5.1 X-Factor

The proposed X factor presented in the table below meet the requirements set out in Clause 6.5.9 of the NER. In particular, SP AusNet has set the X factor so that it:

- minimises the variance between the annual revenue requirement in the final year of the forthcoming regulatory control period and the building block revenue requirement for that year; and
- equalises, in net present value terms, SP AusNet's total revenue requirement for the forthcoming regulatory control period with the expected smoothed revenue requirement.

The table below presents SP AusNet's proposed X factor for the forthcoming regulatory control period.

Table 14.9: SP AusNet's proposed X-Factor for the Forthcoming Regulatory Control Period

%	2011	2012	2013	2014	2015
X-Factor	-46.25%	-5.5%	-5.5%	-5.5%	-5.5%

14.5.2 Smoothed Annual Revenue Requirement

The application of SP AusNet's proposed X factor in conjunction with SP AusNet's 'Unsmoothed Revenue Requirement' produces the following 'Smoothed Revenue Requirement'.

Table 14.10: Smoothed Revenue Requirement for the Forthcoming Regulatory Control Period

(Nominal $M)	2011	2012	2013	2014	2015
Smoothed Revenue Requirement	516.3	517.4	527.2	566.2	618.6

The expected 'smoothed' revenue in the final year of the forthcoming regulatory control period is close to the unsmoothed revenue requirement for the same year (see Table 14.8), in accordance with the requirements of Clause 6.5.9(b)(2). Furthermore, the AER's PTRM attached to this Proposal demonstrates that the smoothed and unsmoothed revenue requirements are equal in net present value terms in accordance with the requirements of Clause 6.5.9(b)(2) of the NER. The smoothed revenue for each year is also net of estimated non tariff revenue from alternative control services.

14.6 Revenue Requirement Adjustment in Forthcoming Regulatory Period

The revenue requirement set out in this chapter will be subject to adjustments in accordance with the control mechanism (set out in Chapter 15) to account for:

- The actual CPI, in accordance with the provisions set out in Clause 6.2.6(a) of the NER;
- SP AusNet's actual service standard performance, relative to its service standard targets, under the Service Target Performance Incentive Scheme; and
- Any deemed cost pass though event, as nominated in Chapter 13 of this Proposal along with those pass through events specified in Cause 6.6.1 of the NER.

15 Tariffs for Standard Control Services

This chapter outlines in detail SP AusNet's proposed tariffs for direct control services that will apply for the forthcoming regulatory control period.

The remainder of this chapter is structured as follows:

- Section 15.1 summarises the key outputs from this chapter;
- Section 15.2 outlines the relevant regulatory requirements;
- Section 15.3 confirms the 'Form of Price Control' that will apply to SP AusNet's standard control services;
- Section 15.4 outlines SP AusNet's indicative prices for standard control services for the next regulatory period, and two tariffs initiatives that should encourage off-peak usage and improvements in energy efficiency;
- Section 15.5 summaries the principles that SP AusNet proposes to adopt when assigning customers to tariff classes, and re-assigning customers from one tariff class to another; and
- Section 15.6 outlines how SP AusNet proposes to recover transmission charges through distribution network tariffs.

15.1 Summary of Chapter

This chapter explains and justifies the following proposals in relation to price control and tariffs:

- SP AusNet supports the AER's decision to adopt a weighted average price cap form of price control to apply to direct control services;
- SP AusNet proposes introducing a new Time of Use tariff for residential and small commercial customers, to coincide with the roll-out of AMI meters and a 'Critical Peak Demand Price' for customers consuming more than 160 MWh per annum;
- all residential and small commercial customers will be transferred to a Time of Use network tariff on the installation and conversion to a remotely read interval meter;
- all customers consuming more than 160 MWh will be converted to an applicable 'Critical Peak Demand Price' from 1 January 2011; and
- SP AusNet proposes to apply the existing network tariff price control formula (specified in the 2006 EDPR Determination) to govern the pass through of transmission charges in distribution network tariffs. This arrangement would be consistent with the apparent intent of the transmission cost recovery provisions contained in Clause 6.18.7 of the NER. Furthermore, SP AusNet proposes to utilise the annual Pricing Proposal process to validate the calculations relating to the pass-through of transmission charges, and to seek the AER's approval of this calculation, including aspects of the calculation relating to the treatment of transmission charges that may have been over or under recovered in previous years.

15.2 Regulatory Requirements

The following NER requirements are relevant to this chapter:

- Clause 6.12.1(11) – which requires the AER to make a decision on the control mechanism (including the X factor) for standard control services (which is to be in accordance with the relevant Framework and Approach Paper);
- Clause 6.8.2(c)(4) – which requires a regulatory proposal to set out for direct control services, indicative prices for each year of the regulatory control period;
- Clause 6.12.1(17) – which requires the AER to make a distribution determination that includes a decision on the procedures for assigning customers to tariff classes, or reassigning customers from one tariff class to another (including any applicable restrictions); and
- Clause 6.12.1(19) - which requires the AER to make a distribution determination that includes a decision on how the Distribution Network Service Provider is to report to the AER on its recovery of Transmission Use of System charges for each regulatory year of the regulatory control period and on the adjustments to be made to subsequent pricing proposals to account for over or under recovery of those charges.

15.3 Form of Price Control Mechanism for Standard Control Services

Clauses 6.2.5(a) and 6.2.5(c) of the NER provide for a distribution determination to impose a control on the price of, and/or revenue derived from, direct control services. These clauses also stipulate the criteria that the AER must have regard to when deciding upon which Price Control Mechanism should be adopted.

Clause 6.12.1(11) binds the AER and DNSPs to use the form of price control outlined in the AER's Framework and Approach Paper during this distribution determination.

The AER, in their Final Framework and Approach Paper, stated that[125]:

> *"The AER has decided that the:*
>
> *Form of control applied by the ESCV to prescribed distribution services in the current regulatory control period is available under the NER for standard control services in the next regulatory control period. On this basis, the AER will apply a weighted average price cap to these services."*

A summary of the AER's formula is as follows[126]:

[125] AER – Final Framework and Approach – page 4.

[126] Framework and Approach Paper – pg 75 .

$$\frac{\sum_{i=1}^{n}\sum_{j=1}^{m} p_t^{ij} \times q_{t-2}^{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-1}^{ij} \times q_{t-2}^{ij}} \le (1+CPI_t)\times(1-X_t)\times(1+S_t)\times(1+L_t)$$

where:

- CPI is as specified in the NER
- X is to be determined using the building block approach
- S is any adjustment required consequent to the operation of the STPIS, and
- L is the licence fee pass through adjustment.

Source: AER's Final Framework and Approach Paper

SP AusNet supports the application to standard control services of a weighted average price cap form of price control in the above form.

15.4 Indicative Prices

The following table outlines SP AusNet's indicative tariffs for its standard control services for the forthcoming regulatory control period.

Table 15.1: SP AusNet's Indicative Distribution Tariffs

Key Residential and Small Commercial Tariffs	Standing Charge ($ per customer pa)	Peak Energy and Summer Peak (c/KWh) BLK 1	Peak Energy (c/KWh) BLK 2 shoulder and summer shoulder	Peak Energy Winter (c/KWh) BLK 1	Off Peak Energy and Winter Off Peak (c/kWh) BLK 1	Off Peak Energy Summer (c/kWh) BLK 2
NEE11 - Small single rate	8	8	9	0	0	0
NSP11 - Small Residential interval meter time of use	8	42	36	34	3	3

Key Residential and Small Commercial Tariffs	Standing Charge ($ per customer pa)	Peak Energy and Summer Peak (c/KWh) BLK 1	Peak Energy (c/KWh) BLK 2 shoulder and summer shoulder	Peak Energy Winter (c/KWh) BLK 1	Off Peak Energy and Winter Off Peak (c/kWh) BLK 1	Off Peak Energy Summer (c/kWh) BLK 2
NEE12 - Small business single rate	8	11	11	0	0	0
NSP12 - Small Business interval meter time of use	84	42	36	34	4	4
NEE20 - Small two rate	24	14	0	0	2	0
NSP20 - Residential interval meter time of use	8	42	36	34	3	3
NEE21 - Small business two rate	25	14	0	0	5	0
NSP21 - Business interval meter time of use	84	42	36	34	4	4

Table 15.2 – Indicative Prices for key Non Residential Tariff in 2011 ($2010)

Key Non Residential Tariffs	Standing Charge ($ per customer per year)	Peak Energy and Summer Peak (c/KWh) BLK 1	Peak Energy (c/KWh) BLK 2 shoulder and summer shoulder	Off Peak Energy and Winter Off Peak (c/kWh) BLK 1	Peak Demand ($/kVa) BLK 1
NEE56 - Medium demand multi-rate	1,857	9	7	4	135
NEE60 - Medium two rate 7 day	110	15	0	8	0
NEE71 - LV Large <750 kVA	3,679	5	0	4	150
NEE72 - LV Large > 750 kVA	3,679	4	0	2	150
NEE74 - Large two rate 5 day	127	16	0	4	0
NEE75 - Large multi-rate <750 kVA	3,679	4	4	3	143
NEE76 - Large multi-rate >750 kVA	3,679	3	3	3	143
NEE77 - Large multi-rate >2000 MWh	3,679	2	2	2	143

Indicative prices for each of SP AusNet's proposed tariffs for each year of the forthcoming regulatory control period are outlined in both the PTRM model and RIN Template (9.5).

It should be noted that the indicative tariff levels incorporate two key chages to its existing suite of tariffs, namely:

- a Time of Use tariff for residential and small commercial customers from 2010; and
- the introduction of a 'Critical Peak Demand Price' to replace SP AusNet's current 'anytime' demand tariff, for Large LV, HV and Sub transmission customers, from 2011.

SP AusNet notes that these two tariff changes are aimed at encouraging more efficient use of energy, particularly at peak times. SP AusNet has included estimates of the impact of its proposed tariff changes in its demand and energy forecasts, based on the indicative prices outlined in the above table. These energy and demand forecasts have also been factored into SP AusNet's capital and operating expenditure forecasts. The detailed impacts on demand and energy forecasts arising from these tariff changes are described in Chapter 5 of this Proposal.

15.4.1 Time of Use Tariff

As outlined in the most recent Tariff Report submitted by SP AusNet to the AER, SP AusNet is proposing to introduce a Time of Use Tariff for residential and small commercial customers from 2010.

The following table outlines SP AusNet's proposed tariff structure in detail.

Table 15.2: SP AusNet's Proposed Time of Use Tariff

LV Tariffs (<160 MWh)	
Tariff Component	**Proposed Tariff**
Summer Peak Demand Period	2pm-6pm weekdays between December and March, with the price broadly based on an estimate of SP AusNet's long run marginal cost (LRMC) of supply.
Summer Shoulder Period	The 'shoulder' period consumption will be based on energy consumed between 12pm-2pm and 6pm-8pm weekdays between December and March, with the price being broadly based on a ratio of average utilisation during this period on peak demand days (eg: around 85%) multiplied by the summer peak demand charge.
Winter Peak Demand Period	4pm-8pm weekdays in Winter (June-August), with the price being broadly reflective of the ratio of winter peak day demand to summer peak day demand multiplied by the summer peak demand charge.
Off Peak Charge	An off-peak charge will be applied to all other usage.
Standing Charge	A different standing charge will be maintained between different groups of customers (eg: residential and small commercial) to

LV Tariffs (<160 MWh)	
Tariff Component	**Proposed Tariff**
	ensure overall revenue is retained within upper and lower bounds.

From an allocative efficiency perspective, theoretically, a more efficient marginal price signal would involve it sending a variable price signal that targets demand (as opposed to energy) on certain critical peak demand days, and which varies by a customers' location.

The former is a reflection of the fact that demand which occurs during a certain small number of peak periods is the primary driver of network augmentation, whilst the latter is a reflection of the fact that different parts of the system will have different existing levels of 'spare capacity', different growth rates in peak demand, and different forward looking augmentation costs, all of which lead to the long run marginal cost of supply differing between different regions. Therefore, any cost reflective variable price signal should, in theory, reflect these different location-based characteristics.

Whilst sound in theory, SP AusNet is not proposing at this time to introduce such a tariff, as it believes that:

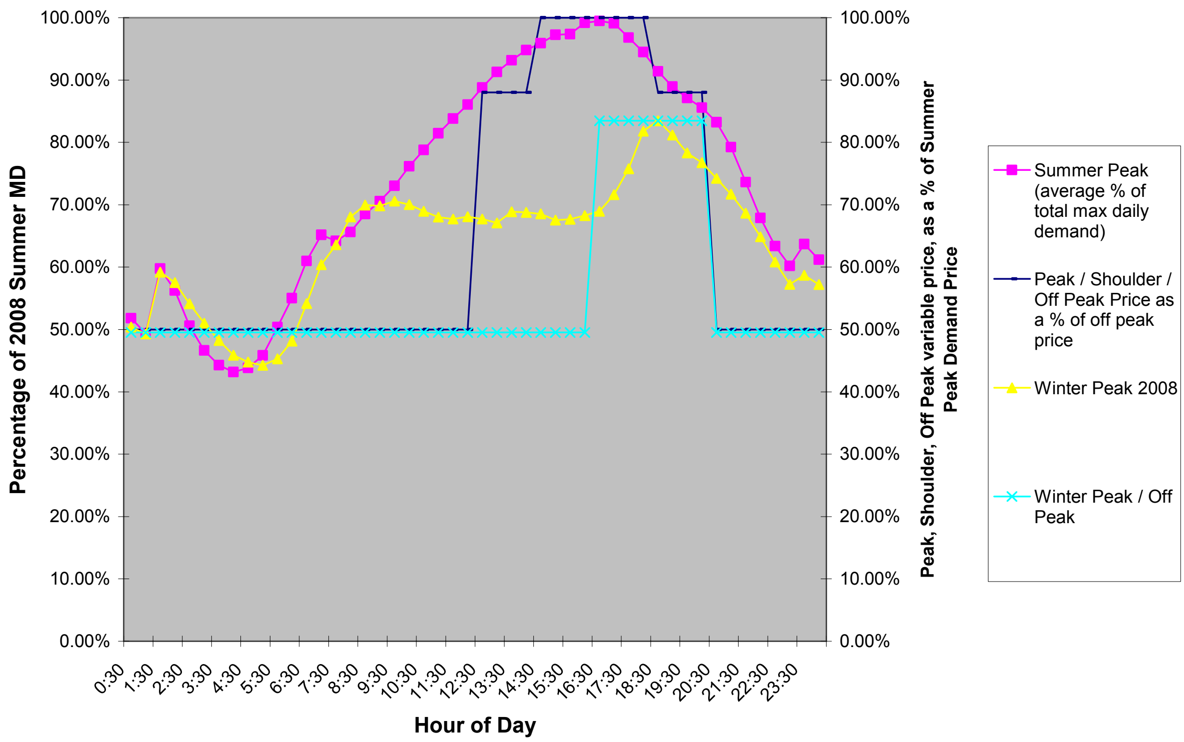
- residential and small commercial customers are more likely to better understand and therefore respond to energy charges as opposed to demand based charges[127];
- there is likely to be a nexus between a customer's maximum energy and their demand (eg: a customer that has a high maximum demand during peak periods is also likely to have high energy consumption during those periods), and therefore the overall allocation of costs to different customers should be fair, despite the absence of a demand-based charge for this customer group;
- an energy based tariff is more consistent with the Government's Carbon Pollution Reduction Scheme, which is seeking to incentivise customers to reduce their overall energy consumption, as opposed to just their demand at certain peak periods; and
- disaggregating charges by location for this customer class is inconsistent with current implied definitions of equity and fairness.

SP AusNet's proposed energy based Time of Use tariff is designed to best reflect the system utilisation during peak periods, without having to disaggregate that price signal by either peak day demand, or by location.

The following figure diagrammatically illustrates how SP AusNet's proposed Time of Use tariff will vary across the time of day, relative to its peak summer and winter day utilisation.

[127] It is noted that in discussions with retailers on this proposed tariff structure, Retailers supported the focus on energy as opposed to demand.

Figure 15.1: Time of Use Tariff and System Utilisation



As can be seen from the above graph, the time of use tariff is broadly designed to mimic system utilisation, with times of high system utilisation being reflected in higher prices, whereas times of lower system utilisation are reflected in lower prices.

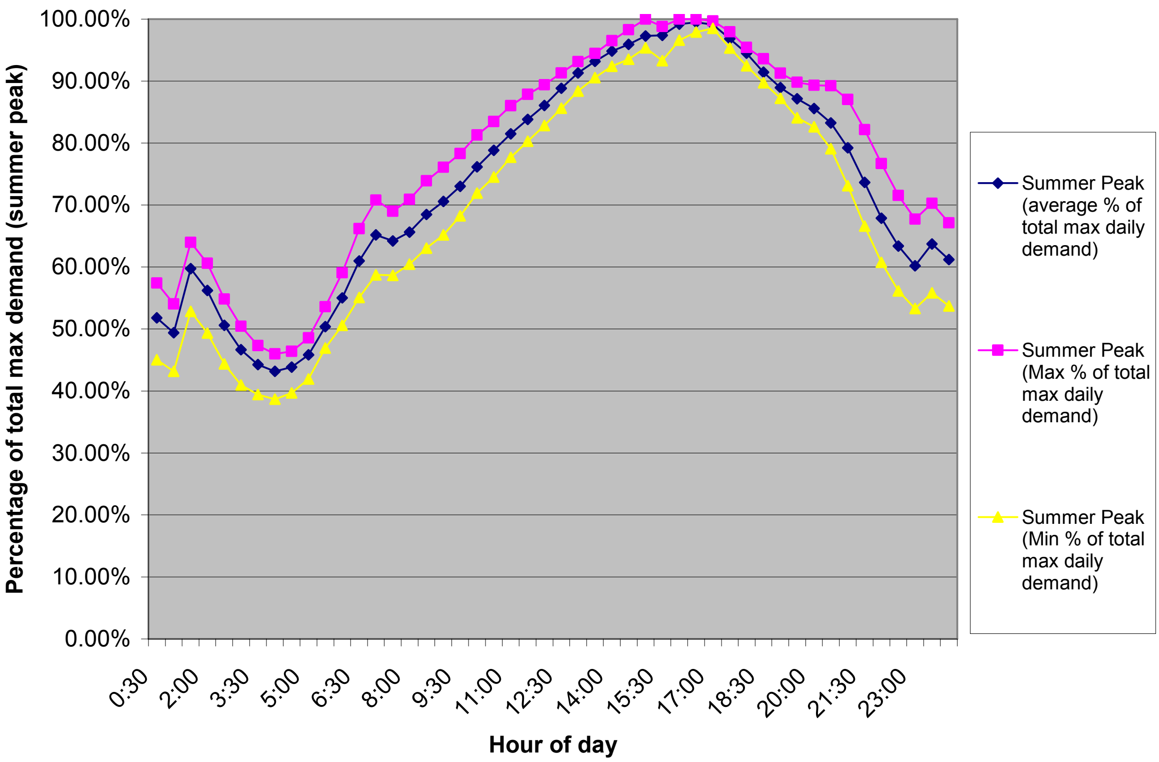
The two key components underpinning the tariff are the summer system utilisation and winter system utilisation. These are outlined in more detail below.

Summer System Utilisation

The 'Summer Peak Demand' line in the graph above depicts the Summer Peak Day Utilisation in 2008. It does this by graphing the demand at each half hour of the day, as a proportion of the overall maximum demand reached on that day. For example, at 7 am on the 2008 maximum day, demand was only 60% of the total maximum demand that was reached on that day, whilst at 3 pm, demand reached 95.36% of the maximum demand that was reached that day. What this shows is that during the 2008 maximum peak demand day, there is a clear peak in the mid afternoon - at around 4.30 pm - and that demand was at least 90% of this overall peak demand for around 3 hours either side of this peak demand. Outside of this period, demand was below 90% of the overall peak demand and the further away from this peak demand period, the lower the overall percentage of the peak demand is consumed.

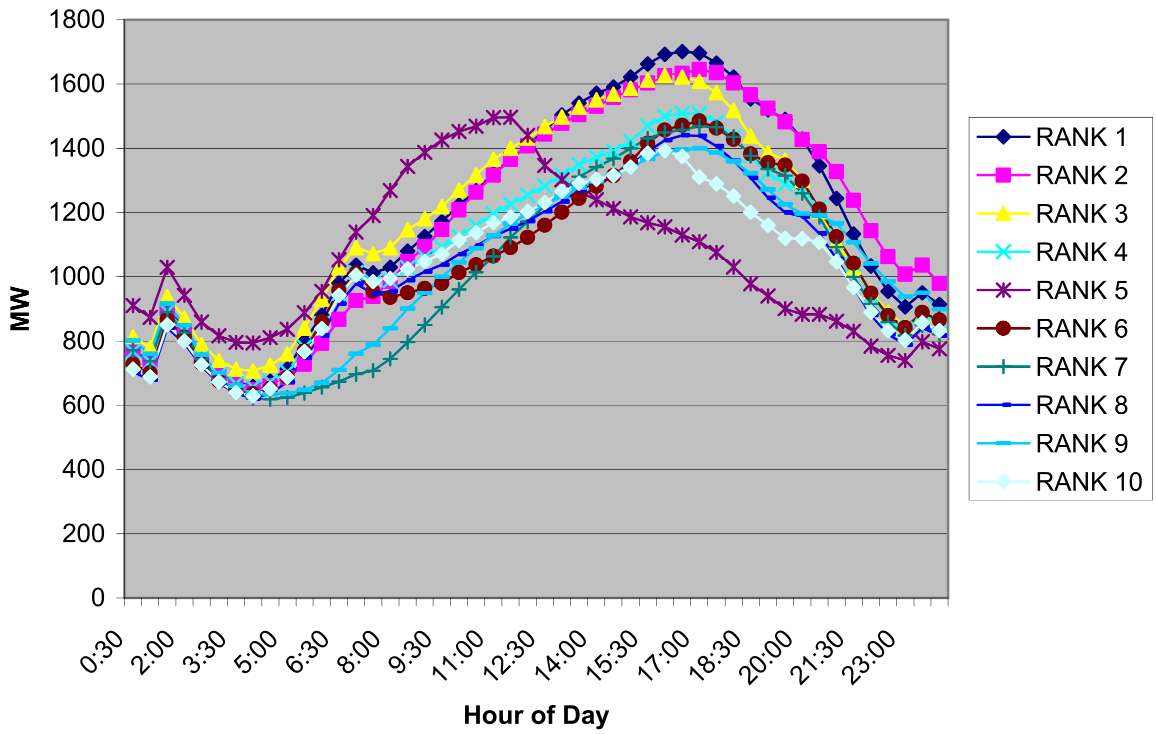
It is noted that this profile of demand is not only consistent across years, but also, consistent on other summer days when utilisation is high. The former is illustrated in the figure below, which, for the last 5 peak summer days (2003-2008), graphs the average, maximum and minimum demand as a percentage of the overall peak day demand recorded on that day. As can be seen, the profile of consumption, even when looking at the extremes (maximum / minimum), is very consistent across years.

Figure 15.2: Average, Maximum and Minimum Utilisation for the last 5 Peak Summer Days



This profile is similar across the top 10 peak summer days.

Figure 15.3: Top 10 Summer Days – 2008



Interestingly, the 5th ranked day has a materially different profile to other 'peak days', with a peak in the morning and a gradual reduction in usage across the remainder of the day. This is due to the following reasons:

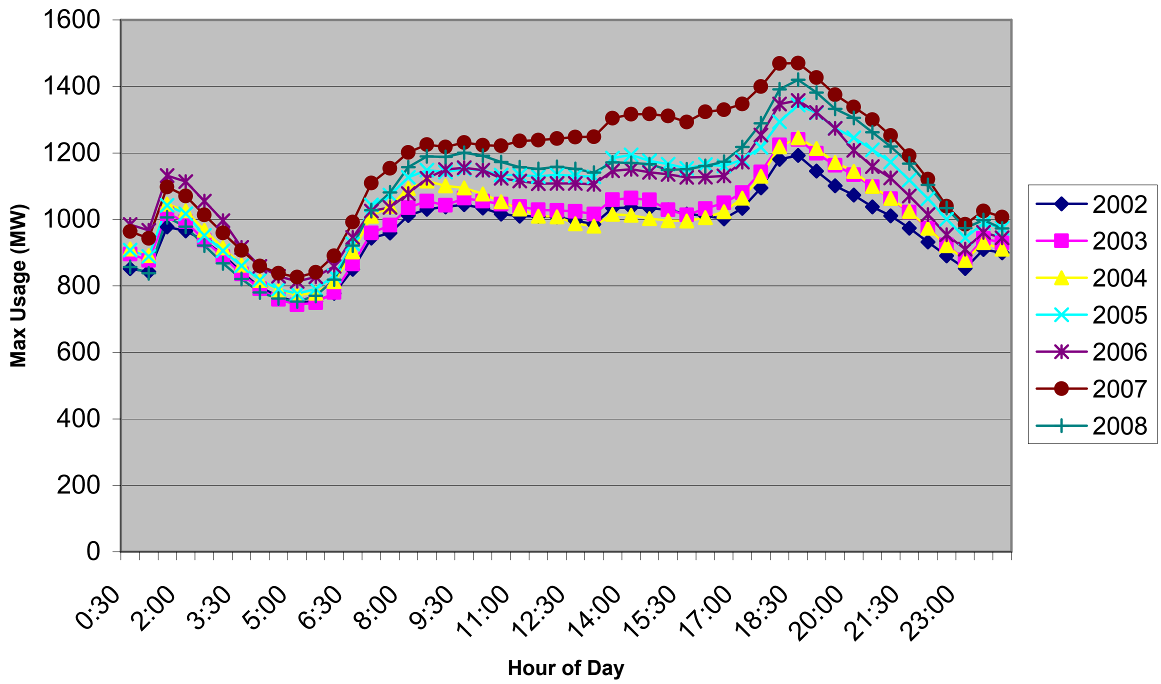
- a record high overnight temperature (the minimum for this day was 23.6 degrees, the day after the hottest day of the year);
- a very high maximum temperature of 37.3 degrees occurred relatively early in the day; and
- there was a significant reduction in temperature after 11.30 am (it was only 24.2 degrees in Melbourne at 3 pm).

This illustrates the impact that temperature has on demand, and moreover, the impact on demand from having successive hot days, with demand at 10.30 am being around 200 MW greater than the previous maximum recorded that year.

Winter System Utilisation

As shown previously in Figure 15.1, the 'Winter Peak 2008' utilisation has been used to support the development of a winter peak energy price. It is noted that the 2008 Winter Peak Energy profile contained in that graph is consistent with historic data. In particular, the winter peak virtually always occurs around 6 pm, whilst there is always a significant ramp up and ramp down in demand two hours either side of this time period.

Figure 15.4: Historical Winter Peak Day Demand Profile



Rationale for Time of Use Periods

SP AusNet has used the above data, along with other relevant data including historical temperatures, to design its Time of Use tariff. The following table summarises the rationale supporting each of SP AusNet's Time of Use tariff components.

Table 15.3: SP AusNet's Rationale for its Time of Use Periods

LV Tariffs (<160MWh)	
Tariff Component	**Proposed Tariff**
Summer Peak Period (2 pm-6 pm)	As illustrated in Figures 15.1 to 15.3, demand on the system averages ~95% of the Maximum Demand on the system peak day, therefore, SP AusNet considers there to be a high probability that the system could peak at anytime within this period; and SP AusNet assessed the benefits and risks associated with adopting a more constrained peak period (eg: 4pm-5pm). In conclusion, SP AusNet considered that adopting a more constrained peak period may lead customers to marginally shift consumption to just before or after this period resulting in the creation of a new peak.
Shoulder Period (12 pm-2 pm and 6 pm-8 pm weekdays between Dec and March)	Whilst the information contained in Figures 15.1 to 15.3 indicates that the defined shoulder period does not currently represent system MD (usage on average is between 85% and 95% of total MD), SP AusNet considered there to still be a significant probability that these periods could include the MD, particularly if the peak to shoulder price ratio is high; SP AusNet considers that the adoption of a shoulder period ensures consistency between the summer peak demand price and the shoulder and winter prices (as both of the latter prices are broadly based on their relative % of overall summer MD * the peak summer price); and SP AusNet considered that without a shoulder period, the peak demand period may have to be widened, which in turn mutes its cost reflectivity and the ability for customers to respond to the price signal.
Weekdays Only and inclusion of March period	The last 7 system peak day demand's occurred on a weekday, furthermore, conceptually, SP AusNet considered there to be a very low probability of its system peaking on a weekend due to the significant contribution made to overall demand by industrial and commercial customers, whose consumption is materially lower on weekends; The 2008 peak demand day occurred in March, whilst four of the top 10 peak summer days in 2008 occurred in March as well; and The average maximum temperature, which is a key driver of demand on the system, has, over the last 7 years, been broadly consistent between March and the 3 summer months (March average maximum temperature is 97% of the December average maximum temperature, and 90% of the January and February average maximum temperature).

LV Tariffs (<160MWh)	
Tariff Component	**Proposed Tariff**
Winter Peak Period (4pm-8pm weekdays in Winter)	SP AusNet considered it prudent to retain a Winter Peak Price signal, as the ratio of winter peak demand to summer peak demand is still relatively high – at around 84% in 2008 – which SP AusNet considers may result in there being a small probability that the overall system will peak in winter (eg: cold winter, mild summer); and The peak period time is different for the winter charge, relative to the summer charge, as winter peaks occur around 6pm (as opposed to 4.30pm in summer), with utilisation being very peaky 2 hours either side of this peak.
Off Peak period (all other usage)	SP AusNet considers that it is highly improbable that the distribution system will peak outside of these periods. For example: By 8pm in summer, a high proportion of commercial and industrial facilities are likely to be shut, therefore, without their load system peak will not occur; Air-conditioning usage will always be greater in the afternoon (post 12pm) compared to the morning on the peak day, with other usage remaining relatively constant; Usage outside of the defined winter peak period is low, when compared with overall system peak utilisation in winter (between 45%-70%), and moreover, it would be virtually impossible for a winter peak to occur in this period due to the drivers underpinning the peak period (eg: people coming home and turning on their heaters); and The extent of usage during periods where mild weather conditions prevail, such as those that occur in Spring and Autumn, is such that a system peak is unlikely to be reached.

Finally, SP AusNet has had particular regard to the Pricing Principles outlined in Clause 6.18.5 of the NER when developing its indicative tariff levels contained within this Proposal (although it is noted that Clause 6.18.5 applies to SP AusNet's Pricing Proposal, which must be lodged within 15 days of publication of the AER's distribution determination in relation to this Proposal). In particular:

- SP AusNet's variable energy prices (provided as indicative prices in this Proposal) are based on the outputs of its LRMC model, which uses the 'average incremental cost' approach to determine the LRMC by location and subtransmission, HV and LV networks;
- SP AusNet's indicative prices maintain existing revenue splits between customer classes, which ensures that tariff revenues are retained below existing upper bound limits for each customer class; and
- SP AusNet has considered the impact on end customers' ability to respond to the price signals. In particular, it has chosen not to adopt any form of demand tariff for smaller customers at this time, due to the likely complexity of such a tariff for this customer

segment. This was supported by a number of retailers during one-on-one briefing sessions to discuss SP AusNet's proposed distribution network tariffs. In addition, SP AusNet considers that the AMI rollout and other industry changes are already placing a significant information burden upon customers during the next regulatory period – the addition of a demand tariff will only add to this burden and lead to potential customer confusion.

15.4.2 Critical Peak Demand Tariff

Currently, SP AusNet levies an 'anytime' demand tariff upon customers consuming more than 160 MWh per year. This tariff is based on the maximum anytime demand recorded by that customer, and this demand is only re-set if the customer:

- records a higher maximum demand, thus leading to a higher KVA being used to set tariffs from that point forward, or
- seeks a demand adjustment to reflect their revised energy consumption characteristics.

The key drawback associated with the existing tariff structure is that a customer is charged a 'Demand' tariff on their peak 'demand', even though that demand may not be co-incident with SP AusNet's system peak. For example, demand at midnight on a Sunday night in May is charged the same 'Demand Charge' as if it occurred at 4 pm on the peak summer day.

From 2011, SP AusNet is proposing to introduce a 'Critical Peak Demand Price' for those customers that consume more than 160 MWh per year. The following table outlines the key components of this tariff.

Table 15.4: SP AusNet's Critical Peak Demand Tariff

<160MWh (large LV, HV and Sub-transmission customers)	
Tariff Component	**Proposed Tariff**
Demand Charge	The demand charge will be based on the average of customer's maximum kVA recorded on the 5 nominated peak demand weekdays during the Defined Critical Peak Demand Period.
Defined Critical Peak Demand Period	Days must be in summer (+ March), and the days will be nominated and communicated to customers at least one day in advance. The period only includes between 2pm-6pm on that nominated day. The 5 maximum's are averaged and used as the basis for the demand charge for the next 12 months.
Energy Charge	Similar to existing charges
Standing Charge	Similar to existing charges

The key reasons for replacing the current anytime demand tariff with this Critical Peak Demand Price are that it:

- better targets the demand that is causing system capacity constraints, as it focuses only on demand during peak times of the peak day;
- overcomes the current inequities whereby a customer is charged a 'demand' tariff on their peak 'demand', even though that demand is not contributing to the overall system peak, and therefore, is not contributing to SP AusNet's future augmentation costs;
- is likely to be easier for customers to respond to, compared to the current tariff. In particular, under the proposed tariff, customers can reduce their costs by reducing consumption at system peak times rather than requiring a permanent step-down in electricity consumption. This proposed tariff therefore provides more scope for customers to change their consumption in response to the price signal (eg: use of back up generation on those days, changed hours of operation on those days); and
- is linked to 'past' peak demand, therefore, reducing the administration costs associated with undertaking demand adjustments for existing customers (although this will be offset by the cost of communicating this new tariff to customers, the net effect having been included in this Proposal).

SP AusNet's preliminary position is that each nominated peak day will be communicated to customers and their respective retailers concurrently, at least one day in advance. In addition, SP AusNet is proposing to use a longer range weather forecast to flag with customers the possible nomination of a future day. This would not represent a firm commitment; rather, it would provide customers with advance notice of the possible nomination of a certain day, which in turn would allow them to make some preparations in advance. The final nomination would still occur at least 1 day prior to the nominated day. SP AusNet notes that this 'advance communication' stems from a suggestion that was made by a retailer during a one-on-one retailer forum that SP AusNet held with all key retailers to discuss its proposed new tariffs.

Lastly, SP AusNet's preliminary position is that it would communicate this nominated day via SMS and email. The costs associated with facilitating this communication have been included in SP AusNet's operating expenditure forecasts, contained within this Proposal.

15.5 Tariff Reassignment

15.5.1 Regulatory Requirements

Clause 6.12.1(17) requires that the AER make the following decision as part of its distribution determination:

> *"a decision on the procedures for assigning customers to tariff classes, or reassigning customers from one tariff class to another (including any applicable restrictions)"*

Moreover, Clause 6.18.4 of the NER states that:

> *"(a) In formulating provisions of a distribution determination governing the assignment of customers to tariff classes or the re-assignment of customers from one tariff class to another, the AER must have regard to the following principles:*

(1) customers should be assigned to tariff classes on the basis of one or more of the following factors:

(i) the nature and extent of their usage;

(ii) the nature of their connection to the network;

(iii) whether remotely-read interval metering or other similar metering technology has been installed at the customer's premises as a result of a regulatory obligation or requirement;

(2) customers with a similar connection and usage profile should be treated on an equal basis;

(3) however, customers with micro-generation facilities should be treated no less favourably than customers without such facilities but with a similar load profile;

(4) a Distribution Network Service Provider's decision to assign a customer to a particular tariff class, or to re-assign a customer from one tariff class to another should be subject to an effective system of assessment and review."

The remainder of this section outlines how SP AusNet has complied with these principles.

15.5.2 Assigning and Re-assigning Customers to a Tariff Class

Having regard to the requirements of Clause 6.12.1(17) and Clause 6.18.4 of the NER, this section outlines SP AusNet's position on:

- defining tariff classes for all residential and small commercial customers in existence as at the commencement of the forthcoming regulatory period;
- defining how existing customers (as at January 2011) with usage >160 MWh are re-assigned to a new 'Critical Peak Demand Price';
- defining how existing residential and small commercial customers (as at January 2011) will be re-assigned to a new Time of Use tariff during the forthcoming regulatory period;
- defining how new customers will be assigned to tariffs; and
- the process for implementing New Tariffs for an Existing Tariff Class.

Defining tariff classes for all residential and small commercial customers in existence as at the commencement of the forthcoming regulatory period

Each customer who was a customer of SP AusNet immediately prior to 1 January 2011, and who continues to be a customer of SP AusNet as at 1 January 2011, will be taken to be "assigned" to the tariff class that SP AusNet was charging that customer immediately prior to 1 January 2011, except where SP AusNet can reasonably show that the 'extent of a customer's usage' is likely to be greater than 160 MWh per annum.

Defining how existing customers (as at January 2011) with usage >160 MWh are re-assigned to a new 'Critical Peak Demand Price' from 1 January 2011

Where SP AusNet deems that the extent of a customer's usage is >160 MWh, as at 1 January 2011, SP AusNet will reassign that customer to a new Critical Peak Demand Price. In determining which 'Critical Peak Demand Price' a customer will be allocated to, SP AusNet will have regard to the following criteria:

- Grouping customers together into 'tariff classes' to 'reduce transaction costs' and 'on an economically efficient basis', with the latter being a function of the ability for the 'charging parameters' of that 'tariff class' to be broadly cost reflective to all of the customers grouped within that tariff class ('allocative efficiency'); and
- Having regard for the nature of their connection to the network, in particular, whether they are connected to the Sub transmission, High Voltage or Low Voltage Network and the extent of their usage, as measured in both MWh and KVA;

SP AusNet's current position is that all existing demand tariffs will be converted to a new 'Critical Peak Demand Price' on a one-for-one basis. Notwithstanding this, SP AusNet's final position will be outlined in its Pricing Proposal, consistent with the criteria outlined above.

Defining how existing residential and small commercial customers (as at January 2011) will be re-assigned to a new Time of Use tariff during the forthcoming regulatory period

Consistent with the requirements of the AER's Final Decision on Interval Meter Reassignment Requirements, SP AusNet will reassign an existing residential or small commercial customer from their existing tariff class to a new Time of Use tariff once both:

- an interval meter has been installed at that customer's premises; and
- that meter becomes a 'remotely read interval meter'.

In addition, the specific Time of Use tariff that that existing customer will be reassigned to will be assessed against Clause 6.18.4 of the NER, namely:

- the nature and extent of their usage;
- the nature of their connection to the network; and
- whether remotely-read interval metering or other similar metering technology has been installed at the customer's premises as a result of a regulatory obligation or requirement.

Lastly, customers with a similar connection and usage profile will be treated on an equal basis.

How new customers (after 2011) will be assigned to tariffs

Consistent with the requirements of Clause 6.18.4 of the NER, SP AusNet will allocate all new customers (after 2011) to a new tariff code based on:

- the nature and extent of their usage;
- the nature of their connection to the network; and
- whether remotely-read interval metering or other similar metering technology has been installed at the customer's premises as a result of a regulatory obligation or requirement.

Broadly, this will first involve an assessment of the size of the customer to determine whether the extent of their usage is greater or less than 160 MWh. Subsequent to this, a decision will be made as to the type of residential/small commercial tariff (if <160 MWh) or Critical Peak Demand Price (>160 MWh), depending on the specific connection and metering arrangements applicable to those customers.

The process for implementing New Tariffs

In developing any new tariffs – whether to apply to new customers, or whether to apply to existing customers - SP AusNet will comply with the requirements of Clause 6.18.4 of the NER, along with the rebalancing constraint outlined in the NER and its overall weighted average price cap, as determined in accordance with this determination. SP AusNet proposes to utilise the annual Pricing Proposal to illustrate its compliance to the AER with all relevant NER pertaining to the development of new distribution tariffs.

15.5.3 Assessment and Review Process

As stated previously, Clause 6.18.4 of the NER requires that:

> *'a Distribution Network Service Provider's decision to assign a customer to a particular tariff class, or to re-assign a customer from one tariff class to another should be subject to an effective system of assessment and review'*

In accordance with the above, SP AusNet proposes to notify a customer's retailer in writing of the tariff class to which the customer has been assigned or reassigned by the DNSP, prior to the assignment or reassignment occurring. The notice will include advice that the customer may request further information from SP AusNet, may object to the proposed assignment or reassignment. If the customer objects to the proposed assignment or reassignment and that objection is not resolved to the satisfaction of the customer, the customer has access to dispute resolution arrangements.

If, as part of any dispute resolution process, SP AusNet receives a request for further information from a customer, SP AusNet will provide such information. SP AusNet will not provide the customer with any information that it deems to be of a confidential nature, unless required to under any relevant Law, Code or Regulation.

SP AusNet will adjust any tariff assignment or reassignment in accordance with any decision made by a valid dispute resolution mechanism (eg: EWOV).

15.6 Recovery of Transmission Charges

15.6.1 Current Approach

In setting network prices to apply to end use customers (through a retailer), SP AusNet must recover transmission use of system charges (TUoS) and transmission connection charges as well as DUoS charges.

Clause 3.3.2 of the 2006 EDPR Determination (which applies during the current regulatory period) contains a network tariff control that explicitly provides for SP AusNet to recover the aggregate of all transmission connection and transmission use of system charges levied by the holder of a transmission licence.

The network tariff control applying in the current regulatory period is set out on page 476 of the 2006 EDPR Determination[128] as follows:

$$MTR = TC_t + G_t - D_t - K_t$$

where:

[128]Electricity Distribution Price Review 2006-10 October 2005 Price Determination as amended in accordance with a decision of the Appeal Panel dated 17 February 2006 Final Decision Volume 1 Statement of Purpose and Reasons – pg 476.

MTR_t is the maximum revenue the distributor is allowed to receive from its transmission tariffs from all customers for year t;

TC_t is the aggregate of all charges for connection to and use of the transmission system which the distributor forecasts it will be required to pay to VENCorp or SPI PowerNet during year t;

G_t is the amount the distributor expects to pay embedded generators during year t , where the payments have been verified as compliant by the Commission;

D_t is the revenue which the distributor forecasts it will earn during year t from other distributors, in respect of inter-network provider distribution service tariffs net of similar charges the distributor expects to pay other distributors during calendar year t; and

K_t is the corrections factor for under and over recoveries.

To demonstrate compliance with this control, SP AusNet must submit its proposed network tariffs to the AER (formerly the ESC) for the following year, taking into account any over or under recovery of aggregate transmission charges in previous years.

15.6.2 Arrangements under the NER

Clause 6.18.7 of Part I (Distribution Pricing Rules) of the NER sets out provisions relating to the recovery of charges for transmission use of system services. This clause appears to seek to give effect to a similar sort of transmission cost recovery arrangements as those contained in Clause 3.3.2 of the 2006 EDPR Determination. That is, the intention of Clause 6.18.7 appears to be that a distributor should recover no more or no less than the total transmission charges actually levied on it by TNSP(s). However, Clause 6.18.7 of the NER refers only to “transmission use of system services” and “transmission use of system charges”.

“Transmission use of system” is defined in the NER so as to exclude connection services. Technically then, Clause 6.18.7 does not appear to provide for the recovery by distributors of transmission connection charges levied on them by TNSPs. This appears to be an oversight in the drafting of these provisions, as it would be illogical for the NER to sanction the full recovery by distributors of transmission use of system charges, but to make no allowance or provision to permit the distributors to also recover transmission connection charges. This apparent oversight does not restrict a distributor from including a forecast of its transmission connection charges in its operating expenditure forecast pursuant to Clause 6.5.6.

Clause 6.12.1(19) requires the AER to make a distribution determination that includes:

> *“a decision on how the Distribution Network Service Provider is to report to the AER on its recovery of Transmission Use of System charges for each regulatory year of the regulatory control period and on the adjustments to be made to subsequent pricing proposals to account for over or under recovery of those charges”*[129].

[129] National Electricity Rules, Version 31, Pg 549.

Given the considerations set out above, the Victorian DNSPs' submission to the AEMC review of the national framework for electricity distribution network planning and expansion[130] noted that:

> *"The Victorian DBs [consider] that while clause 6.18.7 of NER appears intended to allow for full pass-through of transmission use of system and transmission connection charges by DNSPs, that clause (inadvertently) does not explicitly provide for the recovery by DNSPs of transmission connection charges.*
>
> *The AEMC's present review provides an opportunity to correct this discrepancy. We therefore propose that clause 6.18.7 should be amended to provide for the full pass-through by a DB of all charges levied on it in relation to transmission services. We would welcome the Commission's confirmation of its intention to address this matter in the course of the present review; alternatively, it may be considered to be more appropriate to address this matter through the "fast track" Rule change process."*

In response to these submissions, page 24 of the AEMC's Final Report on the review of the national framework for electricity distribution network planning and expansion stated that:

> *"There may be broader issues relating to cost recovery such as the queries raised about the provisions for the recovery of charges for transmission use of system services under the Rules. In their joint submission on the Draft Report, Victorian distribution businesses (p. 9) proposed that clause 6.18.7 of the Rules, recovery of charges for transmission use of system services, should be amended to provide for the full pass-through of all charges levied on a distribution business in relation to transmission services. We will consider how these issues may be best addressed."*

At the time of writing this Proposal, this issue had not been resolved.

15.6.3 SP AusNet's Proposed Approach

SP AusNet notes that the network tariff control set out in Clause 3.3.2 of the 2006 EDPR Determination has been shown to work effectively over the current regulatory period.

In view of the issues noted above, SP AusNet proposes that the network tariff control set out in Clause 3.3.2 of the 2006 EDPR Determination should continue to be applied in accordance with the apparent intention of the provisions set out in Clause 6.18.7 of the NER.

Implicit within the 2006 EDPR Determination network tariff control formula is the notion that whilst distribution businesses will always target a zero unders / overs balance in relation to transmission charges they recover from customers, inevitably there will be volume variance, leaving a residual balance at the end of any year, including the 2010 year. It is therefore proposed that any unders / overs from the current regulatory period be carried forward in to the forthcoming regulatory. period.

In addition, SP AusNet notes that to maintain NPV neutrality to the cash value of the unders / overs balance, any unders / overs should be subject to indexation based on either the WACC pertaining to the 2006 EDPR Determination (for 2010 unders / overs) or the WACC approved as part of the AER's 2011-2015 Final Decision (for unders/overs in the forthcoming regulatory period).

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130 A copy of the submission is available from the AEMC's web page at the following address: http://www.aemc.gov.au/Media/docs/United%20Energy%20Distribution-41484fe7-af5b-4c89-8471-f9aebf4a01f2-0.pdf

Lastly, SP AusNet proposes to use the annual Pricing Proposal to report on its recovery of aggregate TUoS and transmission connection charges for each regulatory year of the regulatory control period and on the adjustments to be made to subsequent network prices to account for over or under recovery of those charges. SP AusNet considers that this is consistent with the requirement of Clause 6.18.2 of the NER, which requires SP AusNet, in its Pricing Proposal, to[131]:

> *"set out how charges incurred by the Distribution Network Service Provider for transmission use of system services are to be passed on to customers and any adjustments to tariffs resulting from over or under recovery of those charges in the previous regulatory year".*

[131] Op Cit, pg 559.

16 Negotiated and Alternative Control Services

This chapter outlines:

- the prices and unit rates that SP AusNet proposes to apply to its Alternative Control Services in 2011,
- the mechanism that will be utilised to control individual prices / unit rates for Alternative Control Services throughout the forthcoming regulatory control period; and
- the services that SP AusNet proposes to classify as negotiated services, along with SP AusNet's proposed negotiating framework.

The remainder of this chapter is structured as follows:

- Section 16.1 summarises SP AusNet's Alternative Control Services;
- Section 16.2 outlines the regulatory requirements underpinning the derivation of SP AusNet's prices and price control mechanism for Alternative Control Services;
- Section 16.3 outlines SP AusNet's current Alternative Control Services;
- Section 16.4 outlines SP AusNet's proposed Alternative Control Services;
- Section 16.5 outlines the price control mechanism that will be adopted for Alternative Control Services during the forthcoming regulatory control period; and
- Section 16.6 outlines SP AusNet's proposed negotiated services.

16.1 Summary of SP AusNet's Alternative Control Services

The tables below outline SP AusNet's proposed Alternative Control Services for the forthcoming regulatory control period.

Table 16.1: SP AusNet's Proposed Alternative Control (Fee Based) Services

Service	Description
Connection of New Premises	SP AusNet provides connection services to customers making connection of a new premise to the network. This service includes the provision of a service cable in areas with overhead supply and making a connection in a pit for customers in underground supply areas or where a customer requests an underground connection in an overhead supply area.

Service	Description
Field Officer Visit	Field Officer visits are provided to customers, retailers and other parties seeking the following range of Services: • Reconnection (Fuse Insertion New Customer); • Customer Transfer; • Fuse Removal (for any purpose as requested by the customer, the customer's retailer, or electrical contractor); and • General information on the nature of a customer's usage (eg: residential, small commercial).
Service Truck Visit	Service Truck visits are provided to customers, retailers and other parties seeking the following range of Services: • Supply alterations, additions and upgrades to service and installation assets. • Fuse removal/insertion where supply is greater than 100 amps.
Meter Equipment Test	Where metering data is in dispute SP AusNet will conduct an "in situ" test of the meter. Where the meter is found to be faulty, the prepaid charge will be refunded and a replacement meter installed at no charge to the customer.
Public Lighting	Public Lighting Services are provided in accordance with the Victorian Public Lighting Code. Under this code the services include: • Contestable construction of New Public Lighting assets; • Contestable augmentation and relocation of existing Public Lighting Assets; • Fee Based Alternative Control service provision of Operations, maintenance and end of life replacement of SP AusNet owned public lighting assets.

Table 16.2: SP AusNet's Proposed Alternative Control (Quoted) Services

Service	Description
Temporary Cover of LV Mains	SP AusNet provides temporary covers for mains and services to ensure a safe working environment for those required to work in close proximity to overhead power lines.
Elective Underground Servicing	SP AusNet provides underground services to customers in Overhead Supply areas where requested to do so by the customer. This service involves installing cable down an appropriate pole, trenching to a suitable location for an underground pit, and installing an underground pit.
Service Cable Pulled Down by High Loads	From time to time, SP AusNet is required to re-instate overhead lines that are pulled down by high loads. Where the party responsible for the damage is identified SP AusNet will recover the costs to re-instate the line from the party concerned.
Recoverable Works	Various recoverable works services (eg: emergency works where customer is at fault and immediate action needs to be taken by the DNSP; Supply enhancement at customer request; auditing of design and construction; and specification and design enquiry fees).

16.2 Regulatory Requirements

The key regulatory requirements underpinning the development of SP AusNet's Alternative Control Services are outlined in the NER, the Framework and Approach Paper and the RIN. These are discussed in further detail below.

16.2.1 National Electricity Rules

Chapter 10 of the NER defines an Alternative Control Service as "a distribution service that is a direct control service but not a standard control service[132]".

A distribution service is defined as "a service provided by means of, or in connection with, a distribution system"[133], whilst a Direct Control service is "a distribution service that is a direct

[132] National Electricity Rules – Version 31 - pg 938.

[133] Ibid, pg 960.

control network service within the meaning of section 2B of the Law."[134] Section 2B of the NEL states that a direct control network service is an electricity network service:

> *"(a) the Rules specify as a service the price for which, or the revenue to be earned from which, must be regulated under a distribution determination or transmission determination; or*
>
> *(b) if the Rules do not do so, the AER specifies, in a distribution determination or transmission determination, as a service the price for which, or the revenue to be earned from which, must be regulated under the distribution determination or transmission determination."*

Clause 6.2.2 of the NER provides for the AER to divide Direct Control Services into Standard Control Services and Alternative Control Services, and in doing so, it must have regard to the factors set out in that Clause. Additionally, Clause 6.8.1(b)(1) of the NER requires the AER to set out its likely approach to the classification of services in its Framework and Approach Paper. Clause 6.12.3(b) of the NER requires that the classification of services set out in the Framework and Approach Paper must be adopted unless the AER considers that, in the light of the Distribution Network Service Provider's regulatory proposal and the submissions received, there are good reasons for departing from the classification proposed in that paper.

Once classified, Clause 6.2.5(a) of the NER allows a distribution determination to impose controls over the prices of direct control services, and/or the revenue to be derived from direct control services. Clause 6.8.1(c) of the NER requires that the AER's Framework and Approach Paper state the form or forms of the control mechanisms to be applied by the distribution determination to direct control services and the AER's reasons for deciding on control mechanisms of the relevant form or forms. Clause 6.12.3(c) of the NER reaffirms this by requiring that the control mechanisms to apply in the distribution determination must be as set out in the Framework and Approach Paper.

16.2.2 Framework and Approach Paper

The AER's Framework and Approach Paper provides a significant amount of guidance with regard to how the AER will assess SP AusNet's proposed Alternative Control Services. In particular, the Paper:

- outlines the AER's likely approach to the classification of Alternative Control Services, as required under the NER;
- specifies the price control mechanism that will apply to Alternative Control Services, as required under the NER; and
- provides some high level guidance in relation to the methodology that it expects businesses to apply when determining the prices of Alternative Control Services.

In relation to the former, the AER states that its likely approach is that "distribution services currently classified as excluded distribution services and prescribed metering services that are unmetered supplies will be classified as alternative control services[135]". Appendix A of the Framework and Approach Paper outlines each service provided by the distribution businesses,

[134] Ibid, pg 956.

[135] AER – Final Framework and Approach – page 58.

and how the AER is likely to classify that service for its forthcoming Distribution Determination. Chapter 2 of this Proposal outlines SP AusNet approach to classifying its existing services, including those where SP AusNet proposes to move away from the AER's proposed classification.

With regard to the form of price control, the Framework and Approach Paper states that the AER will[136]:

> *"continue to apply price caps on:*
>
> *- unit costs for the quoted services grouping of alternative control services, and*
>
> *- individual prices for all of the other alternative control services.*
>
> *- commence the application of a price cap to those currently prescribed metering services (unmetered supplies), which the AER proposes to classify as alternative control services."*

More specifically, the Framework and Approach Paper states that the basis of this control mechanism will be of the CPI-X form.

The AER has also provided further guidance in relation to the methodology that it expects business to apply when determining the prices of Alternative Control Services. SP AusNet considers the following statements to represent the key guidance pertaining to the development of Alternative Control Services:

> *"the AER will be utilising either a bottom up or top down approach in deriving the initial prices for each individual service. A bottom up approach would require the DNSPs to submit cost build up information relating to each individual service. A top down approach would utilise historical audited regulatory account information to derive an appropriate escalation mechanism which will be applied to existing prices[137]";*
>
> *"For the remaining years of the regulatory control period the AER will establish a price path for the price cap utilising a CPI-X basis of escalation[138]";*
>
> *"the AER intends to require DNSPs to prepare initial prices for those services that have the highest number of transactions and levels of revenue on a bottom up basis. Initial prices for other services will be set on a top down basis[139]"; and*
>
> *"the DNSPs will be required to propose an individual formula to calculate the tariff of each individual quoted service and submit information and costs of inputs in relation to these services[140]".*

Lastly, it is noted that the Framework and Approach Paper states that the AER "intends specifying in the regulatory information notices that it will issue to each Victorian DNSP prior to them submitting their regulatory proposals, which services must be established utilising a bottom

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[136] Ibid, pg 77.

[137] Ibid, pg 80.

[138] Ibid.

[139] Ibid, pg 81.

[140] Ibid.

up approach and which services must be established utilising a top down approach[141]". SP AusNet's RIN has not provided this information, therefore, SP AusNet has utilised the broader guidance provided in the AER's Framework and Approach Paper, namely that the number of transactions and revenue levels should guide whether a bottom up approach is adopted for setting initial prices.

16.2.3 Regulatory Information Notice

Paragraph 15 of the RIN outlines the information that the AER requires of SP AusNet as part of this Proposal. More specifically, the RIN requires SP AusNet to:

> *"15.1 Identify each alternative control service in the regulatory proposal.*
>
> *15.2 For each service identified in the response to paragraph 15.1:*
>
> *(a) provide:*
>
> *a description;*
>
> *the number of customers or jobs for each regulatory year of the current regulatory control period (estimated customer or job numbers for 2009 and 2010);*
>
> *the revenue earned by SP AusNet in each regulatory year of the current regulatory control period (estimated revenue for 2009 and 2010) in real 2010 dollars as calculated in the regulatory templates;*
>
> *the current price of each service (and estimated prices for 2009 and 2010 where applicable);*
>
> *indicative prices for each service for each regulatory year of the forthcoming regulatory control period;*
>
> *the methodologies and assumptions used to derive the existing charges (if available);*
>
> *the methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports);*
>
> *evidence that the existing and proposed costs of each service are not already compensated for elsewhere;*
>
> *the unit cost inputs used to calculate existing charges if available*
>
> *the unit cost inputs for each service for the current regulatory control period (e.g. labour and materials);*
>
> *the proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period; and*
>
> *if a different charge is proposed for a class of customers, evidence to support a different charge for these customers;*
>
> *(b) explain:*

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[141] Ibid, pg 79.

the methodologies used (including the assumptions) used to support proposed charges for each service over the forthcoming regulatory control period (including spreadsheets and consultants' reports);

how costs for shared assets are allocated between standard control services and each alternative control service;

how corporate overheard costs are allocated between standard control services and each alternative control service;

how the charges, terms and conditions, for each service are based on the costs incurred in providing the service;

how the costs of providing each service are appropriately allocated (including overheads);

if the service is not provided at the same cost to all customers, why this is the case with reference to:

the volume or quantity of the service provided;

the places where the service is provided;

the time of day at which the service is provided;

the performance characteristics at which the service is provided; or

any other difference in the costs of providing the service.

15.3 For quoted services provide an estimate of:

the median time to complete each quoted service over the current regulatory control period; and

the mean time to complete each quoted service over the current regulatory control period."

SP AusNet has tabulated (below) its responses to each of these RIN requirements.

16.3 Current Alternative Control Services

16.3.1 Background

SP AusNet provides a range of services to individual customers that are currently classified as excluded services, and which will be classified as Alternative Control Services in the forthcoming regulatory control period. These Alternative Control Services are services that are provided by means of or in connection with a distribution system, the costs of which are not recovered through revenue earned from distribution use of system tariffs.

16.3.2 RIN – Common Responses for Current Services

SP AusNet notes that the RIN requires a significant amount of information on each individual Alternative Control Service. SP AusNet considers that some of the RIN information required is most efficiently provided at a consolidated level, given the commonality of information across each Alternative Control Service. The following table outlines the RIN paragraphs in response to which SP AusNet has provided a common response for each existing Alternative Control Service.

Table 16.3: RIN Requirements – Common Response

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2 (a)(vi)	Methodologies / assumptions used to derive the existing charges	Prices have not been adjusted for over 10 years. Records supporting their derivation are unavailable.
15.2(a)(ix)	Unit cost inputs used to calculate existing charges if available	Prices have not been adjusted for over 10 years. Records supporting their derivation are unavailable.
15.2(a)(x)	The unit cost inputs for each service for the current regulatory control period (e.g. labour and materials).	Prices have not been adjusted for over 10 years. Records supporting their derivation are unavailable. Note, however, that, where relevant, current costs are discussed in '*Methodology and assumptions used to derive proposed charges for each service for each year of the forthcoming regulatory control period'* for each proposed Alternative Control Service.

The following sections provide more detailed information on SP AusNet's current Alternative Control Services, along with tabulated information that addresses specific RIN requirements.

16.3.3 New Premise Connection Services

The following table outlines all relevant information required by the RIN in relation to New Premises Connection Services pertaining to the current regulatory period.

Table 16.4: New Premises Connection Services – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description of Service	SP AusNet provides connection services to customers making connection of a new premise to the network. This service includes the provision of a service cable in areas with overhead supply and making a connection in a pit for customers in underground supply areas or where a customer requests an underground connection in an overhead supply area. Where SP AusNet is also the Responsible Person for meter provision this service includes the installation of the meter but not the capital cost of the meter.				
15.2(a)(ii)	No. of Jobs - SP AusNet Responsible Person					
	• Normal Hours	8,236	12,923	13,831	14,071	14,901
	• After Hours	257	249	381	293	301
	No. of Jobs - SP AusNet Not Responsible Person					
	• Normal Hours	76	117	137	74	74
	• After Hours	0	9	20	20	20
15.2(a)(iii)	Revenue – SP AusNet Responsible Person					
	• Normal Hours ($ million)	1.17	1.78	1.81	1.72	1.80
	• After Hours ($ million)	0.07	0.07	0.12	0.08	0.08
	Revenue - SP AusNet Not Responsible Person					
	• Normal Hours ($ million)	0.01	0.01	0.02	0.01	0.01
	• After Hours ($ million)	0.00	0.00	0.01	0.00	0.00

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(iv)	Price - SP AusNet Responsible Person – Normal Hours (NH)	Various prices, ranging from $90 – $804. The price depends on the nature of the connection.				
	Price - SP AusNet Responsible Person – After Hours (AH)	Various prices, ranging from $238 – $873. The price depends on the nature of the connection.				
	Price - SP AusNet Not Responsible Person – NH	Various prices, ranging from $27.30 – $276. The price depends on the nature of the connection.				
	Price - SP AusNet Not Responsible Person – AH	Various prices, ranging from $175.35 – $345.40. The price depends on the nature of the connection.				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System.

Notes to Table: revenues are in real 2010 dollars; prices are in nominal dollars; 2010 based on expected volumes for 2010, using NIEIR customer number forecasts; 2009 based on billed data up until October, and then pro-rated up for November and December; and provision of services where 'SP AusNet is not the Responsible Person' is no longer relevant as a result of AMI.

16.3.4 Field Officer Visits

The following table outlines all relevant information required by the RIN in relation to Field Officer Visits pertaining to the current regulatory period.

Table 16.5: Field Officer Visits – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	Field Officer visits are provided to customers, retailers and other parties seeking the following range of Services: • Reconnection (Fuse Insertion New Customer); • Customer Transfer; • Fuse Removal (for any purpose as requested by the customer, the customer's retailer, or electrical contractor); and • General information on the nature of a customer's usage (eg: residential, small commercial).				

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(ii)	No. of Jobs – NH No. of Jobs - AH	33,090 373	146,911 3,401	148,765 3,009	153,508 2,688	147,554 2,579
15.2(a)(iii)	Revenue – NH ($ million) Revenue – AH ($ million)	0.74 0.08	3.17 0.40	3.15 0.35	3.10 0.30	2.94 0.28
15.2(a)(iv)	Price – NH (Nominal $) Price – AH (Nominal $)	$21.95 $120.65				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System

NOTES: All revenues in real 2010 dollars; 2010 includes growth in customer numbers, along with the estimated AMI related impacts; 2009 based on billed data up until October, and then pro-rated up for November and December; and 2006 likely to be artificially low as a result of a change in the charge code used to capture this revenue.

16.3.5 Service Truck Visits

The following table outlines all relevant information required by the RIN in relation to Service Truck Visits pertaining to the current regulatory period.

Table 16.6: Service Truck Visits – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	Service Truck visits are provided to customers, retailers and other parties seeking the following range of Services: • Supply alterations, additions and upgrades to service and installation assets; and • Fuse removal/insertion where supply is greater than 100 amps (For any purpose as requested by the customer, the customer's retailer, or electrical contractor).				
15.2(a)(ii)	No. of Jobs – NH No. of Jobs - AH	5,651 527	5,868 488	5,999 480	5,412 446	5462 448

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(iii)	Revenue – NH ($ million) Revenue – AH ($ million)	0.92 0.14	0.92 0.13	0.92 0.12	0.79 0.11	0.79 0.11
15.2(a)(iv)	Price – NH (Nominal $) Price – AH (Nominal $)	$159.05 $263.30				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System

NOTES: All revenues in 2010 dollars; 2010 based on growth in new connections, relative to 2009 data; and 2009 based on billed data up until October, and then pro-rated up for November and December.

16.3.6 Low Voltage Meter Conversion

The following table outlines all relevant information required by the RIN in relation to Low Voltage Meter Conversion services pertaining to the current regulatory period.

Table 16.7: Low Voltage Meter Conversion – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	A Low Voltage Meter Conversion may be required where customers have upgraded their supply installation, installed additional equipment that qualifies for the application of a time of use tariff, or where customers are seeking to take advantage of the application of a time of use tariff without changes to their electrical installation.				
15.2(a)(ii)	No. of Jobs	150	211	677	2,524	2,524
15.2(a)(iii)	Revenue ($ million)	0.00	0.01	0.08	0.32	0.32
15.2(a)(iv)	Prices	Various prices, ranging from $50 to $175 for existing installations, and $45 to $157 for new installation annual charges.				

NOTES: All revenues in 2010 dollars; Prices are in nominal dollars; 2009 based on billed data up until October, and then pro-rated up for November and December; and 2010 estimated based on 2009 data.

16.3.7 Meter Equipment Test

The following table outlines all relevant information required by the RIN in relation to Meter Equipment Test services pertaining to the current regulatory period.

Table 16.8: Meter Equipment Test – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	Where metering data is in dispute, SP AusNet will conduct an "in situ" test of the meter. Where the meter is found to be faulty, the prepaid charge will be refunded and a replacement meter installed at no charge to the customer.				
15.2(a)(ii)	No. of Jobs	216	158	219	257	257
15.2(a)(iii)	Revenue ($ million)	0.03	0.02	0.03	0.03	0.03
15.2(a)(iv)	Price • One Single Ø meter • Each additional single Ø meter • One multi Ø meter • Each additional multi Ø meter	 $159.05 $54.85 $213.90 $71.30				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System

NOTES: All revenues in real 2010 dollars; Prices are in nominal dollars; Given consistency in numbers of over the period, SP AusNet has assumed 2010 figures to be consistent with 2009; and 2009 based on billed data up until October, and then pro-rated up for November and December.

16.3.8 Temporary Cover of Low Voltage Mains

The following table outlines all relevant information required by the RIN in relation to the provision of Temporary Cover of Low Voltage Mains for to the current regulatory period.

Table 16.9: Temporary Cover of Low Voltage Mains – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	SP AusNet provides temporary covers for mains and services to ensure a safe working environment for those required to work in close proximity to overhead power lines. The charges for this service cover the cost of installation and removal of the covers plus rental of the covers for a period of up to 3 months. Additional rental charges may apply for periods longer than 3 months.				
15.2(a)(ii)	No. of Jobs	8	8	8	8	8
15.2(a)(iii)	Revenue ($ million)	0.003	0.003	0.003	0.003	0.003
15.2(a)(iv)	Price • Install 2 Wire Cover or Service Cable Cover • Monthly Rental per Service Cable Cover • All Wire Cover • Monthly Rental per Cover	 $279.75 $246.85 $438.80 $246.85				

NOTES: All revenues in real 2010 dollars; Prices are in nominal dollars; and Information not readily available for years other than 2008. Volumes and revenues assumed to be the same throughout the period.

16.3.9 Provision of Switching Service

The following table outlines all relevant information required by the RIN in relation to the Provision of Switching Services pertaining to the current regulatory period.

Table 16.10: Provision of Switching Service – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	Where customers have a qualifying Off Peak load SP AusNet provides a single switching service. For installations without a qualifying off-peak load or where customers require additional switching capacity SP AusNet will install an additional Time controlled switching service. In instances where SP AusNet is required to make special Service Truck visit an additional charge for the Service Truck visit will apply.				
15.2(a)(ii)	No. of Jobs – NH	1	2	4	0	0
15.2(a)(iii)	Revenue – NH ($M)	0.001	0.001	0.002	0	0
15.2(a)(iv)	Price - NH	$71.30				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System

NOTES: All revenues in real 2010 dollars; and Prices are in nominal dollars

16.3.10 Provision of Service Fuses

The following table outlines all relevant information required by the RIN in relation to the Provision of Service Fuses pertaining to the current regulatory period.

Table 16.11: Provision of Service Fuses – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	SP AusNet will supply and install additional Service Fuses where customers require them.				
15.2(a)(ii)	No. of Jobs	None recorded				
15.2(a)(iii)	Revenue	None recorded				
15.2(a)(iv)	Price • 160 Amp 4 pole • 400 Amp 3 Pole • 400 Amp 4 pole	 Recoverable Works Rates (RW) RW RW				

16.3.11 Elective Underground Servicing

The following table outlines all relevant information required by the RIN in relation to the provision of Elective Underground Servicing pertaining to the current regulatory period.

Table 16.12: Provision of Elective Underground Servicing – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	SP AusNet provides underground services to customers in Overhead Supply areas where requested to do so by the customer. This service involves installing cable down an appropriate pole, trenching to a suitable location for an underground pit, installing an underground pit.				
15.2(a)(ii)	No. of Jobs	86	95	92	97	99
15.2(a)(iii)	Revenue ($ millions)	0.21	0.25	0.36	0.36	0.36
15.2(a)(iv)	Price Various Materials, Labour and Contracts as required	RW				

Source: 'Elec_Excl_Serv_Billing_History_Oct09', which is an derived from SP AusNet's Billing System

NOTES: All revenues in real 2010 dollars; and Job numbers estimated based on customer contributions for 'Underground Service Installation', divided by average cost of undertaking work in 2008.

16.3.12 Service Cable Pulled Down by High Loads

The following table outlines all relevant information required by the RIN in relation to the provision of Service Cable Pulled Down by High Loads pertaining to the current regulatory period.

Table 16.13: Provision of Service Cable Pulled Down by High Loads – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(i)	Description	From time to time SP AusNet is required to re-instate overhead lines that are pulled down by high loads. Where the party responsible for the damage is identified SP AusNet will recover these costs to re-instate the line from the party concerned.				

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2(a)(ii)	No. of Jobs	40	40	40	40	40
15.2(a)(iii)	Revenue ($ million)	0.03	0.03	0.03	0.03	0.03
15.2(a)(iv)	Various materials as required	RW				

NOTES: All revenues in real 2010 dollars; and Job numbers estimated based on data from October 2008 to November 2009. Given service characteristics, this is assumed to reflect job numbers and revenues in other years.

16.3.13 Public Lighting

The following table outlines all relevant information required by the RIN in relation to the provision of Public Lighting Operations, Maintenance and Replacement services pertaining to the current regulatory period.

Table 16.14: Provision of Public Lighting Operations Maintenance & Replacement services – Current Regulatory Control Period

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
15.2 (a)(i)	Description	SP AusNet owns and operates a Public lighting system on behalf of Public Lighting Customers within its licensed distribution area. Public Lighting Customers are generally municipal councils.				
15.2 (a)(ii)	No. of Lights	105,480	107,986	112,519	119,264	123,852
15.2 (a)(iii)	Revenue ($ million)	3.625	3.698	4.247	4.218	5.498
15.2 (a)(iv)	***Light Types***					
	Central Region					
	Mercury Vapour 50W	$45.70				
	Mercury Vapour 80W	$29.87				
	Mercury Vapour 125W	$43.91				
	Mercury Vapour 250W	$56.05				
	Mercury Vapour 400W	$58.18				
	HP Sodium 50W	-				
	HP Sodium 150W	$53.36				
	HP Sodium 250W	$53.38				

RIN Paragraph	RIN Parameter	2006	2007	2008	2009	2010
	HP Sodium 100W			-		
	HP Sodium 400W			$75.80		
	Compact Flourescent 42W			-		
	T5 Flourescent 14W			$28.65		
	T5 Flourescent 24W			$30.81		
	North & East Regions					
	Mercury Vapour 50W			$48.06		
	Mercury Vapour 80W			$32.47		
	Mercury Vapour 125W			$48.06		
	Mercury Vapour 250W			$66.62		
	Mercury Vapour 400W			$68.54		
	HP Sodium 50W			-		
	HP Sodium 150W			$61.90		
	HP Sodium 250W			$53.38		
	HP Sodium 100W			-		
	HP Sodium 400W			$90.97		
	Compact Flourescent 42W			-		
	T5 Flourescent 14W			$31.40		
	T5 Flourescent 24W			$33.61		

16.4 Proposed Alternative Control Services

16.4.1 Process for Reviewing Alternative Control Services

As stated previously, the Framework and Approach Paper has provided further guidance in relation to the methodology that businesses are to apply when determining the prices of their Alternative Control Services., In particular, the Framework and Approach Paper requires that businesses should adopt a bottom up approach when a service exhibits a high number of transactions and revenue. As stated previously, the RIN does not provide any information on the services that should be subject to a bottom up approach, relative to a top down approach.

16.4.2 Services to be Deleted

SP AusNet proposes to remove three of its current Alternative Control Services. These are:

- Low Voltage Meter Conversion (Type 6 to Type 5);

- Provision of Switching Service; and
- Provision of Service Fuses.

SP AusNet's present charge for Low Voltage Meter Conversion applies to work carried out at a customer's or retailer's request to convert basic (non interval) metering sites to interval metering. SP AusNet notes that retailers are now precluded from requesting a meter conversion under the AMI derogation. However, customers are still able to request a conversion. Given that the unexpired value of any meter converted is likely to be minimal (with the introduction of AMI meters), the only real cost to SP AusNet of providing such a service is a Service Truck Visit. Accordingly, SP AusNet will apply a Service Truck Visit fee for the provision of this service in the forthcoming regulatory control period.

SP AusNet proposes to also remove the Provision of Switching Service, as this service can be provided by any registered electrician. Moreover, historical job numbers indicate that this service has not been used by any of SP AusNet's customers since 2007. It is also noted that this service was not classified by the AER in the Framework and Approach Paper.

Finally, SP AusNet proposes to remove the Provision of Service Fuses charge as this is not a service that is requested by customers any more. This service was also not classified by the AER in the Framework and Approach Paper.

16.4.3 New services to Added

SP AusNet does not propose to add any new services per se, although it does intend to refine the charging arrangements surrounding the provision of a number of existing services. These are discussed in detail in the next section.

16.4.4 Proposed Alternative Control Services

SP AusNet notes that the RIN requires a significant amount of information on each proposed Alternative Control Service. SP AusNet considers that some of the RIN information required is most efficiently provided at a consolidated level, given the commonality of information across each Alternative Control Service. The following table outlines the RIN paragraphs in response to which SP AusNet has provided common information for each existing Alternative Control Service.

Table 16.15: RIN Requirements – Common Response

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(viii)	Evidence that the proposed costs of each service are not already compensated for elsewhere	SP AusNet has adjusted the opex costs that are allocated to its Alternative Control Services, relative to historical costs, for the cost of providing Field Officer Visits, as these have been previously allocated to RBPC Metering. SP AusNet has also ensured that any capital expenditure that relates to the provision of an Alternative Control Service (eg: New Premise Connections, Elective Underground Servicing) has not been included in its Standard Control Services or its Negotiated Services capex.
15.2(b)(ii)	How costs for shared assets are allocated between standard control services and each alternative control service	Only the direct costs associated with providing these services have been included.
15.2(a)(xii)	If a different charge is proposed for a class of customers, evidence to support a different charge for these customers.	Unless explicitly stated, no differentiation by customer class is proposed.
15.2(b)(iii)	How corporate overhead costs are allocated between standard control services and each alternative control service.	Consistent with SP AusNet's proposed CAM, only direct costs associated with providing alternative control services have been included.
15.2(b)(v)	How the costs of providing each service are appropriately allocated (including overheads).	Consistent with SP AusNet's proposed CAM, only direct costs associated with providing alternative control services have been included.
15.3(a)	For quoted services provide an estimate of: (a) the median time to complete each quoted service over the current regulatory control period;	SP AusNet is unable to provide the median time for each quoted service as this is not readily available. SP AusNet considers that for Quoted Services, the indicative price provided by SP AusNet in this Proposal based on the average cost historically is a more meaningful metric for customers to understand the likely cost to them of these types of servies.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.3(b)	For quoted services provide an estimate of: (b) the mean time to complete each quoted service over the current regulatory control period.	SP AusNet is unable to provide the mean time for each quoted service as this is not readily available. SP AusNet considers that for Quoted Services, the indicative price provided by SP AusNet in this Proposal based on the average cost historically is a more meaningful metric for customers to understand the likely cost to them of these types of servies.

The following sections outline SP AusNet's proposed Alternative Control Services.

16.4.5 New Premises Connections – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed New Premises Connections charge for the forthcoming regulatory control period.

Table 16.16: New Premises Connection Charges – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	SP AusNet will provide connection services to customers making connection of a new premise to the network. This service includes the provision of a service cable in areas with overhead supply and making a connection in a pit for customers in underground supply areas or where a customer requests an underground connection in an overhead supply area.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation	
		Normal Hours	***After Hours***
15.2(a)(v)	Indicative Prices for 2011 (Real $2010)		
	• Single Ø Overhead	$198	$273
	• Single Ø Underground	$161	$221
	• Multi Ø Overhead – Direct Connected	$276	$371
	• Multi Ø Overhead – CT Connected	$337	$524
	• Multi Phase Underground - Direct Connected	$206	$280
	• Multi Phase Underground - CT Connected	$287	$446
	• Overhead Supply - Coincident Disconnection	$370	$573

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	SP AusNet's job number estimates have been based on the number of new customer connections estimated by NIEIR for the forthcoming regulatory control period. This has been further split into each of SP AusNet's three regions based on the historical proportion of customer growth in each of those regions over the previous five years. SP AusNet's 2010 cost per service is based on either: • Direct contractor costs in the Central Region, which covers around 70% of jobs undertaken; or • Direct contractor costs in Central Region, escalated to account for the lower customer densities in the Northern and Eastern Region. This cost per service is then escalated to 2010 dollars using the assumed 2010 CPI. SP AusNet's real labour escalation rate has been applied to the proportion of costs that are estimated to be labour related. The NPV of SP AusNet's expected cost of providing these services has been divided by the NPV of the expected number of jobs to determine the 2011 starting unit price. Please see spreadsheet 'Elec_Excl_Serv_Billing_History_Oct09.xls' for detailed calculations supporting the development of this charge.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period.	These are based on third party contractor costs. These are commercial-in-confidence.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	The methodology used to derive these prices is based on a detailed cost build up, therefore, charges are cost based.
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	This service is split between normal hours and after hours, due to the increased labour rate applying to overtime labour. The service is split between underground and overhead due to the differing cost structures pertaining to both types of works (for example, cable is required to be provided for overhead connections, but not underground connections) This service is split between CT and Direct Connected meter installation, to have regard to the increased connection costs that stem from allowing different types of meter installations to be installed. The current classification between SP AusNet as the Responsible Person and where it is not the Responsible Person is no longer required as a result of the 2008 AMI Order in Council.

16.4.6 Field Officer Visits – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Field Officer Visit charge for the forthcoming regulatory control period.

Table 16.17: Field Officer Visits – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	Field Officer visits are provided to customers, retailers and other parties seeking the following range of Services: • Reconnection (Fuse Insertion New Customer); • Customer Transfer; • Fuse Removal (For any purpose as requested by the customer, the customer's retailer, or electrical contractor); and • General information on the nature of a customer's usage (eg: residential, small commercial).
15.2(a)(v)	Indicative Prices for 2011 (Real $2010) • Field Officer Visit – Normal Hours • Field Officer Visit – After Hours	 $15.69 $109.84

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	SP AusNet has estimated the number of Field Officer Visits that it expects to bill over the forthcoming regulatory control period by: • Disaggregating the current number of billed Field Officer Visits into each of SP AusNet's three regions based on the proportion of jobs done in each region in 2008/09; • Estimating the impact that AMI will have on the demand for these services within different regions; and • Estimating the impact that SP AusNet's growing customer base will have on demand for these services over the forthcoming regulatory control period. SP AusNet's cost per service is based on 2009 data from its financial system, which disaggregates costs by: • Region; and • Normal time / overtime. This cost per service is then escalated to 2010 dollars using the assumed 2010 CPI, SP AusNet's real labour escalation rate and the proportion of costs that are labour related, which is derived from historical data. The NPV of SP AusNet's expected cost of providing these services has been divided by the NPV of the expected number of jobs to determine the 2011 starting unit price.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period.	These are based on SP AusNet's current cost of providing these services, derived from SP AusNet's financial information system.
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	These are based on SP AusNet's current cost of providing these services derived from SP AusNet's financial information system.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	This service is split between normal hours and after hours, due to the increased labour rate applying to overtime labour.

16.4.7 Service Truck Visits – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Service Truck Visit charge for the forthcoming regulatory control period.

Table 16.18: Service Truck Visits – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	Service Truck visits are provided to customers, retailers and other parties seeking the following range of Services: • Fuse removal/insertion where supply is greater than 100 amps (For any purpose as requested by the customer, the customer's retailer, or electrical contractor). • Supply alterations, additions and upgrades to service and installation assets. A wasted truck visit will apply when a Service Truck Visit has been arranged and dispatched to a customer's site, and for reasons outside of SP AusNet's control, the Service Truck is no longer required. An after hours truck visit by appointment will apply to all truck visits requested by a customer outside of normal work hours.
15.2(a)(v)	Indicative Prices for 2011 (Real $2010) • Service Truck Visit (NH) • Service Truck Visit (AH) • Wasted Truck Visit (NH) • After Hours Truck by Appointment	 $235.58 $310.24 $119.38 $934.43

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	SP AusNet's job number estimates have been based on the number of new customer connections estimated by NIEIR for the forthcoming regulatory control period. This has been further split into each of SP AusNet's three regions based on the historical proportion of customer growth in each of those regions over the previous five years. SP AusNet's 2010 cost per service is based on either: • Direct contractor costs in the Central Region, which covers around 70% of jobs undertaken; or • Direct contractor costs, escalated to account for the lower customer densities in the Northern and Eastern Region. This cost per service is then escalated to 2010 dollars using the assumed 2010 CPI. SP AusNet's real labour escalation rate has been applied to the proportion of costs that are estimated to be labour related. The NPV of SP AusNet's expected cost of providing these services has been divided by the NPV of the expected number of jobs to determine the 2011 starting unit price. Please see spreadsheet 'Elec_Excl_Serv_Billing_History_Oct09.xls' for detailed calculations supporting the development of this charge.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	These are based on third party contractor costs. These are commercial-in-confidence.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	The methodology used to derive these prices is based on a detailed cost build up, therefore, charges are cost based.
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	This service is split between normal hours and after hours, due to the increased labour rate applying to overtime labour. The service is split between a normal truck visit, and a wasted truck visit, to reflect the fact that a wasted truck visit requires minimal time to be spent on site. The price is split between 'Service Truck Visit' and 'After Hours Truck by Appointment', as the 'by appointment' services are required when larger scale works are required, which are more time consuming and therefore more costly to undertake.

16.4.8 Meter Equipment Test – Indicative Prices

SP AusNet notes that the testing of meters, where metering data is in dispute, will not be classified as an AMI Service, and therefore, is still required to be classified as an Alternative Control Service. However, SP AusNet notes that based on billing data, the number of services provided is currently at low levels, with total annual revenue ranging from $23,000 to $34,000 over the current regulatory period. Moving forward, SP AusNet considers that the transparency provided by interval meters, will, in the main, lead to further reductions in the number of metering data disputes.

Considering this, SP AusNet has chosen to adopt a top down approach to developing prices for this service, which in turn would see it carry over its existing price for these services into 2011, with this price being adjusted by the Price Control Formula outlined in section 16.5 for the remainder of the forthcoming regulatory control period.

The following table outlines SP AusNet's indicative prices for Meter Equipment Tests for the forthcoming regulatory control period.

Table 16.19: Meter Equipment Test – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	Where metering data is in dispute SP AusNet will conduct an "in situ" test of the meter. Where the meter is found to be faulty the prepaid charge will be refunded and a replacement meter installed at no charge to the customer.
15.2(a)(v)	Indicative Prices for 2011 (Real $2010) • Single Ø meter • Each additional single Ø meter • Single multi Ø meter • Each additional multi Ø meter	 $159.05 $54.85 $213.90 $71.30
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	Proposed charges are based on a top down approach, consistent with the AER's guidance in its Framework and Approach Paper that initial prices for services with a low number of transactions can be set on a top down basis.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	Consistent with the use of a top down approach, SP AusNet has not formulated this charge on the basis of detailed unit cost information.
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	Consistent with the use of a top down approach, SP AusNet has not formulated this charge on the basis of detailed unit cost information.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	Consistent with the use of a top down approach, SP AusNet has adopted the current structure of charges, which differentiates based on the type of meter being tested, and also, has regard to the fact that once on site, the cost of testing of each additional meter is incremental, and therefore, will not attract travel time costs.

16.4.9 Temporary Cover of LV Mains – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Temporary Cover of LV Mains charge for the forthcoming regulatory control period.

Table 16.20: Temporary Cover of LV Mains – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	The provision of temporary covers for mains and services to ensure a safe working environment for those required to work in close proximity to overhead power lines. The charges for this service cover the cost of installation and removal of the covers plus rental of the covers for a period of up to 3 months. Additional rental charges may apply for periods longer than 3 months.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(v)	Indicative Price for 2011 (Real $2010)	$1,171
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	The total cost of jobs undertaken in 2008 is increased by CPI to 2010 rates and then divided by the number of jobs. The above rate is an indicative average charge of jobs undertaken in 2008. To provide this service, the actual charge is to be based on the quoted services unit costs.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	Quoted service rates will be used to derive the fee that will be charged to customers for the provision of these services. Typical cost items include: • Labour • Materials • Traffic management
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	Charges to be based on firm quotes using rates set out in an Appendix based on the specific tasks to be undertaken for each job.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	These jobs are requested by developers and builders requiring a safe working environment for their employees. The time to install covers, and the number of covers required will vary from job to job depending on the size and nature of the development and its proximity to SP AusNet's live assets. This service may be required anywhere in the network but is likely to be more common in urban areas. The service will generally be provided during normal work hours unless the customer has a specific need for an after hours job. There are no specific performance characteristics that are not already captured.

16.4.10 Elective Underground Servicing – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Elective Underground Servicing charge for the forthcoming regulatory control period.

Table 16.21: Elective Underground Servicing – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	Provision of underground services to customers in Overhead Supply areas where requested to do so by the customer. This service involves installing cable down an appropriate pole, trenching to a suitable location for an underground pit, and installing an underground pit.
15.2(a)(v)	Indicative Price for 2011 (Real $2010)	$3,382

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	The total cost of jobs undertaken in 2008 is increased by CPI to 2010 rates and then divided by the number of jobs. The above rate is an indicative average charge. To provide this service, the actual charge is to be based on the quoted service rates outlined in an Appendix of this Proposal.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	Unit cost rates will be used to derive the fee that will be charged to customers for the provision of these services. Typical cost items include: • Survey; • Trenching; • Boring; • Conduit, • Cable; • Labour • Motor vehicle • Plant & Equipment • Minor Materials
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	Charges are to be based on firm quotes using rates set out in an Appendix of this Proposal, based on the specific tasks to be undertaken for each job.

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	The services provided vary significantly from job to job. Most significant cost drivers are: • Type of installation, 1Ø, Multi Ø; • Distance of pole to pit; • Ground type, sand, earth, rock etc The service will generally be provided during normal work hours unless the customer has a specific need for an after hours job. There are no specific performance characteristics that are not already captured. Documented costs for some previous jobs are available to indicate the variability of costs involved in providing this service, depending in the nature of these jobs.

16.4.11 Service Cable Pulled Down by High Loads – Indicative Prices

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Service Cable Pulled Down by High Loads charge for the forthcoming regulatory control period.

Table 16.22: Service Cable Pulled Down by High Loads – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(i)	Description	The re-instatement of overhead lines that are pulled down by high loads. Where the party responsible for the damage is identified SP AusNet will recover the costs to re-instate the line from the party concerned.
15.2(a)(v)	Indicative Prices in 2011 (Real $2010)	$1,108

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2(a)(vii) and 15.2(b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	There has not been a significant number of these jobs during the current regulatory period (estimated to be 41 in 2008/09). The nature and purpose of these jobs is such that it is appropriate to charge on the basis of cost recovery in the same way as all other damage to asset costs are recovered.
15.2(a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	Unit Costs to be based on costs incurred in undertaking the required repairs. Typical cost items include: • Labour • Materials • Service Trucks
15.2(b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	Charges are to be based on actual costs incurred using rates set out in an Appendix based on the specific tasks to be undertaken for each job.
15.2(b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	These jobs are the result of third parties' failure to conduct their tasks and duties in a safe manner that properly takes account of assets in the vicinity of their vehicles and other equipment. This service maybe required anywhere in the network. The service will be provided in response to a third party damaging SP AusNet assets and could occur at any time of the day and any day of the week. There are no specific performance characteristics that are not already captured.

16.4.12 Public Lighting

The following table outlines all relevant information required by the RIN in relation to SP AusNet's proposed Public Lighting charges for the forthcoming regulatory control period.

Table 16.23: Public Lighting Operations Maintenance and replacement – Information underpinning proposed prices

RIN Paragraph	RIN Parameter	SP AusNet's Explanation				
15.2 (a)(i)	Description	SP AusNet owns and operates a Public lighting system on behalf of Public Lighting Customers within its licensed distribution area. Public Lighting Customers are generally municipal councils.				
15.2 (a)(v)		**2011**	**2012**	**2013**	**2014**	**2015**
		Indicative Prices in 2011 (Real $2010) for the Central Region				
	Mercury Vapour 80W	$47.27	$41.23	$47.15	$49.69	$52.22
	HP Sodium 150W	$93.07	$87.64	$95.52	$99.28	$103.03
	HP Sodium 250W	$95.43	$90.00	$98.03	$101.85	$105.67
	Mercury Vapour 50W	$72.33	$63.08	$72.14	$76.03	$79.89
	Mercury Vapour 125W	$69.49	$60.61	$69.31	$73.05	$76.76
	Mercury Vapour 250W	$100.20	$94.50	$102.93	$106.94	$110.95
	Mercury Vapour 400W	$104.02	$98.10	$106.86	$111.02	$115.18
	HP Sodium 100W	$99.59	$93.78	$102.21	$106.23	$110.25
	HP Sodium 400W	$135.51	$127.80	$139.21	$144.63	$150.05
	HP Sodium 50W	$48.40	$45.57	$49.67	$51.62	$53.58
	T5 2X14W	$49.59	$44.73	$46.66	$49.57	$50.95
	T5 2X24W	$52.62	$47.71	$49.72	$52.77	$54.13
	Compact Flourescent 42W	$46.16	$41.33	$43.17	$45.93	$47.31

RIN Paragraph	RIN Parameter	SP AusNet's Explanation				
		Indicative Prices in 2011 (Real $2010) for the Northern & Eastern Regions:				
	Mercury Vapour 80W	$53.96	$47.83	$54.30	$57.04	$59.76
	HP Sodium 150W	$104.23	$98.85	$107.35	$111.41	$115.48
	HP Sodium 250W	$104.78	$99.38	$107.93	$112.01	$116.09
	Mercury Vapour 50W	$79.85	$70.79	$80.37	$84.42	$88.45
	Mercury Vapour 125W	$79.85	$70.79	$80.37	$84.42	$88.45
	Mercury Vapour 250W	$108.97	$103.35	$112.25	$116.49	$120.73
	Mercury Vapour 400W	$112.11	$106.33	$115.49	$119.85	$124.21
	HP Sodium 100W	$111.53	$105.77	$114.87	$119.21	$123.56
	HP Sodium 400W	$148.78	$141.12	$153.26	$159.05	$164.84
	HP Sodium 50W	$54.20	$51.40	$55.82	$57.93	$60.05
	T5 2X14W	$55.02	$50.29	$52.35	$55.39	$56.90
	T5 2X24W	$57.38	$52.58	$54.71	$57.87	$59.34
	Compact Flourescent 42W	$53.08	$48.18	$50.20	$53.25	$54.62
15.2 (a)(vii) & 15.2 (b)(i)	The methodologies and assumptions used to derive proposed charges for each service for each regulatory year of the forthcoming regulatory control period (including spreadsheets and consultant's reports).	These prices have been established using the pro forma template spreadsheet provided by the AER for the purposes of establishing Public Lighting Prices. Inputs to the spreadsheet have been updated to reflect the current level of input costs and work practices established under the current EBA that applies to these activities.				

RIN Paragraph	RIN Parameter	SP AusNet's Explanation
15.2 (a)(xi)	The proposed unit cost inputs required to calculate charges for each service for each year of the forthcoming regulatory control period	Unit Costs to be based on costs incurred for performing the task. Typical cost items include: • Labour • Materials, lanterns,lamps, poles, brackets etc • Elevated Platform Vehicles • Traffic Management Services
15.2 (b)(iv)	How the charges, terms and conditions, for each service are based on the costs incurred in providing the service.	The above rates are to be applied annually on a per light basis and billed monthly.
15.2 (b)(vi)	If the service is not provided at the same cost to all customers, why this is the case with reference to: (1) the volume or quantity of the service provided; (2) the places where the service is provided; (3) the time of day at which the service is provided; (4) the performance characteristics at which the service is provided; or (5) any other difference in the costs of providing the service.	Annual charges for each light type have been established for three regional locations. Two of these regions, Northern and Eastern, have a common price. The price differential is based on the different density of lights in each region and the additional costs that are incurred due to the distances crews are required to cover and differences in plant and equipment required to service the regions and different work practices that are required in more remote areas.

16.4.13 Recoverable Works

SP AusNet will utilise the quoted service fees attached to this proposal to provide a number of recoverable works services, for example: emergency works where customer is at fault and immediate action needs to be taken by the DNSP; supply enhancement at customer request; auditing of design and construction; and specification and design enquiry fees. These fees represent SP AusNet's most up-to-date estimate of its unit costs for the provision of certain services, adjusted to by SP AusNet's proposed CPI of 1.26%, which has been used throughout this Proposal to adjust 2009 dollars to 2010 dollars. The price control mechanism outlined in Section 16.5 of this chapter would be used to determine units costs rates for 2012-2015.

16.5 Form of Control for Alternative Control Services

The AER states in its Framework and Approach Paper that it will[142]:

- continue to apply price caps on unit costs for the quoted services grouping of alternative control services and individual prices for all of the other alternative control services; and
- commence the application of a price cap to those currently prescribed metering services (unmetered supplies), which the AER proposes to classify as alternative control services.

More specifically, the Framework and Approach Paper states that the basis of this control mechanism will be of the CPI-X form, as set out in the formula below:

$$P_t \leq P_{t-1} \times (1+CPI) \times (1-X)$$

SP AusNet notes that Clause 6.8.1(c) of the NER requires that the AER's Framework and Approach Paper state the form or forms of the control mechanisms to be applied by the distribution determination to direct control services and the AER's reasons for deciding on control mechanisms of the relevant form or forms. Moreover, Clause 6.12.3(c) of the NER requires that control mechanisms to apply in the distribution determination must be as set out in the Framework and Approach Paper.

SP AusNet proposes the adoption of a 1% X factor, in conjunction with the Price Control Mechanism outlined in the AER's Framework and Approach Paper.

16.6 Negotiated Services

Under the NER, the AER must make a decision to classify a service as a direct control or negotiated distribution service. This requires the AER to take into account the matters contained in clauses 6.2.1 and 6.2.2 of the NER.

The AER's Framework and Approach Paper classified two services that are currently excluded services, as negotiated services. These were:

- New public lighting assets; and
- Alteration and relocation of existing DNSP public lighting assets.

SP AusNet agrees with the AER that these two services should be treated as negotiated services from 1 January 2011.

[142] Ibid, pg 77.

Terms and conditions for these two negotiated distribution services, including the price of those services, will be determined under the negotiate/arbitrate framework set out in Chapter 6 of the NER. SP AusNet will negotiate with customers in accordance with a negotiating framework approved by the AER, and negotiated distribution service criteria determined by the AER.

SP AusNet's proposed negotiating framework is attached as an Appendix to this Proposal.

SP AusNet notes that there are material service classification issues subject to the current review. As such, material changes to the Negotiating Framework may well be necessary in response to the AER Draft Decision.