2013-2017 Gas Access Arrangement Review – Access Arrangement Information

Submitted: 30 March 2012

SP AusNet™
A member of Singapore Power Group

About SP AusNet

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

- A gas distribution network delivering gas to approximately 605,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.
- A 6,500 kilometre electricity transmission network indirectly servicing all electricity consumers across Victoria.
- An electricity distribution network delivering electricity to approximately 640,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria.

SP AusNet's vision is to provide customers with superior network and energy solutions. SP AusNet is committed to the following corporate values:

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

For more information visit: www.sp-ausnet.com.au.

Contact

This document is the responsibility of the Networks Strategy and Development Division, SP AusNet. Please contact the officer below with any inquiries.

Rob Amphlett Lewis

Network Owner – Gas

Networks Strategy and Development Division

SP AusNet

Level 31, 2 Southbank Boulevard

Melbourne, Victoria 3006

Ph: (03) 9695 6299

Table of Contents

This page is left deliberately blank

Highlights

SP AusNet has delivered significant cost reductions and investment in productivity

SP AusNet delivers natural gas to customers across its network area safely and reliably, whilst continually and efficiently reducing the cost of doing so. The savings achieved are shared between customers and investors through the operation of the efficiency carryover mechanism, an integral part of the incentive framework.

These incentives have driven the productivity improvements generated from synergies from the operation of the three Victorian network businesses operated by SP AusNet, investment in information technology solutions and sound management.

Evident efficient outcomes

Independent expert analysis concludes that SP AusNet is one of the most efficient gas distribution businesses in the Australia and New Zealand region.

Capital market uncertainty has re-emerged

Capital market conditions remain turbulent and considerable uncertainty exists as to global macroeconomic strength through the fourth regulatory period to 2017. SP AusNet can only retain the support of its investor base by continuing to meet market expectations of stable and efficient returns. Compelling evidence demonstrates that the standard regulatory approach to estimating the cost of equity does not deliver credible results under the current market conditions.

Downside risks to growth have increased

The boom in Victorian homebuilding is over and growth in customer numbers will moderate significantly. Government efficiency policies and the flow through of previous stimulus expenditure, in regard to solar hot water and insulation, will exert downward pressure on energy sales. The risk of domestic gas prices reaching parity with international prices represents a real and significant volume risk which must be addressed.

SP AusNet has invested to meet its obligations and deliver safer services even during difficult times

Despite capital market turmoil and uncertainty coinciding with higher than forecast customer growth, SP AusNet has maintained compliance with its obligations to connect customers and augment the network. Furthermore, 76kms of mains replacement per annum (relative to a benchmark of 90kms determined at the last access arrangement review) will have been delivered under extremely difficult capital market conditions. Safety obligations underpin an additional program of replacing medium pressure mains, specifically targeting mains on the basis of safety risk assessment.

Incentives must align with the NGR and NGL

SP AusNet strongly supports an incentive-based regulatory approach and proposes to retain the existing capital and operating expenditure incentives. However, the unaccounted for gas framework has not allowed SP AusNet a reasonable opportunity to recover at least its efficient costs.

Moderate initial price rise

SP AusNet acknowledges community concern about rising energy prices. Proposed prices for the Fourth Access Arrangement Period reflect a 3.9% first year real rise in prices followed by flat real prices in the remaining years of the period.

This page is deliberately left blank.

Executive Summary

This Access Arrangement Information presents SP AusNet's expenditure and service plans for its gas distribution business for the next five years (2013-2017). SP AusNet's covered natural gas distribution network delivers gas to more than 605,000 customers in western metropolitan Melbourne and South-West and West regional Victoria.

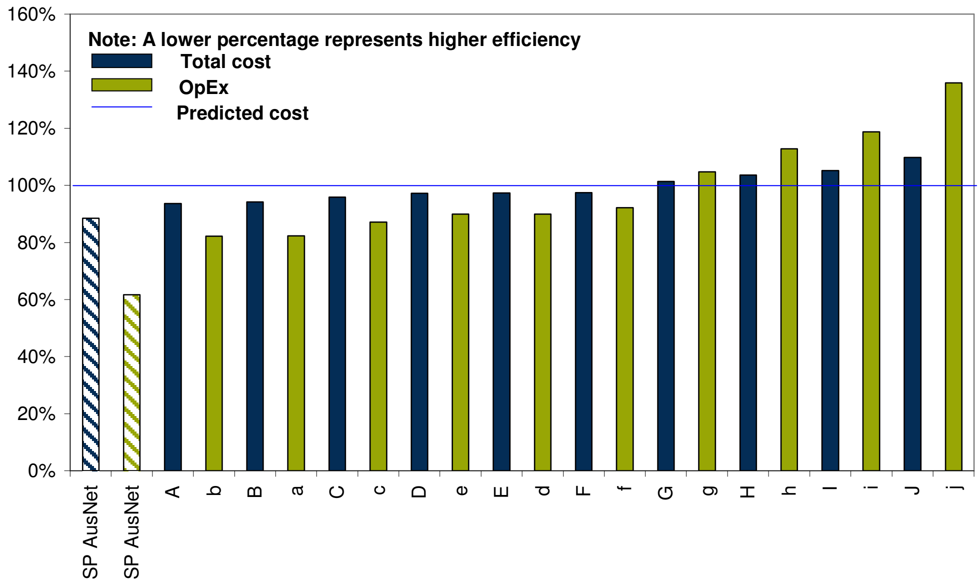
SP AusNet and Victoria lead sectoral productivity performance

SP AusNet has responded positively to regulatory incentives, and is on the frontier of efficiency

The gas distribution sector since privatisation has delivered significant productivity improvements. SP AusNet has been at the forefront both in absolute terms and relative to other network businesses, responding positively to 14 years of incentive-based regulation. Since its establishment in 1997, SP AusNet's gas distribution business has achieved continuous improvements in operating and capital efficiency.

Benchmark analysis of SP AusNet against other gas distribution businesses providers in Australia and New Zealand demonstrates SP AusNet is on the frontier of efficiency. The benchmarking employed an econometric model to estimate the total cost to serve using analysis based on key cost drivers. This supports the contention that SP AusNet's costs are efficient.

Figure 1: Relative productivity of AU and NZ GDBs



Source: Economic Insights

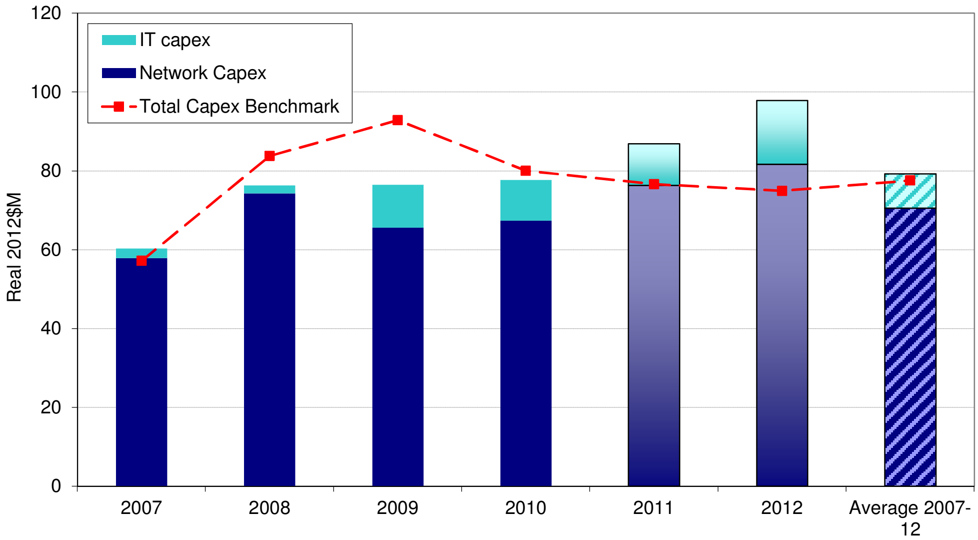
As noted below, SP AusNet's strong productivity performance and cost efficiency can also be illustrated by comparing actual expenditure against the regulatory benchmarks set by the Essential Services Commission (ESC).

SP AusNet has efficiently managed expenditure levels

Capital expenditure matched to benchmark

SP AusNet has closely managed its capital expenditure to the regulatory allowances set by the ESC. This has been managed despite significant cost pressures associated with higher than forecast connection growth. In 2010, for example, SP AusNet connected almost 20,000 new gas customers against a benchmark allowance of 14,000.

Benchmark and actual/estimated capital expenditure (2007-2012)

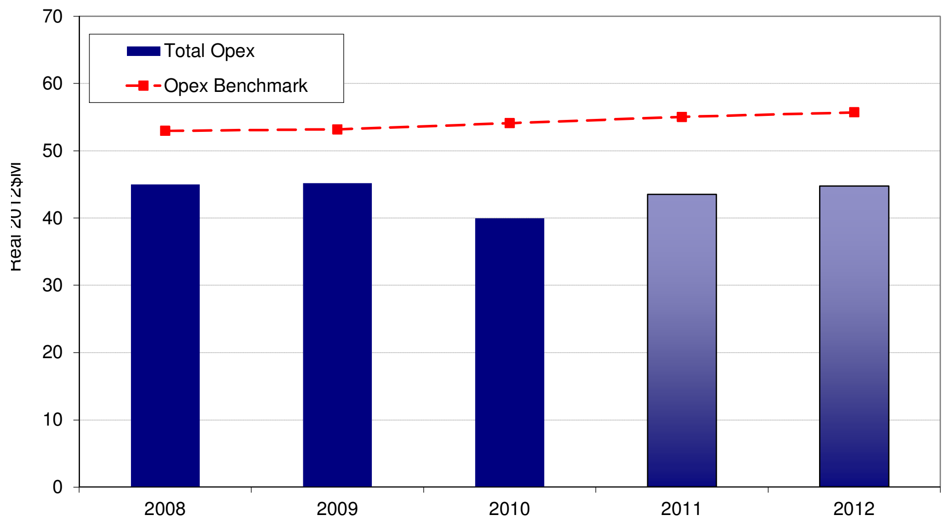


Source: SP AusNet analysis, actual 2007-10, estimate 2011-12.

SP AusNet's benchmark opex allowance was determined by the ESC, based on revealed actual expenditure in 2006. SP AusNet has achieved significant costs savings against this allowance. The regulatory framework provides strong incentives for sustainable savings to be made regardless of which year the saving is achieved. SP AusNet's proposed approach to forecasting operating expenditure will ensure that these savings are passed on to customers in the forthcoming access arrangement period.

Benchmark and actual/estimated operating expenditure 2008-2012

Significant operational expenditure savings against benchmark



Source: SP AusNet analysis, actual 2008-10, estimate 2011-12.

These efficiencies have been derived from:

- synergies related to running three Victorian regulated energy networks;
- investment in IT and other efficiency programs; and
- the maintenance contract with Tenix has enabled cost pressures to be absorbed temporarily by SP AusNet's service provider. This contract will be renewed on terms determined by competitive tender.

SP AusNet delivers efficient service outcomes

SP AusNet's proposal allows it to meet its regulatory obligations whilst maintaining service level performance. This outcome is in line with the National Gas Objective (NGO).

Efficient levels of service have been achieved over an extended period as have successes in other important Key Performance Indicators (KPIs), such as:

Efficient levels of customer service

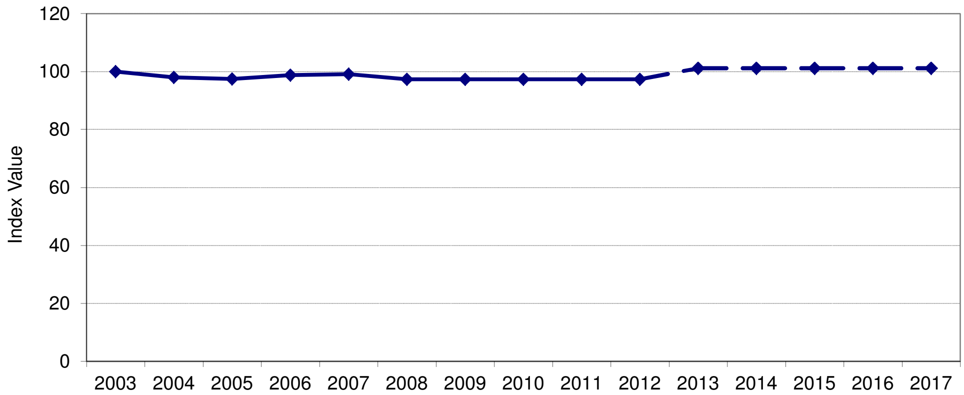
- SP AusNet's performance has exceeded the target for emergency response times in every year since 2004; and
- customers receive, on average, only 1 outage every 50 years.

SP AusNet's expenditure plans for the fourth regulatory period target the maintenance of already high level of service performance. No expenditure is planned for improving service performance as it is clear, from the high levels of customer satisfaction and reliability, that investment in service performance improvement would be an inefficient use of funds.

SP AusNet recognises that many gas customers' primary concerns relate to the cost of service. The figure below demonstrates that the real weighted average price path has remained broadly unchanged in real terms since 2003 on a 'like for like' basis.

Real weighted average price path (Index)

Prices have remained stable in real terms over the long term



Source: SP AusNet analysis

This price profile will allow SP AusNet to make the necessary investment in the network to deliver the safety improvements foreshadowed in this submission; continue to connect new customers and satisfy its regulatory obligations; whilst ensuring SP AusNet can adequately discharge its financial obligations, with particular focus on maintaining its credit rating.

A small (3.88%) initial real price increase is required resulting from three key pressures on SP AusNet's cost base.

1. SP AusNet is obliged to conform with its Gas Safety Case (GSC), through mitigating new safety risks as they are identified to the extent that is reasonably practicable and to provide an appropriate Occupational Health and Safety environment for its staff. These obligations drive costs which would be incurred by any prudent service provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing services.

2. SP AusNet expects to be impacted by increased input cost pressures relating to both the labour and materials employed in the operation and maintenance of the gas network. In this environment prices must be higher than otherwise to allow SP AusNet a reasonable opportunity to recover at least its efficient costs in accordance with section 24 of the National Gas Law (NGL).
3. Thirdly, declining average gas usage per customer puts upward pressure on prices. The reduction of gas usage is attributed to government energy efficiency programs and increases in the penetration of reverse cycle air-conditioning and housing insulation.

The present economic and investment climate holds significant risks not addressed in the cost of capital

Section 23 of the NGL, which sets out the NGO, specifically recognises the importance of efficient investment in the gas distribution network, as follows:

> *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."*

Returns set too low result in outcomes inconsistent with the NGO

In order to give effect to the above objective, the NGL contains a number of revenue and pricing principles that the AER must take into account in its decisions. Section 24(2) is particularly relevant to the objective of promoting efficient investment:

> *"(2) A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—*
>
> *(a) providing reference services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment."*

This specifically allows for a gas distribution service provider an "opportunity to recover *at least* the efficient costs" it incurs in providing such services; efficient costs include its cost of capital.

SP AusNet must secure funds in capital markets that are driven by the commercial realities of risk and return. No company's cost of capital can be known with certainty, though it is certain that providing an inadequate rate of return risks inadequate investment in the network, contrary to the long term interests of consumers. It is therefore essential that the AER takes a cautious approach to estimating the cost of capital and avoids the costs associated with under-estimating the returns required by investors.

In a highly interconnected global environment, the continuing turmoil in national and international financial markets affects investors' appetite for risk. These conditions result in the following investment challenges:

- investors require a higher risk premium for holding equity; and
- investors require a higher risk premium for holding debt.

Evidence shows that the current approach to setting the weighted average cost of capital (WACC) does not provide for a sufficient rate of return under these market conditions. Yet using the traditional approach to estimating required equity returns, through the use of Government bond yields and a market risk premium, would forecast required returns to be currently as low as they have ever been. This is not plausible in the current environment.

Government bond yields do not now provide a solid foundation for estimating the efficient return on equity

This failure of the Capital Asset Pricing Model (CAPM) to recognise the required equity return is solely the result of the yields on Commonwealth Government securities being depressed by unrelated market forces. This must be adjusted for, if the AER is to meet its obligations under the NGL and allow SP AusNet the opportunity to recover at least its efficient costs. Risk has increased not decreased, and equity markets would be demonstrating significantly different characteristics if, in this environment, a reduction in government bond yields was as positive to valuations as is inferred by the unadjusted functioning of the standard CAPM.

Any regulatory decision that does not at least maintain key parameter values, during this time of significant market uncertainty, will undermine precedents set by the AER and the Australian Competition Tribunal (ACT), where those decisions were based on sound analysis and the delivery of appropriate regulatory outcomes. There are no compelling factors justifying a departure from these precedents and the contemporary nature of these precedents justifies a reasonable expectation that they would be adhered to by the AER in its assessment of this access arrangement.

End of cycle economic growth and falling gas consumption present tangible risks

SP AusNet has experienced significant growth in its customer base from 450,000 to 600,000 over a ten year period.

Housing construction and customer growth in SP AusNet's area cannot continue at historic levels

The dominant driver being that SP AusNet's service area includes three of Victoria's six fastest expanding urban growth areas[1]. Growth rates exceeding 5% p.a. have been seen and are expected to continue (in the short term) in the Melton[2], Wyndham[3] and Hume[4] growth areas. The location of these major growth areas/corridors within SP AusNet's network area is shown below. This growth has been driven by a number of transitory factors. Such as:

- regional expansion as a result of government subsidies;
- organic growth to existing premises within the network area which had not previously been connected; and
- government stimulus packages including the First Home Buyers Grant (FHBG).

---

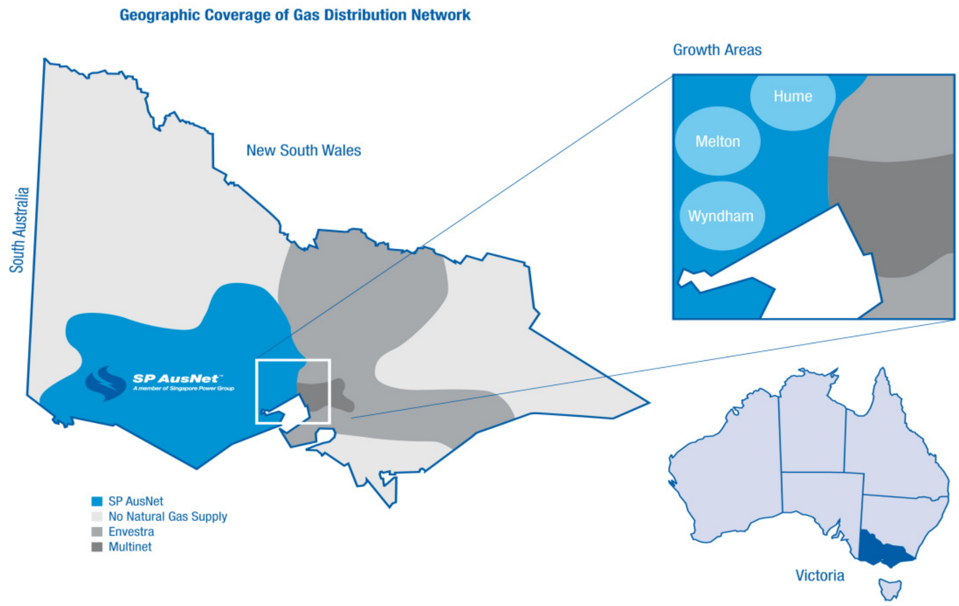
1 Source: State Government Victoria, Growth Areas Authority, www.gaa.vic.gov.au.

2 The Melton growth area includes the Melton township and the suburbs of Caroline Springs, Taylors Hill, Hillside and Ravenhall.

3 The Wyndham growth area includes the suburbs of Werribee, Wyndham Vale, Tarneit, Hoppers crossing, Laverton and Point Cook.

4 The Hume growth area includes Greenvale, Roxburgh Park, Craigieburn and Craigieburn West.

Victorian Western growth corridors

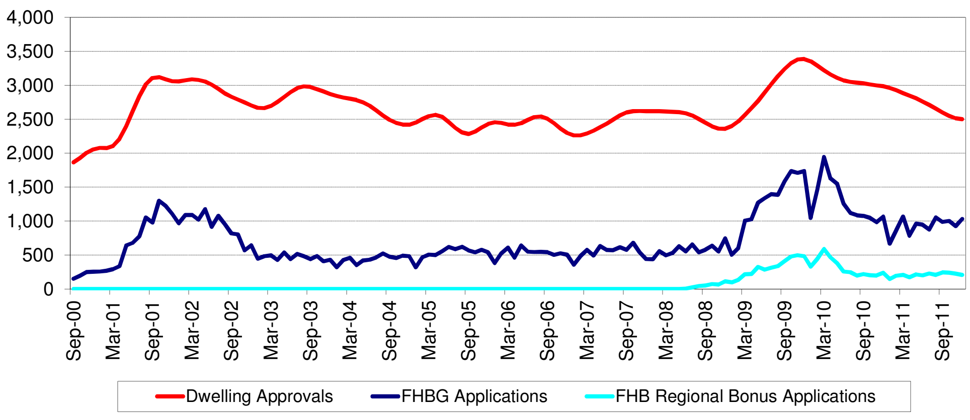


Source: SP AusNet / State Government Victoria, Growth Areas Authority

Government stimulus packages, such as the FHBG, have driven significant growth in dwelling approvals during the current access arrangement period. These grants have disproportionately impacted on SP AusNet's service area; the top three regional areas in Victoria where applications were received for the FHBG were in SP AusNet's service area.

The scheme has clearly contributed to a large rise in new dwelling approvals over the current access arrangement period, relative to historical levels. Illustrated below; there was an almost 40% increase in the monthly dwelling approvals between January 2009 and January 2010 and this was highly correlated with grant applications received during that same period.

First Home Buyers Grant versus Dwellings Approvals



Source: Australian Bureau of Statistics; State Revenue Office; SP AusNet

The government stimulus packages now ended the evidence shows there is significant weakness in the current number of dwellings being approved in Victoria. The information contained in the above graph from the Australian Bureau of Statistics and the State revenue Office highlights this correlation.

Independent expert forecasts are supported by government department of planning data

To ensure that SP AusNet's forecasts of customer connections and gas demand are well-founded, independent expert opinion has been obtained from the Centre for International Economics (CIE). As a whole, CIE is forecasting growth in net residential customer numbers (gross connections less abolishments) to reduce from the 3.1% p.a. witnessed over the current regulatory period, to approximately 2.2% per annum over the fourth regulatory period. CIE has utilised publicly available information from the Victorian Department of Planning (VDP) to derive forecasts of dwelling growth in the established Central and West tariff zones.

Continued reductions in household gas consumption

SP AusNet is projecting, based on CIE analysis, a continuing downward trend in residential per capita gas consumption. This reflects the trend for new dwellings to have much lower gas demand than existing dwellings, despite the likelihood of increasing penetration of gas appliances. Further, this reflects the on-going impact of government policies to improve appliance and building efficiency and the impact of solar hot water.

SP AusNet considers that the forecasts produced by CIE are consistent with the NGR in so far as they are unbiased and transparent, as they are based primarily on publicly available data sourced from independent, unbiased providers. Further, they have been validated and tested for their historical forecast accuracy, as in most cases, they represent a continuation of historical relationships exhibited between different drivers of gas usage. For example, CIE's analysis suggests that for every 1 per cent reduction in Victorian Gross State Product, relative to that projected by Victorian Treasury, commercial sector gas usage would be in the order of a 0.87 per cent lower.

East coast Australian wholesale gas prices may meet parity with international prices

The most significant risk to usage through the next access arrangement period is the potential for the wholesale price of gas in Australia to escalate to reach parity with the price of gas in international markets. This could happen as a number of Liquefied Natural Gas terminals, such as Gladstone, currently under construction, come on line opening the east coast market to competition from international buyers. Should this happen there is the potential for prices in Victoria to rise by up to 150% if they reached LNG export prices. If this does occur it is likely that the customer response to such price signals would be a considerable reduction in gas usage and, resultantly up to 5% revenue under recovery. SP AusNet is proposing a price control adjustment to mitigate this risk without necessitating an immediate increase in customer bills.

Capital expenditure focused on safety, compliance and productivity improvements

The Gas Safety Case (GSC) and Gas Distribution System Code (GDSC) are overriding obligations which SP AusNet must satisfy. The GSC, which is required by the Gas Safety Act (Vic) 1997 and approved by Energy Safe Victoria, sets out the network risk assessment and mitigation activities with which SP AusNet must comply to ensure safety of services. Obligations under the Victorian GDSC determine the minimum pressures SP AusNet must provide and the terms under which SP AusNet is obliged to connect customers.

SP AusNet's detailed planning assessment shows that additional capital and operating expenditure will be required to meet these obligations. The geographic expansion of the network, driven by customer demand, and the increased customer base requires an associated increase in the safety program.

SP AusNet's asset management objectives that underpin its Asset Management Strategy and capital expenditure plans are consistent with the NGO, as set out in section 24 of the NGL and rule 79 in the NGR:

Maintain the network's current performance and improve safety where necessary

- maintain or improve ***Safety*** in accordance with the Gas Safety Case;
- maintain ***Integrity*** of the network;
- maintain ***Capacity*** of the network; and
- maintain ***Customer Service*** levels.

The capital expenditure case underpinning this submission is driven by the intention to 'maintain' system integrity, 'maintain' ongoing compliance with regulatory obligations and 'maintain' customer outcomes, while allocating the necessary resources to delivering network services safely.

SP AusNet's capital expenditure programs are predominately mandated to meet a regulatory and/or legal obligation. These are set out below.

Regulatory compliance and continued safe delivery of network services drives capital investment

Overview of SP AusNet's regulatory obligations

National Gas Law	Gas Distribution System Code	Gas Safety Case	Australian Standards
• Regulation	• Connection obligations • Service obligations	• Approved by ESV	• ANS/NZS 4944:2006 • AS 2885 / AS 4130

Source: SP AusNet

In satisfying these obligations with the necessary focus on safety, service to customers and sustainability, SP AusNet's capital expenditure must:

- Be sufficient to connect new customers to the gas network and meet forecast gas demand;
- Adopt a mains replacement program that appropriately balances safety and performance considerations; and
- Undertake reactive asset replacement, including the replacement of meters that fail the testing requirements.

SP AusNet actively pursues sound asset management

SP AusNet's Asset Management System provides the necessary structure and discipline to ensure that the company's capital and operating expenditure plans satisfy the NGR requirements in relation to prudency and efficiency. SP AusNet's was the first, and as yet only, gas distribution business to have its Asset Management System accredited to the British Standards Institution's (BSI) PAS (Publicly Available Specification) 55. Gaining PAS 55 accreditation provides confidence to internal and external stakeholders that SP AusNet's asset management is in-line with international good practice.

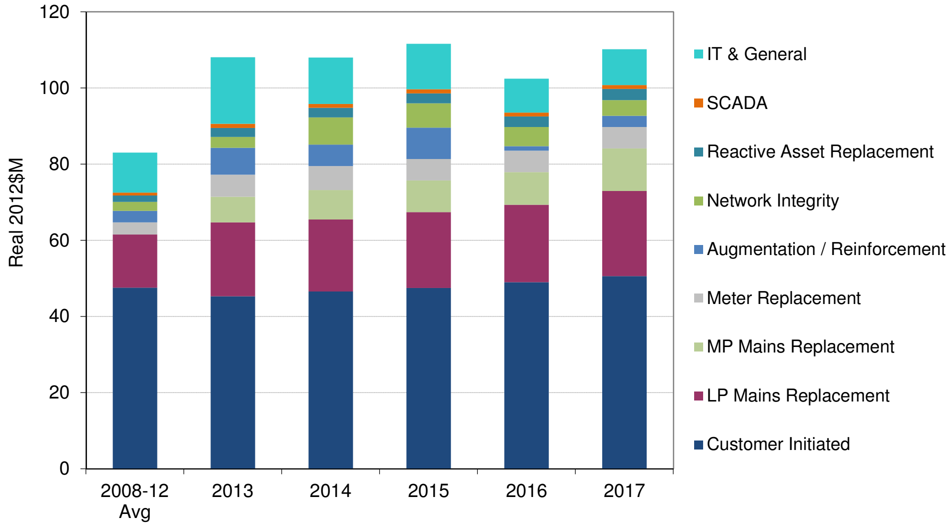
In accordance with SP AusNet's Asset Management System, the expenditure forecasts for the next regulatory period reflect a careful examination of:

- the risk profile of the gas distribution network, recent and forecast demand, compliance requirements and stakeholder expectations;
- network performance, asset condition and customer requirements; and

- SP AusNet's asset management strategy and longer term vision for the gas network over a 30 year planning horizon.

The figure below shows the forecast annual capital expenditure over the forthcoming access arrangement period compared with the average expenditure from the current access arrangement period.

Average historic and forecast annual capital expenditure



Source: SP AusNet

The proposal represents SP AusNet's intention to maintain its performance, meet its obligations and invest to improve safety and consolidate productivity. Including:

Compliance, safety and productivity are the focus of the proposed capital expenditure

- Complying with obligations in regard to: connecting customers (customer initiated capital expenditure), minimum pressure standards (augmentation) and meter replacement constitute approximately 44.2% of the 5 year capital expenditure plan;
- The mains replacement program is the second largest category of capital expenditure, comprising 26.6% of the total. As explained in further detail below, safety is the primary driver for this expenditure program; and
- IT expenditure, which makes up 10.8% of the proposed expenditure, will allow SP AusNet to consolidate and build on the productivity improvements achieved to date replacing obsolete systems and rationalising the number of discrete applications that currently exist.

SP AusNet's capital expenditure proposal will deliver outcomes entirely consistent with NGR rule 79, the NGL and the NGO.

SP AusNet's most significant change to historic practices is the proposed addition of a program of medium pressure mains replacement. The rationale for this proposal is set out here and detailed further in Chapter 5.

The proposed step up in mains replacement expenditure reflects the proposed continuation of the targeted replacement of 90kms per annum of low pressure mains and an additional 30kms per annum of medium pressure mains replacement.

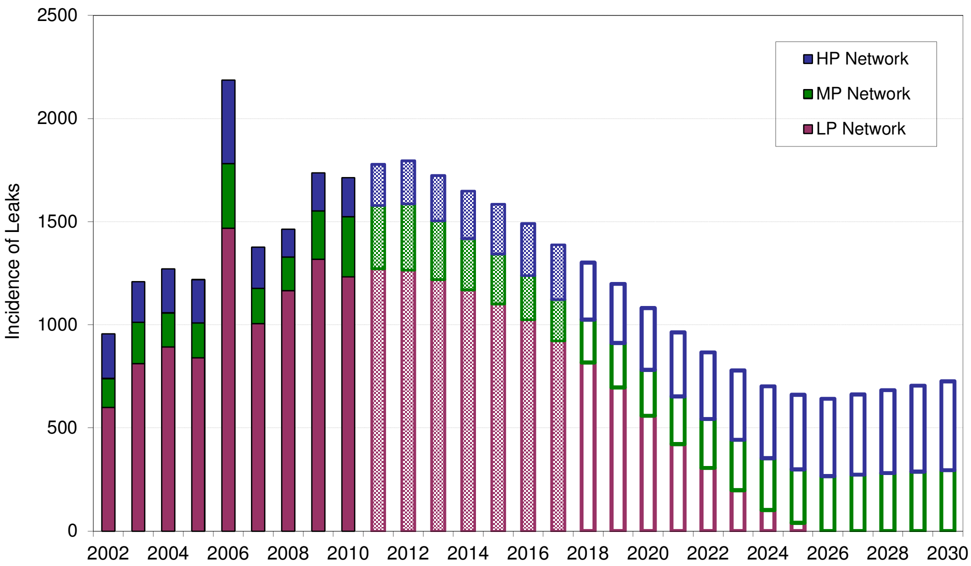
The rationale for undertaking the low pressure replacement is based on a risk assessment of the network by material type, which identifies cast iron as the highest risk material type. This risk assessment also applies to the medium pressure network. SP AusNet's analysis indicates that although the risk of a medium pressure asset failure occurring is low, the associated consequence (in any populated area) could be significant.

Safety can be improved through a program of medium pressure replacement targeted at material types posing the greatest safety risk

SP AusNet has identified certain material types, within the medium pressure network, which demonstrate unacceptably high leak incidence. With a program of 30km per annum of medium pressure mains replacement, which targets the highest risk assets first, SP AusNet can efficiently ensure risk profiles across the network are appropriately managed.

This expenditure is proposed on the basis that this is the minimum replacement required to maintain the current leak incidence per km profile of the medium pressure network and maintain overall network safety. In doing so, not only is overall public safety risk managed, but occupational health and safety for SP AusNet employees and contractors is improved, through reducing the need to undertake reactive shut-offs and repairs, which on medium pressure assets can be hazardous.

Actual and forecast leaks from SP AusNet's gas network



Source: SP AusNet

Note that the significantly higher number of leaks requiring repair during 2006, was the result of a transition to a new leakage management strategy which brought forward many reported leaks.

The figure above shows SP AusNet's forecasts of total leaks taking into account its replacement expenditure program. In the absence of the replacement program, leak incidence increases dramatically resulting in significantly increased safety risk.

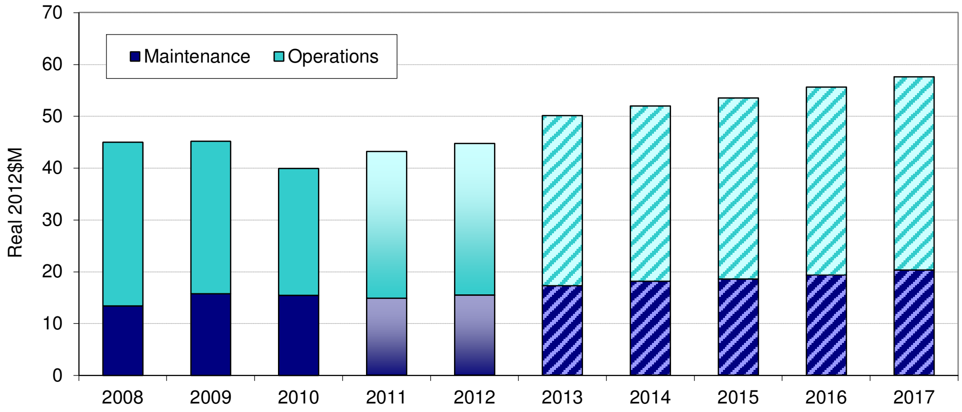
Taking into consideration the economic costs and risks associated with underinvestment in the replacement program, it is clear that the investment is prudent, as provided for in section 24(6) of the NGL. Of all the elements of the NGO in section 24 of the NGL, the achievement of safety for consumers is paramount.

Efficient frontier operating expenditure will trend with growth and input prices

Forecast based on efficient revealed recurrent costs

The regulatory framework provides strong incentives to efficiently minimise expenditure sustainably and therefore the AER can have confidence under rule 71 that reported operational costs are efficient.

Actual and forecast operating expenditure



Source: SP AusNet, excludes debt raising costs, historic includes UAFG.

SP AusNet's approach to forecasting operating expenditure builds from the latest estimate of actual costs incurred during 2011. These costs have been normalised to remove the effects of abnormally high rainfall. The forecast trend in these normalised expenditures is driven by three factors:

- projected increases in materials and labour costs based on advice from independent experts;
- the impact of moderate consumption growth and new customer connections based on advice from independent economic consultants; off-set by; and
- an SP AusNet specific forecast of plausible future productivity improvements calculated by an independent economics consultant.

Other efficient costs, relating to activities not undertaken during 2011, are individually forecast and are additional to this trend forecast. Most significantly the implementation of the National Energy Customer Framework will commence on 1 July 2012. Resultantly, a dedicated call centre will be required to liaise directly with customers, a service previously provided by retailers.

SP AusNet's forecasting methodology provides a sound basis for ensuring that the resulting operating expenditure forecasts comply with the requirements of the NGR.

SP AusNet's customers and shareholders benefit from strong incentive arrangements

The revenue and pricing principles set out in section 24(3) of the NGL recognises the importance of providing effective incentives in order to promote economic efficiency with respect to delivery of reference services.

Retention of incentive frameworks which reward only efficient cost savings

As already noted, SP AusNet has responded positively to the incentives under the current regulatory framework, with the company's strong productivity performance delivering positive outcomes for customers. The current arrangements do not encourage inefficient outcomes nor do they reward the gas distribution businesses (GDBs) for failing to undertake programs as planned, the benchmarks against which efficiencies are measured are adjusted explicitly to preclude such benefits. For these reasons, SP AusNet seeks to retain the current efficiency incentives for both operating and capital expenditure.

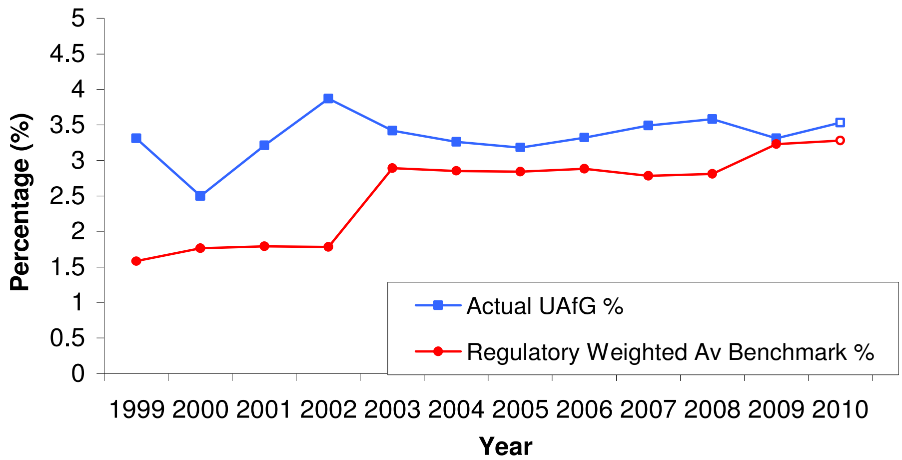
It is particularly important that incentive arrangements are designed so that they appropriately balance risks and rewards for the distribution service provider and its customers. In the context of the current 2008-12 regulatory period the incentive mechanism that applied to SP AusNet's unaccounted for gas (UAfG) did not strike this balance. This is an example where the settings need to be refined to ensure that effective and reasonable incentives are delivered in the future.

SP AusNet has obtained independent expert advice on the drivers of variations in UAfG, which indicates that losses are only a minor component of UAfG. Internal analysis also demonstrates there is no discernible correlation between low pressure mains replacement and UAfG reduction.

As shown below, since 1999 SP AusNet has remained in a net loss position on its UAfG payments and has never received a payment from retailers for achieving a below benchmark result. The benchmark was set in a manner which prevented SP AusNet recovering its efficient costs in contradiction to the requirements of the NGL.

Current UAfG benchmarks are not consistent with the NGL

SP AusNet's recent UAfG performance compared to benchmark



Source: SP AusNet

An important implication of this advice and analysis, in the context of the NGL which requires the AER's determination to allow SP AusNet to recover at least its efficient costs, is that the UAfG benchmark for the forthcoming regulatory period should be re-set to reflect most recent historical actual performance with no forecast declining trend.

Cost pass through arrangements can deliver superior outcomes for customers

The design of alternative mechanisms for the recovery of non-controllable costs is an area in which care is required, to ensure the preservation of effective incentives. Adjusting regulated revenue with the objective of providing incentives to businesses for outcomes that are beyond their control is inconsistent with the NGO and the revenue and pricing principles set out in sections 23 and 24 of the NGL. In such cases appropriate pass-through arrangements are preferable.

SP AusNet proposes that the indirect impacts of the carbon tax (such as changes in input costs) should be addressed in the company's expenditure forecasts and gas demand projections. In relation to the direct impact of the carbon tax, SP AusNet proposes that this should be addressed by including an appropriately defined variable in the price control formula.

A carbon tax factor within the price control is consistent with the principles of the Clean Energy Act

This approach is superior to alternative approaches that would expose SP AusNet or customers to the prospect of under or over-recovery. It is also consistent with the principle applied in other markets by the AER, which allows the pass-through of taxes and imposts

Applying the actual cost of the tax on a per gigajoule basis, internalises the external costs associated with gas usage, as determined by the Federal Government's Clean Energy Act 2011, and therefore promotes the achievement of the NGO, which pursues the efficient use of natural gas in Australia. SP AusNet considers that its proposed approach appropriately balances the interests of customers and the company and is consistent with the NGL.

SP AusNet's proposed amendments to its access arrangement are set out in detail in this document, its appendices and supporting documentation.

1. Introduction

1.1 Purpose and structure of this document

This document, its appendices (including the regulatory information templates) and all supporting material (collectively the "**Access Arrangement Information**" or "**AAI**"), is submitted on 30 March 2012 by SPI Networks (Gas) Pty Ltd ABN 43 086 015 036 (SP AusNet) to the Australian Energy Regulator (AER). This AAI explains SP AusNet's proposed revisions to the company's current access arrangement for the 2008-2012 regulatory period[5].

Specifically, in accordance with rule 42(1) of the NGR, this AAI sets out information that is reasonably necessary for users and prospective users:

- to understand the background to SP AusNet's access arrangement proposal for the regulatory period commencing on 1 January 2013; and
- to understand the basis and derivation of the various elements of SP AusNet's access arrangement proposal.

In all cases financial information within the AAI, unless clearly stated otherwise, (including but not limited to actual, estimates and forecasts) is all stated in real Australian Dollars as at 31 December 2012. Escalation is undertaken by reference to September on September Australian Bureau of Statistics All Groups Cities Quarterly Consumer Price Index (weighted average of eight capital cities), with a one year lag. This is consistent with current regulatory practice.

Capitalised terms used in this Access Arrangement Information and not otherwise defined herein have the meanings set out in the Glossary in Part A of SP AusNet's access arrangement.

As required by rule 42(2), the AAI also complies with the Regulatory Information Notice (RIN) served on SP AusNet on 13 February 2012. To demonstrate compliance with the NGR and RIN, SP AusNet has completed checklists that cross-refer to those sections of the AAI that satisfy the compliance obligations. A copy of these checklists is provided in this AAI.

In preparing the forecast information in this AAI, SP AusNet has ensured that it complies with the NGR requirements in rules 74 and 75, which set out general provisions relating to the derivation and presentation of forecasts.

Rule 74(1) states:

> *"Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate."*

Rule 74(2) states:

> *"A forecast or estimate:*
>
> *(a) must be arrived at on a reasonable basis; and*
>
> *(b) must represent the best forecast or estimate possible in the circumstances."*

Rule 75 states:

> *"Information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based."*

[5] The current access arrangement was approved by the Essential Services Commission. See *Review of Gas Access Arrangements 2008-2012, Further Final Decision and Approval of Commission's Amended Revisions to Access Arrangement: SP AusNet*, 19 May 2008.

In addition, forecasts or estimates in relation to each building block element comply fully with the particular NGR requirements for that element. In each case, the AAI provides an explanation of how SP AusNet has ensured that it complies with the NGR requirements.

Marked-up revisions to the current access arrangement and other supporting documents are also submitted to the AER along with this document. SP AusNet's proposed access arrangement is a full access arrangement[6] (as opposed to a limited access arrangement) because it is an access arrangement that:

- provides for price regulation as required by the NGR for a network of covered pipelines; and
- deals with all other matters for which the NGR requires provision to be made in an access arrangement.

The structure of this document is as follows:

Table 1-1: Structure of SP AusNet's access arrangement information

Chapter	Contents
Chapter 1	Provides introductory information including a description of the composition of the access arrangement, the legal and regulatory framework applying to SP AusNet's access arrangement revision proposal.
Chapter 2	Provides an overview of SP AusNet's gas distribution business, including a summary of the services provided, recent cost and service performance, and the key challenges for the next access arrangement period.
Chapter 3	Provides more detailed information on SP AusNet's performance over the current period, including the level of demand and customer numbers served, capital and operating expenditure, and performance against KPIs.
Chapter 4	Explains SP AusNet's gas demand and customer number forecasts for the forthcoming access arrangement period.
Chapter 5	Provides details of SP AusNet's capital expenditure forecasts for the forthcoming access arrangement period.
Chapter 6	Provides details of SP AusNet's operating expenditure forecasts for the forthcoming access arrangement period.
Chapter 7	Presents information on SP AusNet's capital base and depreciation.
Chapter 8	Sets out SP AusNet's proposed rate of return and allowance for the cost of corporate income tax.
Chapter 9	Presents a summary of SP AusNet's total revenue requirement in terms of the revenue building blocks.
Chapter 10	Sets out SP AusNet's proposals for treatment of unaccounted for gas.

6 In accordance with the definition of "full access arrangement" set out in the National Gas Law.

Chapter	Contents
Chapter 11	Sets out SP AusNet's proposed incentive arrangements, including the efficiency carryover mechanism, reliability incentive mechanisms, and Guaranteed Service Level payment arrangements.
Chapter 12	Presents SP AusNet's proposed pass through arrangements.
Chapter 13	Describes SP AusNet's reference services for the forthcoming access arrangement period.
Chapter 14	Details the proposed price control mechanisms.
Chapter 15	Provides details of SP AusNet's reference tariffs, including pricing principles, re-balancing constraints, and information demonstrating the economic efficiency of SP AusNet's reference tariffs.
Chapter 16	Sets out the fixed principles proposed by SP AusNet.
Chapter 17	Sets out information relating to other matters including the review submission date and revision commencement date, queuing policy, capacity trading policy, and extension and expansion policy.
Chapter 18	Explains the rationale for the proposed changes to Part C of SP AusNet's access arrangement terms and conditions.
Chapter 19	Contains a checklist of all applicable provisions of the NGR and provides cross-references to the relevant chapters of this document and other supporting documents, to demonstrate compliance with all applicable regulatory requirements.
Chapter 20	Contains a checklist of all applicable provisions of the RIN and provides cross-references to the relevant chapters of this document and other supporting documents, to demonstrate compliance.

1.2 Composition of SP AusNet's Access Arrangement

SP AusNet's current access arrangement is in three parts:

- Part A sets out the principal arrangements and contains provisions relating to: services policy, capacity management policy, queuing policy, extensions/expansions policy, and the dates for reviewing and revising the access arrangement.
- Part B sets out SP AusNet's Reference Tariffs and Reference Tariff Policy, and contains provisions relating to: haulage reference tariffs, ancillary reference tariffs, tariff control formulae, procedures for variations to reference tariffs, new facilities investment, speculative investment fund, incentive mechanisms, fixed principles, and cost pass through arrangements.
- Part C sets out the terms and conditions under which distribution services are to be provided to network users.

The architecture and content of the current access arrangement was developed and approved in accordance with the National Third Party Access Code for Natural Gas Pipeline Systems (the National Gas Code). The access arrangement first came into effect on 1 January 1999, with subsequent revisions coming into effect on 1 January 2003 and the latest revisions on 1 January 2008. The proposed revisions to the access arrangement will therefore be the fourth to apply to SP AusNet's distribution gas network in Victoria.

To minimise the changes to the current access arrangement, SP AusNet will retain its existing three part structure. Where necessary, terminology will be updated to reflect that used in the NGR.

1.3 Overview of Regulatory Framework

The AER is responsible for the economic regulation of covered natural gas distribution pipelines in all states and territories (except WA).

The AER is bound by legislation and other regulatory instruments in exercising its decision-making powers in connection with access arrangements applicable to covered pipelines. The primary source of the AER's power and functions is the NGL. The NGL also sets out the matters that the AER must consider and achieve when approving an access arrangement (or making a substitute access arrangement). Under this, the NGR defines the AER's decision-making process regarding an access arrangement proposal, including the extent to which the AER can exercise discretion in its decision-making. This document refers to relevant NGL and NGR provisions where this will assist stakeholders in understanding SP AusNet's proposed revisions.

The AER's functions and powers are set out in the NGL. Section 28(1) of the NGL requires the AER to perform or exercise its regulatory functions or powers in a manner that will or is likely to contribute to the achievement of the National Gas Objective. The NGO is set out in section 23 of the NGL as follows:

> *"...to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."*

Section 28(2) of the NGL also requires the AER to take into account specific revenue and pricing principles when exercising its discretion or making a determination. The revenue and pricing principles therefore provide important guidance not only to the AER, but also to SP AusNet and other stakeholders in preparing and responding to this submission and participating in the subsequent consultation process. The revenue and pricing principles are set out in subsections 24(2) to (7) of the NGL, and are reproduced below.

> *"(2) A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—*
>
> *(a) providing reference services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment.*
>
> *(3) A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—*
>
> *(a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and*
>
> *(b) the efficient provision of pipeline services; and*
>
> *(c) the efficient use of the pipeline.*
>
> *(4) Regard should be had to the capital base with respect to a pipeline adopted—*
>
> *(a) in any previous—*
>
> *(i) full access arrangement decision; or*
>
> *(ii) decision of a relevant Regulator under section 2 of the Gas Code;*
>
> *(b) in the Rules.*

(5) A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates.

(6) Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.

(7) Regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services."

Section 48 of the NGL provides the AER with powers to serve a regulatory information notice (RIN) to obtain information from a service provider or related party, if the AER considers it reasonably necessary for the performance or exercise of its functions or powers.

On 14 February 2012, the AER served a RIN on SPI Networks (Gas) Pty Ltd. The RIN requires certain information to be provided in templates. The completed templates are submitted along with this access arrangement information. In addition, Chapter 20 sets out a separate RIN response in regard to the Access Arrangement Information and overall proposal. It responds to those parts of the RIN that have not been addressed in the templates. An index is provided as part of the RIN response, to enable the reader to readily identify the location of all of the information that has been provided in response to each section of the RIN.

In addition to meeting the requirements of the NGR, this document and the accompanying appendices and templates also address the RIN requirements.

2 Overview of SP AusNet's Gas Distribution Business

2.1 Summary of Key Points

This chapter provides an overview of SP AusNet's gas distribution network and business. The key points are:

- SP AusNet's management of its gas distribution network is focused on the company's zero compromise on safety; delivering services in accordance with accepted good industry practice to achieve the lowest sustainable cost; meeting SP AusNet's regulatory obligations; and delivering on our vision for the gas distribution network. SP AusNet's focus on safety is also consistent with, and achieves, the paramount objective of delivering a safe natural gas pipeline system, required by the NGO and State legislative requirements pertaining to gas safety, with which SP AusNet must comply.
- SP AusNet's gas distribution network serves three of Melbourne fastest developing urban growth corridors.
- The gas distribution network reflects more than 100 years of development. As a result, the network consists of a variety of different pipeline materials with varying performance characteristics.
- The capacity and integrity of the network can be improved gradually by replacing old cast iron mains with modern polyethylene pipes.
- SP AusNet seeks to deliver its network services as efficiently as possible through contracts with third party service providers. SP AusNet has two contracts with related parties, firstly with SPI Management Services (SPIMS) for the provision of management services and secondly with EB Services (EBS), a wholly owned subsidiary of Singapore Power International Pty Ltd, which provides IT services to both SP AusNet and Jemena. These arrangements are based on terms and conditions that are consistent with arm's-length dealings. The regulatory issues that have been previously raised by the ESC and the AER in relation to SP AusNet's related party contracts have been addressed through the removal of margins and certain cost items.

2.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 2.3 describes SP AusNet's gas network.
- Section 2.4 describes SP AusNet's organisational and outsourcing arrangements.
- Section 2.5 concludes the chapter by describing SP AusNet's vision for the gas distribution network.

2.3 SP AusNet's Gas Network

SP AusNet owns an extensive natural gas transmission and distribution network throughout western metropolitan Melbourne and South-West and West regional Victoria. The network distributes natural gas from the principal gas transmission system to individual gas meters, which supply customers' appliances.

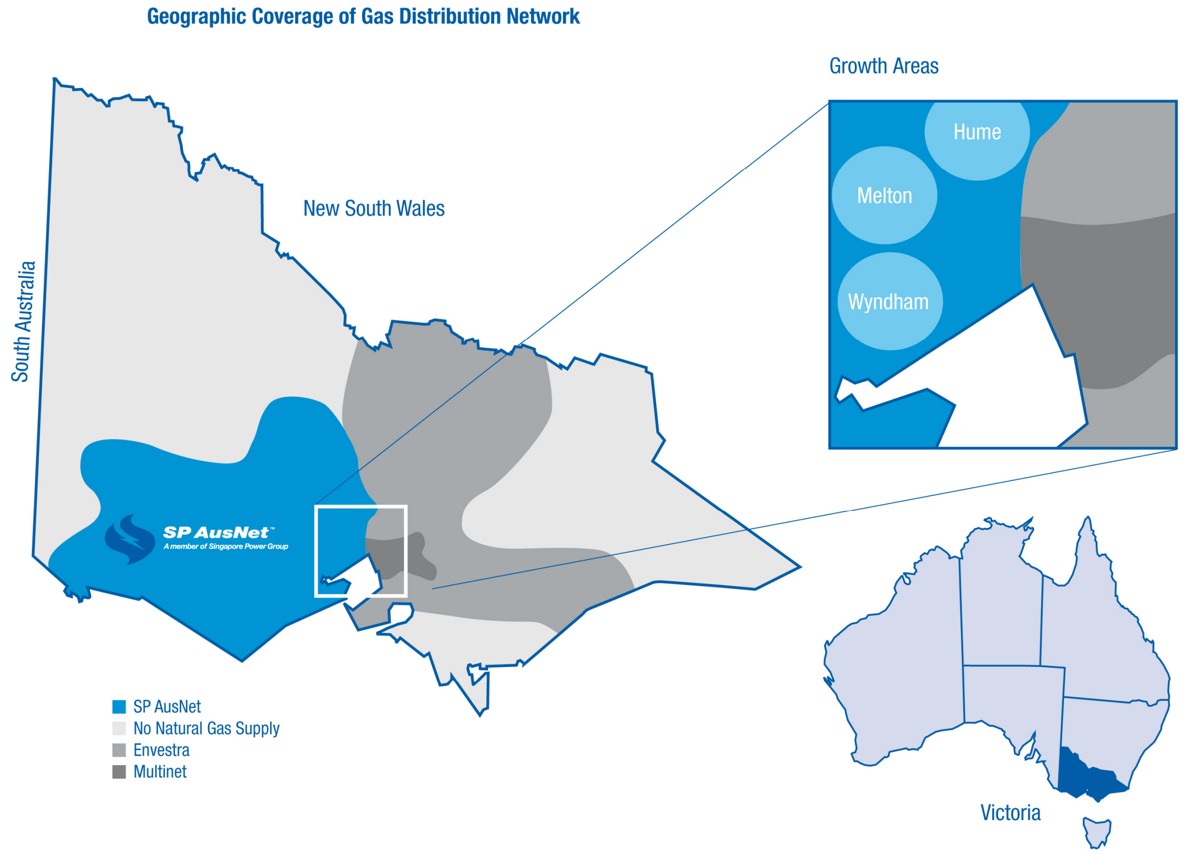
In total, SP AusNet delivers gas to approximately 605,000 customers across a geographically diverse region spanning 60,000km^2. The gas transmission and distribution network includes mains, mainline valves, pressure regulating facilities (including city gates, field and district regulators), service pipes, meters and ancillary equipment.

Figure 2-1 below highlights the geographical footprint of SP AusNet's gas distribution network. It extends from the Hume Highway to the South Australian border, and North of Bendigo and Horsham. In accordance with rule 48(1)(a), this is the gas pipeline to which this

Access Arrangement Information relates. SP AusNet also owns an LPG vapour reticulation network at Mt Baw Baw, which is not the subject of this submission.

Figure 2-1 also highlights the three rapidly developing urban growth corridors that are served by SP AusNet's gas distribution network.

Figure 2-1: Serving Melbourne's major growth corridors



Source: SP AusNet

Historically, approximately 60% of SP AusNet's capital expenditure has related directly to new customer connections. As noted above, SP AusNet's network contains three of Victoria's six fastest expanding urban growth corridors[7]. Growth rates have exceeded 5% p.a. and may continue (in the short term) in the Melton[8], Wyndham[9], and Hume[10] areas. SP AusNet's gross customer connections have increased by 3.3% p.a. since 2008, and this trend is expected to reduce significantly over the coming years to 2.4% p.a according to the Victorian Planning Institute.

The majority of the distribution system operates at high pressure with a minimum allowable pressure of 140kPa to a maximum of 515kPa. 'City Gates' regulate supply from the transmission system (owned and operated by APA Group) to SP AusNet's distribution network.

The medium pressure distribution systems operate between 15kPa to 140kPa, with Field Regulators controlling gas supply from SP AusNet's high pressure networks. The low

7 Source: State Government Victoria, Growth Areas Authority, www.gaa.vic.gov.au.

8 The Melton growth area includes the Melton Township and the suburbs of Caroline Springs, Taylors Hill, Hillside and Ravenhall.

9 The Wyndham growth area includes the suburbs of Werribee, Wyndham Vale, Tarneit, Hoppers Crossing, Laverton and Point Cook.

10 The Hume growth area includes Greenvale, Roxburgh Park, Craigieburn and Craigieburn West.

pressure distribution systems operate up to 7kPa with District Regulators controlling gas supply from SP AusNet's high and medium pressure networks. Pipeline corrosion is managed through the installation of corrosion protections units (CPUs) and sacrificial anode beds.

Meter and regulator assemblies, which vary from large industrial or commercial units to small domestic units, supply gas to consumers. A meter and regulator setup is provided for each supply point (i.e. customer connection) from the distribution network.

SP AusNet uses a SCADA (Supervisory Control and Data Acquisition) system to monitor and control assets across the network from the transmission system to the network fringe. The SCADA system provides data on the real-time performance of the assets, and data for long-term evaluation of gas demand and network performance to identify potential system deficiencies.

The SCADA system is made up of Remote Telemetry Units (RTUs), a radio and telephone communications system, and a host computer system supporting the Customer and Energy Operations Team, which operates 24 hours a day, 365 days a year.

An overview of SP AusNet’s gas distribution network assets is provided in Table 2-1.

Table 2-1: Gas distribution network asset summary

Asset	Number / Length	Mean Service Life	Expected Service Life
Transmission Pipelines	183km[11]	38 years[12]	80 years
Distribution Mains, of which: – High Pressure (HP) – Medium Pressure (MP) – Low Pressure (LP)	9,863km[11] 7,883km[11] 757km[11] 1,273km[11]	23.9 years[13] 19.4 years[13] 36.4 years[13] 43.2 years[13]	60 years 60 years 60 years 60 years
Domestic Meter Types	547,686 units[14]	9.9 years[14]	22 years
Industrial & Commercial Meter Types	48,114 units[14]	5.4 years[14]	10-15 years
City Gates	37 units[12]	24 years[12]	50 years
Field Regulators	104 units[12]	28 years[12]	50 years
District Regulators	114 units[12]	25 years[12]	50 years
SCADA (remote terminal units)	183 units[13]	14 years[13]	15 years
CPU & Anode Beds. – Transmission – Distribution	164 units[11] 13 units[11] 151 units[11]	 Various Various	 30 years 30 years

Source: SP AusNet

The gas distribution network has been constructed over a period of more than 100 years and using a variety of pipeline materials with varying performance capabilities. Cast iron and steel were used predominantly until the introduction in the late 1970s of polyvinyl chloride (PVC) for low pressure pipeline replacement and polyethylene for high pressure networks. Today, PVC is no longer installed in the network, leaving polyethylene as the dominant pipeline material.

The type of material dictates the maximum operating pressure and affects the overall performance of the network. Since cast iron can only be operated at medium and low pressures compared to polyethylene, the continuing replacement of cast iron mains with polyethylene pipe enhances the capacity and integrity of the network, helping to offset some of the natural age-related deterioration. Polyethylene materials also deliver significant safety benefits over the aging cast iron assets.

[11] Accurate as of 31 December 2011.

[12] Accurate as of 31 December 2010.

[13] Accurate as of 31 March 2011.

[14] Accurate as of 30 June 2011.

Table 2-2 provides a summary of SP AusNet's gas distribution network in terms of pipeline pressure and material.

Table 2-2: Network composition by pipe pressure and material (December 2011)

Material	Low Pressure	Medium Pressure	High Pressure	Transmission Pressure	Total
Cast Iron	559km	21km	-	-	580km
Polyethylene	22km	254km	5,583km	-	5,859km
PVC	535km	-	-	-	535km
Unprotected Steel	120km	269km	-	-	389km
Protected Steel	36km	213km	2,250km	183km	2,682km

Source: SP AusNet

In accordance with the requirements of rule 48(1)(a), a description of the pipeline can be inspected at the following website address http://www.sp-ausnet.com.au.

The geographical and physical features of SP AusNet's gas distribution network provide important context for the company's service performance and expenditure plans for the forthcoming access arrangement period. In particular, plans for asset renewal and augmentation will be informed by the need to replace cast iron and unprotected steel mains, which impose capacity constraints and performance risks in terms of leakage. Capacity must be expanded to meet demand for network services, given that three of Melbourne's major growth corridors are situated in SP AusNet's network.

2.4 Service Delivery Model

2.4.1 Overview

The core functions associated with SP AusNet's ownership and operation of its gas network are Asset Management, Service Delivery Management, Customer Management, Corporate Services and Strategy. These functions are performed in-house. Operation and Maintenance (including minor capital works) and Major Capital Projects are delivered by external service providers under two separate agreements.

2.4.2 Internally-Resourced Core Functions

Table 2-3 describes the core functions that are undertaken by SP AusNet's internal resources.

Table 2-3: The core functions performed by SP AusNet

Business Area	Functions
Network Management	Compliance Strategy in all areas Asset Maintenance & Replacement Strategy Network Planning & Development Network Information Management (Strategy & Analysis) Development of Asset Management Plans & Work Programs Development of Asset Policies, Standards & Technical Bulletins
Service Delivery Management	Management of interface with Service Providers for network services Monitoring of Service Providers operational compliance in all areas Performance Management Large Capital Project Management Health Safety & Environment (HS&E) Oversight Audit
Customer and Energy Operations Team	Manning of a 24hr / 7 day a week network control centre Provision of 24hr / 7 day a week dispatch function
Customer and Market Management	Revenue & Tariff Management Retailer / Customer Connection Management Key Customer/Stakeholder Relationship Management
ICT Services	ICT Strategy, Architecture & Planning ICT Program Delivery Asset Management Platforms Support & Maintenance of business systems (including SCADA)
Corporate Services	Regulatory Management Regulatory Accounting Financial & Management Reporting Treasury Settlements Corporate Affairs Internal Audit Accounting including Cash Management & Transaction Processing Property Management

Source: SP AusNet

2.4.3 Operations and Maintenance Contract

Operations and Maintenance and minor capital works are currently outsourced under a 5 year contractual arrangement (3 year + 2 year extension, if targets are met) that will end on 31 March 2013. The works were originally competitively tendered in a two-step process (a non-price and price assessment), there was, and remains no incentive to agree to non-arms lengths terms, with Tenix Networks awarded the contract as they provided the best commercial offering to SP AusNet in terms of price, quality, continuity and the avoidance of demobilisation and remobilisation costs.

The agreement is a unit rate contract where the contractor is paid monthly for units completed. These units would include such activities as searching for escapes (subsequent to a public report of smell of gas) conducting the leakage survey, repairing mains and other standard maintenance activities. Within this contract Tenix also provides the majority of customer connection works, which involve standard connections in terms of laying mains and services. For larger developments the connection work is generally referred to the capital works tender panel.

Ongoing contract performance is monitored and controlled via KPIs, which are regularly reviewed to ensure the contractors' performance continues to be consistent with SP AusNet's businesses objectives. As shown in Table 2-4 below, Tenix has fully satisfied the majority of its KPI targets over the most recent three year period, and partially satisfied the remaining KPIs. "Partially satisfied" indicates a minor non-conformance in relation to a quarterly threshold, which is addressed through SP AusNet's contract management approach.

Table 2-4: Performance of Tenix over the last three years

Category	Target	Overall KPI Result in past 3 years [2009 – 2011]
Safety	Long Term Injury Frequency Rate (LTIFR)	Fully satisfied
	Medical Treatment Injury Frequency Rate (MTIFR)	Fully satisfied
Public Safety	Response times – All	Fully satisfied
Network Reliability	Local USAIDI	Fully satisfied
Program Delivery	Maintenance Index	Fully satisfied
	Capital Works to Target Date	Fully satisfied
Quality	Constructed Asset Quality	Fully satisfied
	Issue Response	Partially satisfied
	Audits	Partially satisfied
	Consumer Satisfaction Survey	Partially satisfied
Owner Satisfaction	Owner Satisfaction Survey	Partially satisfied
Sustainability	Progress to Human Resource Plan	Fully satisfied

Source: SP AusNet

2.4.4 Major Capital Works

Major capital works projects typically have a value over $100,000 and are awarded to successful applicants pursuant to the Installation Service Provider (ISP) or capital works agreement. The ISP Panel consists of 5 panel members (Thiess, CLM, Tenix, Drapers and Porters) appointed for a 5 year period (3 + 1 + 1) ending on 31 March 2016. Panel members have been selected based on an assessment process where their safety, competiveness, quality, delivery record and financial viability are assessed. Performance against these measures determines whether a panel member’s term is extended.

Periodically, panel members are invited to bid competitively for individual projects. Following an appraisal and approval process, the works are awarded to the successful panel member. Projects are typically negotiated to be delivered within a set timeframe and are subject to fixed price agreements to transfer project cost risk to the service provider. SP AusNet’s internal resources focus on the core functions of project planning, overall project delivery and contract management.

SP AusNet’s contracting approach benefits the company and our customers by:

- appropriately balancing the use of internal and external resources;
- harnessing market expertise and intellectual property;

- securing lower prices by requiring panel members to compete for work;
- obtaining economies of scale by ensuring that panel members who perform satisfactorily can reasonably expect to deliver appropriate volumes of work; and
- ensuring high quality and timely project delivery through effective monitoring of performance.

2.4.5 Other Outsourcing Arrangements

SP AusNet sources services from other third parties where efficient or necessary to do so. These services relate to data management, meter reading and asset maintenance. These arrangements are addressed in turn.

2.4.5.1 Hansen Customer Information System

Hansen Technologies provides the Hosting and Support Services for the Hansen Utility Billing system (HUB) which is a Gas Consumption Data Management System (CDM), which facilitates participation in the Full Retail Contestability (FRC) Market for SP AusNet.

Hansen has provided these services to SP AusNet since the introduction of FRC in 2002. This contract was agreed through arm's length negotiations on commercial terms. The contract has not since been retendered given the cost advantages of retaining the current arrangements especially so in the light of the intention to replace the Customer Information System within the Fourth Access Arrangement Period.

2.4.5.2 Skilltech Consulting Services

Skilltech provide SP AusNet's gas business meter reading services on a fee for service on a per meter read basis.

Skilltech was awarded the contract pursuant to an open competitive tender for the services offering the best commercial offer from the market. This offer delivers significant cost benefits over in house provision through the economies of scale available to Skilltech undertaking this work for a number of other clients.

2.4.5.3 APA GasNet

APA GasNet and SP AusNet are parties to a gas system network agreement entered into in September 1998 (i.e. the time of disaggregation of the gas industry) as amended whereby APA GasNet provide connection services to SP AusNet. This is a perpetual agreement which has price review carried out every 5 years. The metering charge incorporates the capital price and incremental annual Metering Charge. The cost comprises the construction and incremental operating and maintenance costs. An amending agreement setting out the price arrangement for the 2008-2013 (5 year period) was executed with an adjustment of CPI -1.5% for each year thereafter leading to and including 2013.

As a result of continuous customer growth at various regions throughout Victoria, SP AusNet is required to continually augment / upgrade its gas network which requires additional connection services to the augmented / upgraded points. SP AusNet is obligated to request the additional connection service be provided by APA GasNet.

2.4.6 Related Party Outsourcing Arrangements

The SP AusNet group comprises three principal entities:

- SP Australia Networks (Distribution) and its subsidiaries;
- SP Australia Networks (Transmission) and its subsidiaries; and
- SP Australia Networks (Finance) Trust.

SP AusNet's gas network is owned and operated by a subsidiary (indirectly) of SP Australia Networks (Distribution). The SP AusNet group is 51 per cent owned by Singapore Power

International Pty Ltd and 49 per cent owned by external investors and is listed on the Australian and Singaporean securities exchanges as a stapled security. Singapore Power International Pty Ltd is owned directly by Singapore Power, and its ultimate parent is Temasek Holdings (Private) Ltd (Temasek). Temasek is the holding company for various commercial interests of the Singaporean Government.

In the recent Victorian electricity price distribution review, the AER examined the contractual relationships between SP AusNet's regulated business and its related parties. In relation to the regulatory treatment of these costs, the AER further concluded that no adjustment was required to the reported costs to remove profit margins paid to related parties, as SP AusNet had already excluded any profit element from the reported costs or the contract price reflected efficient and prudent costs.

The AER's findings are relevant to SP AusNet's gas distribution network, which also obtains services from SPI Management Services (SPIMS), EB Services (EBS), and Singapore Power International (Australia) Assets (SPIAA). Importantly, SP AusNet's approach to cost reporting for the gas distribution business is consistent with the approach adopted in the electricity distribution price review.

Setting aside the regulatory accounting issues discussed above, it is important to emphasise SP AusNet's commercial focus is on delivering efficient gas distribution services at the lowest sustainable costs in response to the incentive properties of the regulatory framework. The efficiency benefits of outsourcing appropriate functions are universally accepted. These can be further increased when, due to the entities transacting being related parties, information asymmetries are removed allowing the parties to reach the overall efficient outcome.

Outsourcing agreements between related parties achieve the same financial and qualitative benefits as between independent third parties such as: economies of scale; strategic flexibility; access to experience curve effects; and risk hedging. Related party agreements however, achieve even greater benefits in comparison to relationships with third parties due to:

- lower transaction costs;
- fewer barriers to accessing proprietary information or resources;
- fewer integration issues between systems and structures;
- shared goals across parties; and
- lower counterparty risk; given the relationship.

SP AusNet has an incentive to maximise the financial savings available through such agreements. The efficiency carryover mechanism establishes that the financial savings are shared between SP AusNet and customers, ensuring a positive result for both from pursuing efficient related party arrangements.

The contractual arrangements between the gas distribution business and its service providers facilitate an efficient outcome by enabling the business to access high-value expertise flexibly as the need arises. The alternative approach would be to bring substantially more services in-house with a concomitant increase in baseline operating costs. As a consequence, the costs incurred by SP AusNet in its contracts with service providers are consistent with the requirements of rule 91(1) of the NGR, which states that:

> *"Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services."*

Detailed information on SP AusNet's related party arrangements and transactions is provided in Appendix 2A of this document.

2.5 Vision for SP AusNet's Gas Network for 2013-2017 and Beyond

SP AusNet's overarching purpose is to provide our customers with a reliable and safe supply of gas and electricity through superior network and energy solutions.

This purpose has been formulated knowing the energy sector will change fundamentally over the next five to ten years, responding to the challenges of climate change; community expectations of reliability and safety improvements; rapid technological change; and the objectives of Government policy.

An additional, but important objective for the gas network is SP AusNet's commitment to safety, which is captured by the expression "missionZero". SP AusNet has recognised that zero is the only acceptable injury target and will not compromise on safety or tolerate unsafe acts and behaviours. It follows that missionZero is a never-ending challenge that must be reflected in our investment plans and operational practices. SP AusNet is committed to providing the necessary training, tools and information to ensure everyone at SP AusNet successfully fulfils their responsibility as a safety leader.

SP AusNet's asset management mission is to:

> *"deliver energy and associated services, safely, reliably, and to enhance the lives of our customers and employees in a sustainable manner"*

SP AusNet balances the cost of increased expenditure against network performance and customer satisfaction in both the short and long term. However, SP AusNet must also meet its regulatory obligations set out in its Gas Safety Case (consistent with the Gas Safety Act and Gas Safety Regulations) and the Gas Distribution System Code.

The expenditure plans for the forthcoming regulatory period are consistent with SP AusNet's regulatory obligations and its vision for the network.

SP AusNet seeks to satisfy its regulatory obligations and deliver on its vision for the network at stable prices to our customers.

3 Current Period Performance and Future KPIs

3.1 Summary of Key Points

This chapter provides an overview of SP AusNet's current period performance and future KPIs. The key points are:

- The actual growth in SP AusNet's customer base has exceeded the forecasts established in the 2008 access arrangement review; however this has not translated into higher than forecast usage figures. This highlights that average consumption per customer has been lower than forecast over the current access arrangement period.
- SP AusNet has managed its capital and operating expenditure within the benchmark allowances provided for the current access arrangement period.
- In broad terms, increased capital expenditure relating to customer connections has been offset by lower spending in other capital expenditure categories.
- For operating expenditure, SP AusNet has maintained flat levels of expenditure despite supplying services to significantly increased customer numbers over the current access arrangement period. This has been achieved through synergies and successfully managing maintenance costs through an external contract.
- SP AusNet's service performance is measured against 13 key performance indicators. These indicators show that SP AusNet is maintaining high levels of reliability and service.
- For the forthcoming regulatory period, SP AusNet is targeting levels of performance consistent with the historic average. Maintaining existing levels of performance is the efficient approach, given the high performance standards being achieved by SP AusNet and the costs of improving them.

3.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 3.3 cites the applicable regulatory requirements.
- Section 3.4 provides background information on SP AusNet's growing gas demand and customer base.
- Section 3.5 explains SP AusNet's actual capital expenditure for the current access arrangement period compared to SP AusNet's forecasts for the period.
- Section 3.6 provides the equivalent information for operating expenditure as that provided in section 3.5.
- Section 3.7 highlights SP AusNet's performance against the service targets that were set for the current access arrangement period.

3.3 Regulatory Requirements and SP AusNet's Compliance

Rule 72(1) requires the provision of the following information in relation to the current access arrangement period:

> *"(i) capital expenditure (by asset class) over the access arrangement period; and*
>
> *(ii) operating expenditure (by category) over the access arrangement period; and*
>
> *(iii) usage of the pipeline over the access arrangement period showing:*
>
> *(A) minimum, maximum and average demand; and*
>
> *(B) customer numbers in total and by tariff class."*

The information presented in this chapter describes SP AusNet's performance during the current regulatory period. This information, together with the Regulatory Information Templates, which form part of this AAI, fully addresses rule 72(1). This chapter also provides broader information on the performance of SP AusNet's gas distribution network which users, or prospective users, may require to understand the access arrangement proposal.

3.4 Demand and Customer Numbers

The following tables compare the forecasts of customer numbers and gas usage that underpinned the ESC's 2008 Final Decision against actual gas usage and customer numbers over the five years between 2007 and 2011.

Table 3-1: Forecast versus Actual – Residential usage

Forecast versus Actual Usage	2007	2008	2009	2010	2011
ESC Final Decision (TJ)	27 592	28 092	28 542	29 000	29 497
Actual – Tariff Report (TJ)	25 442	28 750	28 624	30 109	28 854
Actual adjusted for weather to 1321 EDD (TJ)	26 837	28 241	28 802	28 781	29 925
Difference between actual and forecast	- 7.8%	2.3%	0.3%	3.8%	-2.2%
Difference between actual (weather corrected) and forecast	- 2.7%	0.5%	0.9%	- 0.8%	1.5%

Source: SP AusNet tariff reports and ESC Final Decision

As can been seen from the above table, after allowing for weather, SP AusNet's actual usage has been materially lower than its forecast usage in a number of the past 5 years. This is despite the company connecting more residential customers than were forecast as part of the ESC's Final Decision (see Table 3-2 below).

Table 3-2: Forecast versus Actual – Residential customer numbers

Forecast versus Actual Customers	Start 2008	Start 2009	Start 2010	Start 2011
SP AusNet Forecasts[a] (no.)	522 314	535 192	548 490	561 839
Actual (no.)	519 776	535 901	552 859	570 894
Difference	-0.5%	0.2%	0.8%	1.6%

Source: SP AusNet (a) This was based on revised forecasts prepared by NIEIR following the ESC's August 2007 draft decision (p436). See letter from NIER to ESC (dated 26 October 2007), Table 4. These revised forecasts were accepted by the ESC in its Final Decision.

This indicates that average usage per customer (both new and existing) is materially lower than the forecasts adopted by the ESC as part of its Final Decision.

Table 3.3: Forecast versus Actual – Usage per Tariff V residential customer

Usage per Customer	2007	2008	2009	2010
Forecast Usage per Customer (GJ)	52.83	52.49	52.04	51.62
Actual (weather corrected) usage per Customer (GJ)	51.63	52.70	52.10	50.41
Difference	-2.26%	0.40%	0.11%	-2.33%

Source: Weather corrected usage divided by actual customer numbers; forecast usage divided by forecast customer numbers.

With regard to the commercial customer class, SP AusNet notes that overall usage, adjusted for weather, is materially lower than forecast. In fact, after adjusting for weather, commercial usage in every year of the period was equal to or lower than forecast, and even without adjusting for weather, all except one year was lower than forecast.

Table 3.4: Forecast versus Actual – Tariff V commercial usage

Forecast versus Actual Usage	2007	2008	2009	2010	2011
ESC Final Decision (TJ)	5 582	5 755	5 912	6 050	6 198
Actual – tariff reports (TJ)	5 413	5 814	5 455	5 851	5 769
Actual adjusted for weather to 1321 EDD (TJ)	5 579	5 756	5 473	5 703	5 885
Difference between actual and forecast	- 3.0%	1.0%	- 7.7%	- 3.3%	-6.9%
Difference between actual (weather corrected) and forecast	0%	0%	- 7.4%	- 5.7%	-5.0%

Source: SP AusNet tariff reports and ESC Final Decision

It should be noted that part of this decline may be explained by customer's moving into, and out of, Tariff V, from Tariff D and Tariff M. However, notwithstanding this, the overall trend is clearly lower growth than expected at the time of the last regulatory decision.

Part of this reduction in commercial usage will also be explained by the fact that forecast commercial customer numbers were greater than the actual number of customers that have connected to SP AusNet's network.

Table 3.5: Forecast versus Actual – Tariff V commercial customer numbers

Forecast versus Actual Customers	Start 2008	Start 2009	Start 2010	Start 2011
SP AusNet Forecasts[a] (no.)	15 469	15 749	16 012	16 322
Actual (no.)	15 235	15 351	15 500	15 643
Difference	-1.5%	-2.5%	-3.2%	-4.2%

Source: SP AusNet (a) This was based on NIEIR (2008) Demand Forecasts Report, March (Table 6.4).

Having regard to the information set out above, the average usage per commercial customer (both new and existing) has varied above and below what was assumed in the ESC's 2008 Final Decision.

Table 3.6: Forecast versus Actual – Usage per commercial customer

Usage per Customer	2007	2008	2009	2010
Actual (weather corrected) Usage per Customer (GJ)	366.20	374.96	353.10	364.57
Forecast Usage per Customer (GJ)	360.85	365.42	369.22	370.67
Difference	1.48%	2.61%	-4.37%	-1.64%

Source: Weather corrected usage divided by actual customer numbers; forecast usage divided by forecast customer numbers.

Finally, the following table compares the forecast maximum hourly quantities billable for Tariff D and M versus the actual quantities billed during the period.

Table 3.7: Forecast versus Actual – Tariff M and D maximum hourly quantities

Forecast versus Actual	2007	2008	2009	2010
Forecast Tariff D and M (MHQ)	10 074	10 350	10 252	10 210
Actual Tariff D and M (MHQ)	10 074	10 197	10 372	10 098
Difference	0.0%	-1.5%	1.2%	-1.0%

Source: SP AusNet

Below SP AusNet sets out the usage of the network in terms of maximum, average and minimum demand in terajoules per day over the current access arrangement period. This is in accordance with the requirements of NGR 72(1)(a)(iii)(A). This information is also provided in the the regulatory information templates.

Table 3.8: Distribution pipeline usage – Current access arrangement period

	2008	2009	2010	2011	2012
Minimum demand (Tj/day)	91.0	92.8	94.9	98.6	98.0
Maximum demand (Tj/day)	367.3	374.2	389.1	377.5	392.6
Average demand (Tj/day)	213.3	203.6	205.4	201.6	202.4

Source: SP AusNet

Below SP AusNet sets out the usage of the network in terms of customer numbers in total and by tariff class during the current regulatory period. This is in accordance with the requirements of NGR 72(1)(a)(iii)(A). This information is also provided in the the regulatory information templates.

Table 3.9: Customer numbers – Current access arrangement period (start of relevant year)

	2008	2009	2010	2011	2012
Tariff V Residential					
Central	401,788	413,021	425,857	439,479	451,208
West	115,795	118,202	120,803	124,097	126,581
Adjoining Central	44	526	734	928	1,082
Adjoining West	2,149	4,152	5,465	6,390	7,127
Total residential	**519,776**	**535,901**	**552,859**	**570,894**	**585,998**
Tariff V Commercial					
Central	9,109	9,193	9,301	9,411	9,474
West	6,061	6,059	6,069	6,071	6,085
Adjoining Central	0	4	7	9	10
Adjoining West	65	95	123	152	175
Total commercial	**15,235**	**15,351**	**15,500**	**15,643**	**15,744**
Tariff M	1	1	9	9	9
Tariff D	293	292	288	289	289
Total Customers	**535,305**	**551,545**	**568,656**	**586,835**	**602,040**

3.5 Capital Expenditure

SP AusNet's overall capital expenditure is marginally lower than the regulatory allowance for the first three years of this period.

Overall network expenditure (field capital expenditure not related to ICT) has been close to or equal to benchmark as outlined in Figure 3-1 below.

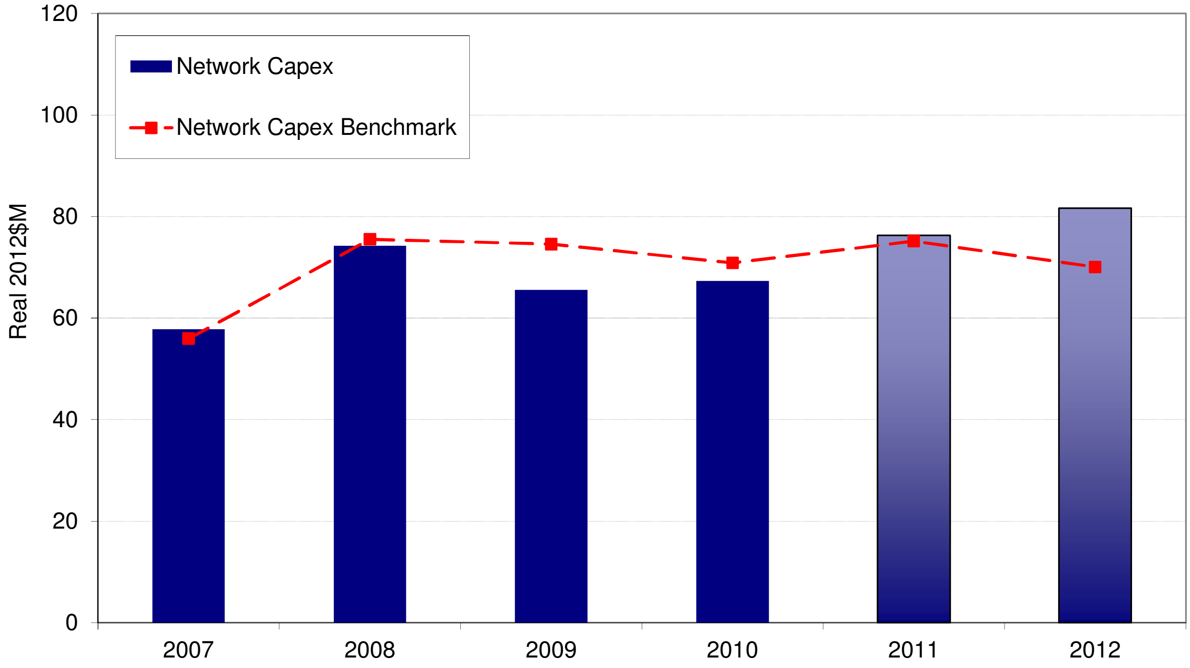
Network capital expenditure primarily comprises:

- Customer connections;
- Mains replacements;
- Meter Replacements; and

- Augmentation/Reinforcement.

Each of these categories is discussed in further detail in the following sections.

Figure 3-1: Benchmark and actual network capital expenditure (not including Information Communications Technology)



Source: SP AusNet, actual 2007-10, estimate 2011-12.

3.5.1 Customer Connections

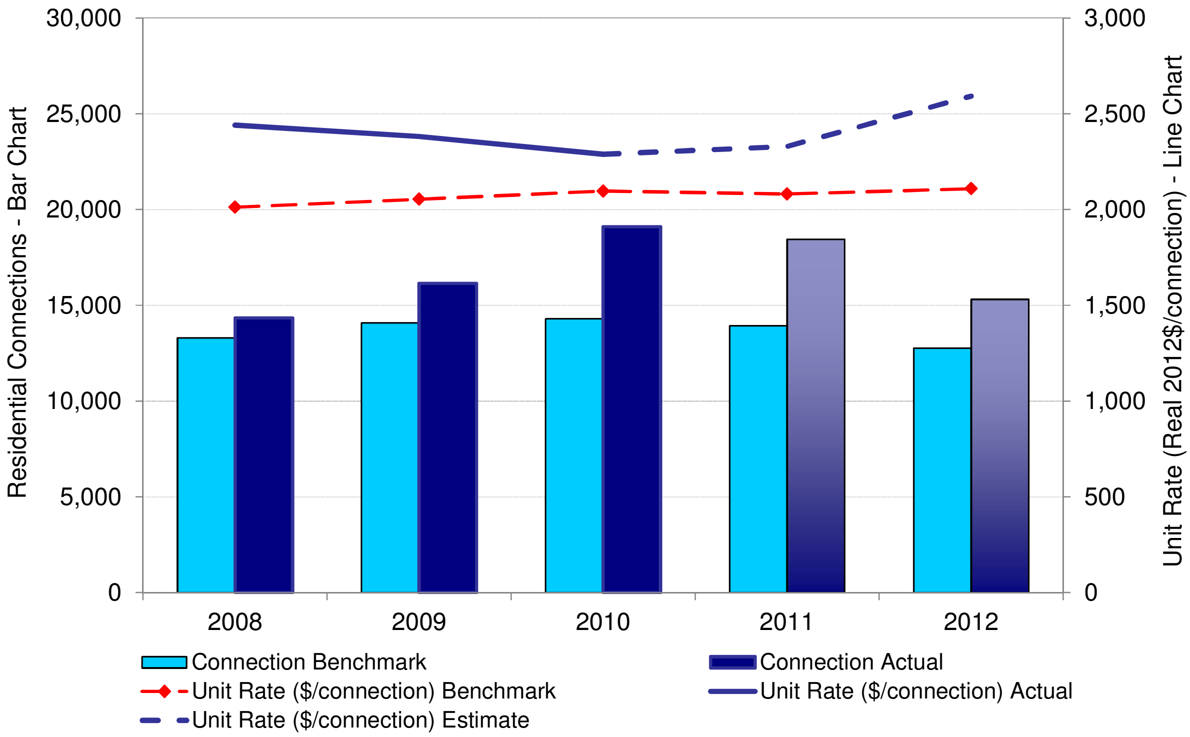
Approximately 57% of SP AusNet's total capital expenditure (and 66% of network capex) in the current access arrangement period relates to customer connections. Over the current regulatory period, customer connections capital expenditure will exceed the regulatory benchmark as a result of:

- Higher than forecast connection rates in every year of the current access arrangement period (for example, in 2010 actual connections was 19,376 compared to a forecast of 14,688); and
- Unit rates have also been consistently higher (approximately 14.2% for residential and 6.1% for commercial / industrial) than the benchmark allowances. This was due partly to market conditions creating greater cost pressures than was envisaged at the time of the last review and also due to the cuts to the proposed unit rates within the ESC's decision for the current access arrangement period.

As a result, customer connection capital expenditure is expected to exceed the benchmark allowance by approximately 25% to 30% by the end of the current regulatory period. The increased trend in the number of customer connections is expected to slow during the last year of the current regulatory period (2012) returning to more sustainable levels of growth for the fourth regulatory period. SP AusNet considers that the Victorian Planning Institute's (VPI) expectations of future growth of approximately 2.2% to be consistent with current macroeconomic outlook, rather than the 3.1% experienced in recent years.

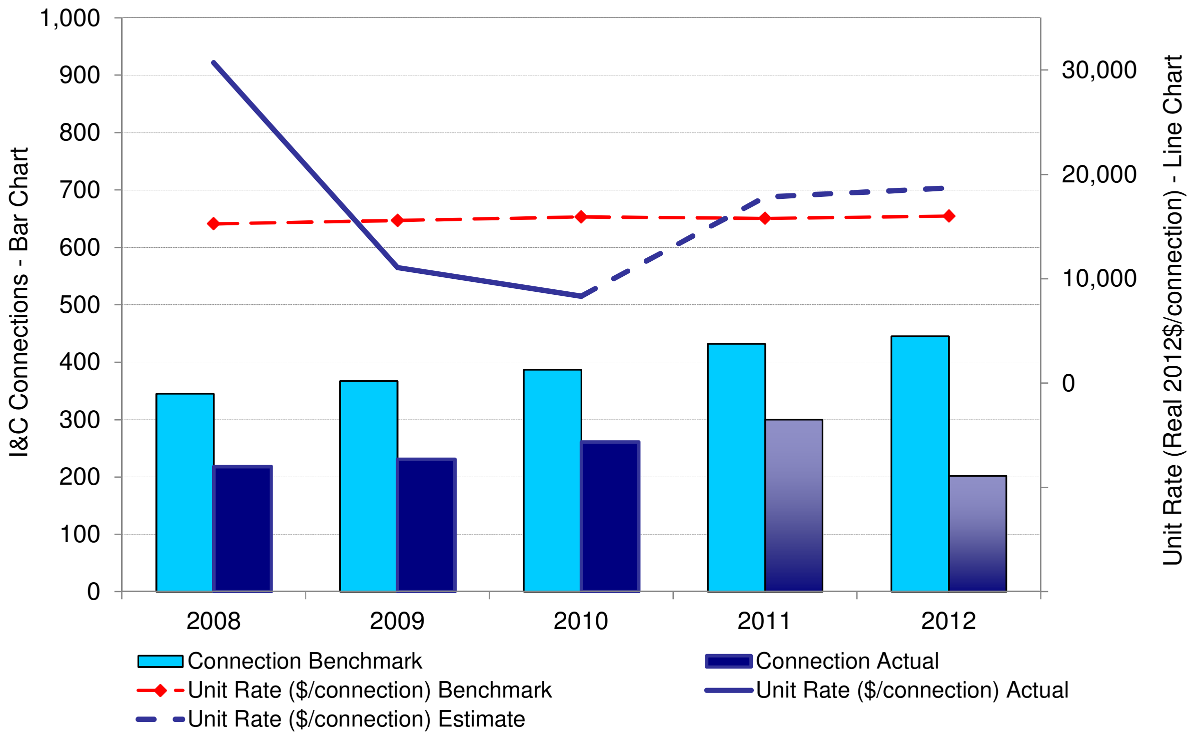
A comparison of benchmark and actual domestic connections, in terms of both forecast units and unit rates, is set out in Figure 3-2. Similar data for industrial and commercial (I&C) connections is shown in Figure 3-3.

Figure 3-2: Domestic connections and unit rates against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2008-10, estimate 2011-12.

Figure 3-3: I&C connections and unit rates against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2008-10, estimate 2011-12.

3.5.2 Low Pressure Pipe Replacement (Mains Renewals)

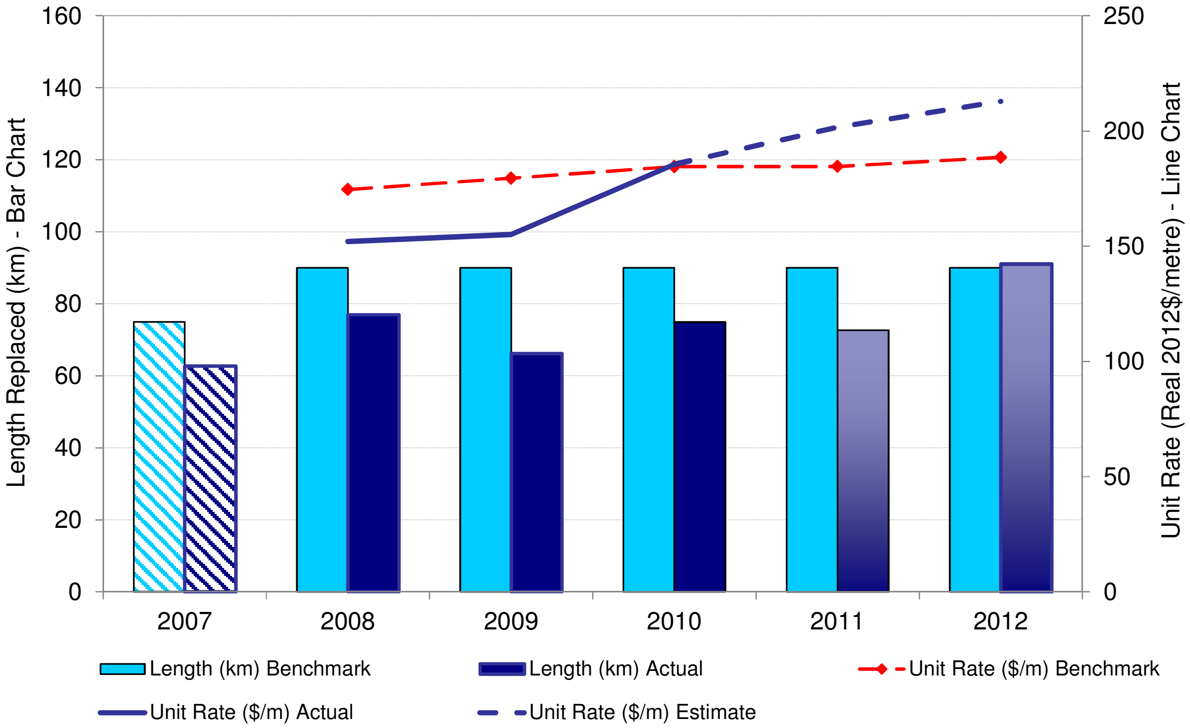
SP AusNet's capital expenditure on low pressure pipe replacement is lower than the benchmark allowance. In particular:

- It is expected that the replacement rate will average approximately 76kms per annum against a benchmark estimate of 90kms per annum; and
- The actual unit rates to 2011 are approximately 3.9% lower than benchmark, but this is to expected reverse with the inclusion of the estimated 2012 unit rate which increases average unit rates approximately equal to, although slightly above ($182.4 benchmark against $183.1 per metre actual) benchmarks over the period.

Given the obvious and extreme capital market volatility since 2008, SP AusNet's access to debt and equity capital has been relatively constrained. This factor, coupled with the unavoidable obligation to connect a much higher volume of customers than anticipated, caused a significant drain on available capital, and resulted in a prudent diversion of capital to comply with SP AusNet's connection obligations. Therefore, SP AusNet has not achieved its target of 90kms of low pressure mains replacement and has averaged approximately 76kms per annum.

As can be seen in Figure 3-4 below 2007 SP AusNet ramped up its replacement activities from 2007 to 2008 prior to a temporary reduction in 2009, as capital market constraints took effect.

Figure 3-4: Length of LP mains renewal and unit rates against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2007-10, estimate 2011-12.

The table below provides details of the historical performance of LP mains renewal program relative to the regulatory benchmarks.

Table 3-10: Historical performance of LP mains renewal program (Real $2012)

		2007	2008	2009	2010	2011	2012
Unit Rate (S/m)	Benchmark	-	$175	$179	$185	$185	$189
	Actual (*Forecast*)	-	$152	$155	$185	$202	$213
Decommiss-ioned Length (Km)	Benchmark	75	90	90	90	90	90
	Actual (*Forecast*)	63	77	66	75	73	91
Total Expenditure ('000)	Benchmark	-	$15,714	$16,153	$16,607	$16,612	$16,972
	Actual (*Forecast*)	-	$11,709	$10,267	$13,894	$14,660	$19,338

Source: SP AusNet

It is important to recognise that the lower than benchmark unit rates, achieved in the current access arrangement period (up to 2012), reflect two factors. Firstly, they demonstrate genuine cost efficiencies. Secondly they demonstrate the impact of undertaking works in lower cost zones of similar safety risk profile in order to maximise the rate of replacement within capital constraints, and minimise the backlog in the replacement program.

Inevitably, unit rates will begin to increase from recent levels as replacement work in higher cost zones is undertaken. The detailed breakdown of costs per suburb, which is supported by tendered rates, is provided within the Mains and Services Strategy appended to this submission. Furthermore, should the other GDBs propose significant increases from recent actual levels of replacement, unit rates will inevitably be affected by demand increases in a supply constrained contractor market.

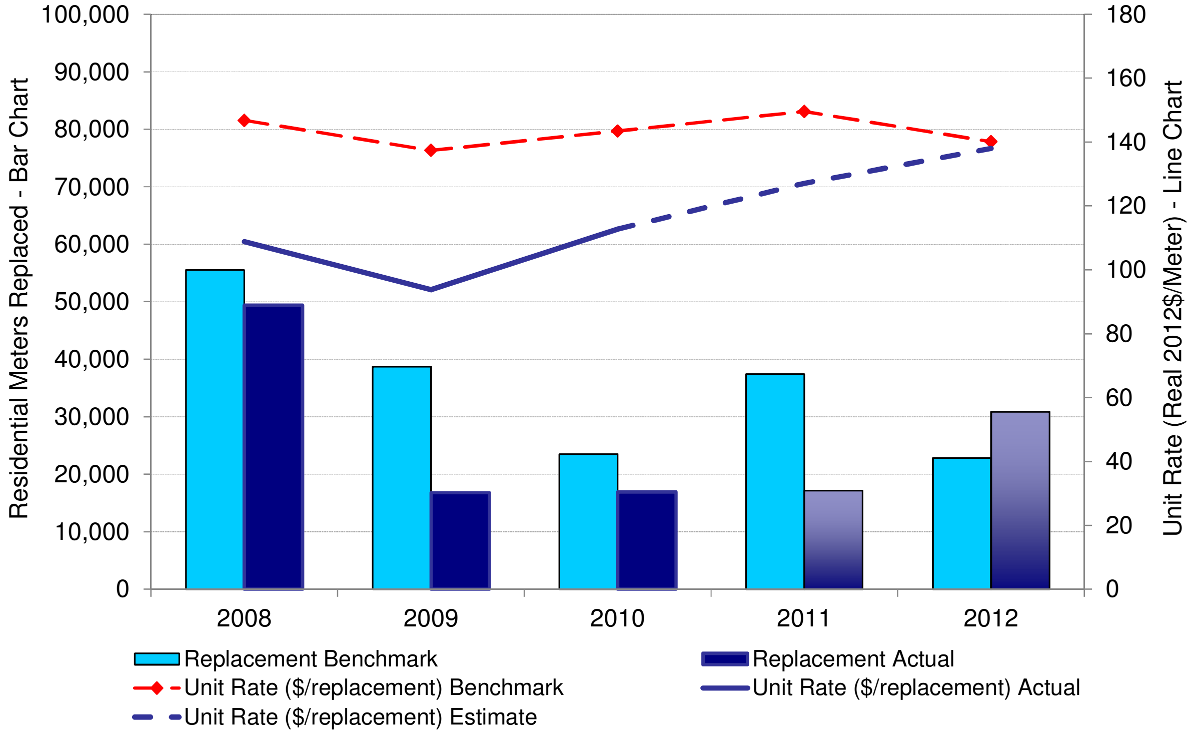
3.5.3 Meter Replacements

Meter replacement activity levels for domestic meter types are based on the Field Life Extension Program set out in Australian Standard 4944. SP AusNet is expecting to outperform, in terms of the efficiency incentives of the regulatory framework, the benchmark capital expenditure allowance for meter replacement as a result of the following factors:

- The AS4944 testing required that approximately 26% fewer meters needed to be replaced than forecast due to unexpectedly high positive results in field testing under the new framework. The lessons from this experience have been factored into the forecast for the fourth regulatory period; and
- The unit rates will be approximately 19% lower than expected due to favourable contract conditions which are likely to change as the contract is retendered; and
- Industrial and Commercial unit rates are expected to rise significantly this year as a result of an increased ratio of new meters to refurbished, given the meter families likely to be replaced.

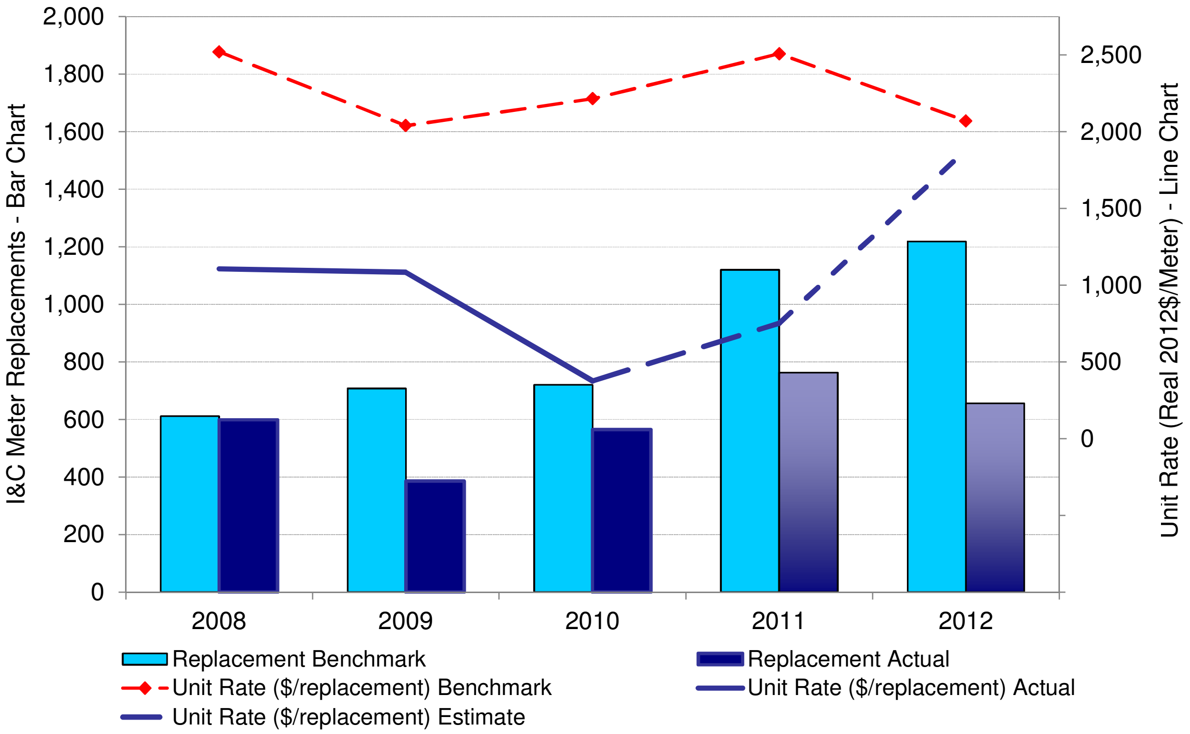
Actual and benchmark meter replacement volumes and unit rates are shown in the figures below.

Figure 3-5: Domestic Meter Replacements and unit rates against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2008-10, estimate 2011-12.

Figure 3-6: I&C Meter Replacements and unit rates against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2008-10, estimate 2011-12.

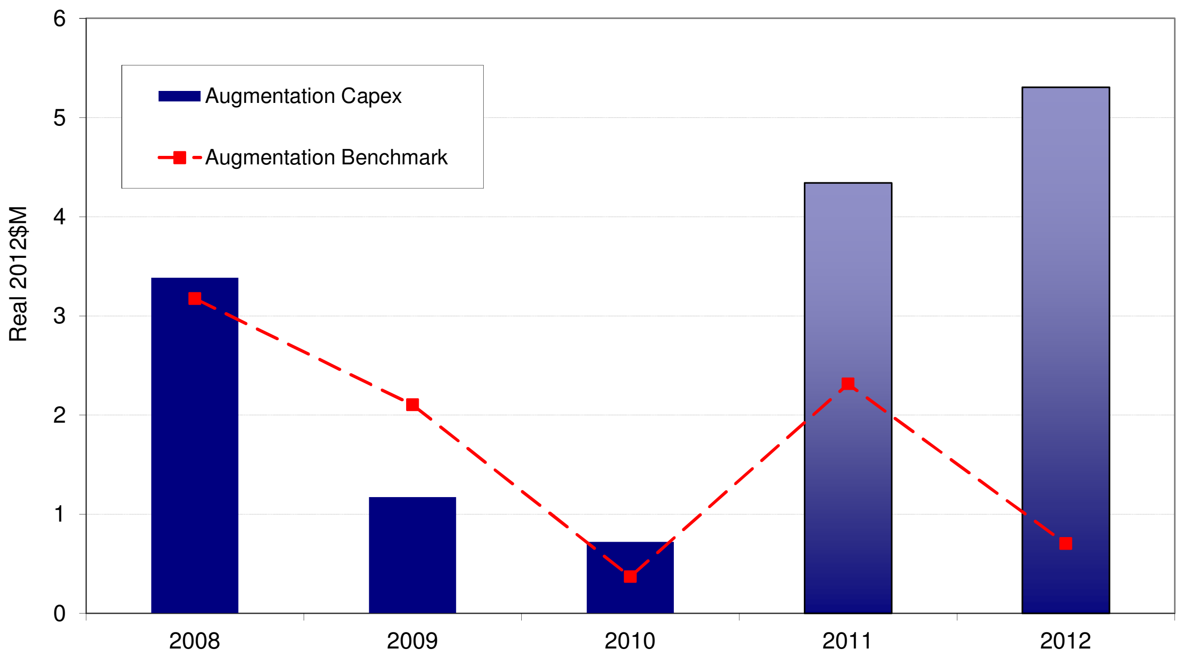
As explained in Chapter 5 of this document, SP AusNet's meter replacement plans for the forthcoming regulatory period are intended to maintain a sustainable and smoothed pattern of replacement.

3.5.4 Augmentation / Reinforcement

SP AusNet's augmentation capital expenditure is driven by Schedule 1 of the Gas Distribution System Code, which prescribes a minimum pressure requirement of 140 kPa within the high pressure system. SP AusNet is required to comply with this Victorian Code as part of its regulatory obligations as a Gas Distribution Licence holder in Victoria, and as recognised by the National Gas Act (Vic) 2008 and the NER. It is noted that Compliance with jurisdictional regulatory instruments may cause Victorian GDBs to incur different costs that differ from those reported by than GDBs in other jurisdictions.

Due to significant committed expenditure for 2011 and 2012, which includes a 3.9km transmission pressure pipeline reinforcement required to meet code obligations in regard to the supply to Torquay, SP AusNet expects to significantly overspend the benchmark allowance for the third regulatory period. The overspend in 2012 represents a significant scope change in comparison to the benchmark allowance provided for at the last review. This is driven by the higher- than-forecast customer growth, which not only increases the absolute amount of augmentation required, compared with that forecast at the last review, but has also made the work more costly and complex. This is due to the increasing distance between network fringes and supply points (City Gates). For this reason SP AusNet has replaced the augmentation capital expenditure benchmark for 2012 augmentation with forecast (approved and committed) expenditure within its RAB roll forward calculation. This is consistent with the provisions within Clause 6.4.3 (b) of Part B the current access arrangement.

Figure 3-7: Augmentation expenditure against GAAR 2008-12 benchmarks



Source: SP AusNet, actual 2008-10, estimate 2011-12.

A significant increase in the benchmark allowance for augmentation capital expenditure is being sought for the Fourth Access Arrangement Period to ensure SP AusNet remains compliant with its minimum pressure obligations under the Gas Distribution System Code.

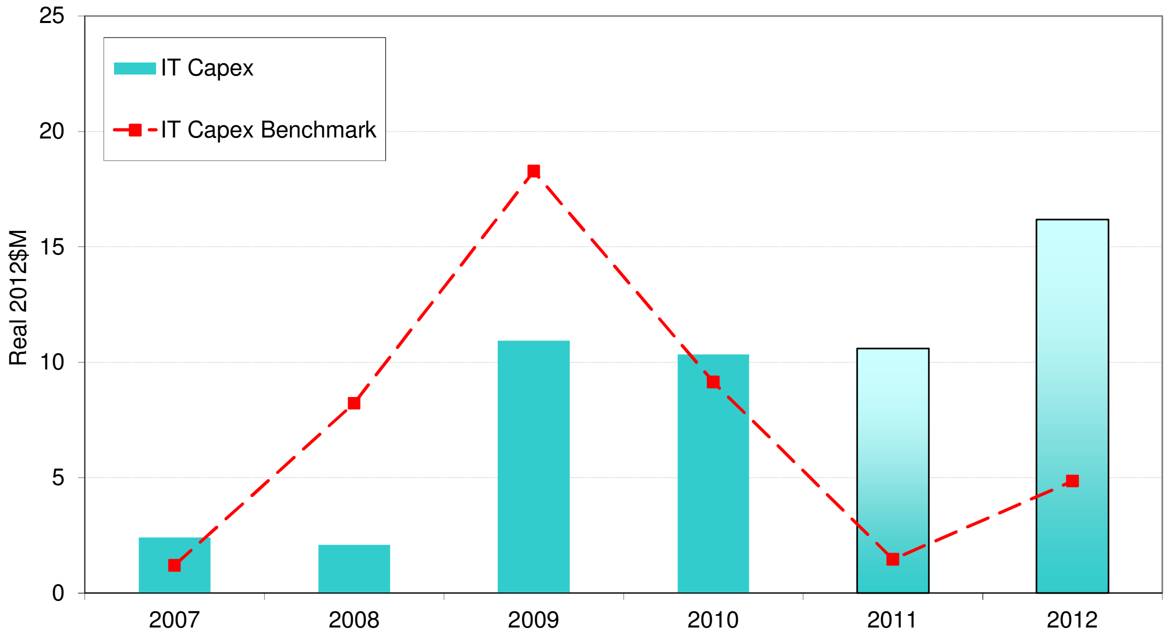
A full review of SP AusNet's network capital expenditure during the Third Access Arrangement Period has been undertaken by AECOM. The findings of this review, outlining that SP AusNet's capital expenditure conforms to the requirements of the NGR are detailed in Appendix 3A of this AAI.

3.5.5 Information and Communication Technology

Within the overall total, the profile of IT capital expenditure has been significantly different from the regulatory benchmark as a result of project deferrals and programme changes detailed in the Information and Communications Technology Strategy, which is Appendix 5E to this submission. SP AusNet's IT strategy for the forthcoming regulatory period is also explained in detail in Chapter 5 of this document.

Figure 3-8 compares SP AusNet's benchmark and actual (or estimated) capital expenditure for ICT capital expenditure.

Figure 3-8: Benchmark and actual IT capital expenditure



Source: SP AusNet, actual 2007-10, estimate 2011-12.

During the third regulatory period (2008-2012), the following ICT programs facilitated SP AusNet's achievement of high standards in the safe and efficient delivery of services to customers:

- **Asset Management:** Improved safety and maintained network integrity through the delivery of a drawing management system and an upgrade to the gas Geographic Information System (GIS).
- **Network Management:** Improved safety and customer service were achieved through the delivery of a new Supervisory Control and Data Acquisition (SCADA) system.
- **Metering Services:** Laid a foundation, shared with the AMI program, of a new customer management system that will be enhanced during the next regulatory period to support gas customers, ensuring customer service levels are maintained whilst the customer base continues to grow.
- **Corporate Services:** Introduced "Cloud Technology" for email to provide cost effective workforce collaboration and completed an upgrade of our enterprise financial system.
- **Enterprise Application Integration:** To maintain the integrity of our network a new Enterprise Application Integration (EAI) platform will be deployed.

In addition, to maintain capacity of our network, reporting has been upgraded and ICT infrastructure that has reached end of life has been replaced.

As at the end of 2011, $34M had been invested against a target of $37M. It is forecast that at the end of the current regulatory period $50M will be invested against a target of $42M. Variations to plan include:

- Lower network management investment ($6M) due to the lower cost of the SCADA projects and deferment of the outage management system to enable a lower cost delivery.
- Higher EAI investment ($3M) due the unforeseen decision of Oracle to retire SP AusNet's existing platform requiring SP AusNet to replace the platform.
- Higher corporate services investment ($1M) due to the commencement of our financial systems replacement and implementation of project and content management systems.
- Higher infrastructure investment ($9M) due to replacement of data centre infrastructure, server upgrades and Standard operating system.
- Higher Metering and Services automation investment ($1M) due to system changes related to National Energy Customer Framework (NECF) changes.
- Higher investment (of $1M) on other projects such as Field Mobility and office moves.

A full review of SP AusNet's ICT capital expenditure during the Third Access Arrangement Period has been undertaken by Deloitte. The findings of this review, outlining that SP AusNet's capital expenditure conforms to the requirements of the NGR are detailed in Appendix 3B of this AAI.

Where overspend has occurred it has been driven by changed business requirements, which were not foreseen at the time of the last access arrangement review. Such changes represent differences in the scope of activities which formed the basis of the determination of the original regulatory benchmarks. SP AusNet has therefore replaced the 2012 benchmark ICT expenditure with an updated forecast consistent with the provisions within Clause 6.4.3(b) of Part B the current access arrangement, for the purpose of determining the opening capital base value for the forthcoming period.

3.6 Operating Expenditure

SP AusNet has outperformed its regulatory allowance since the beginning of the regulatory period. Total operating expenditure has remained flat throughout the period, which means that the business has delivered cost efficiencies which have offset the upward pressure on costs due to network growth and input price escalation (labour and materials) over this period.

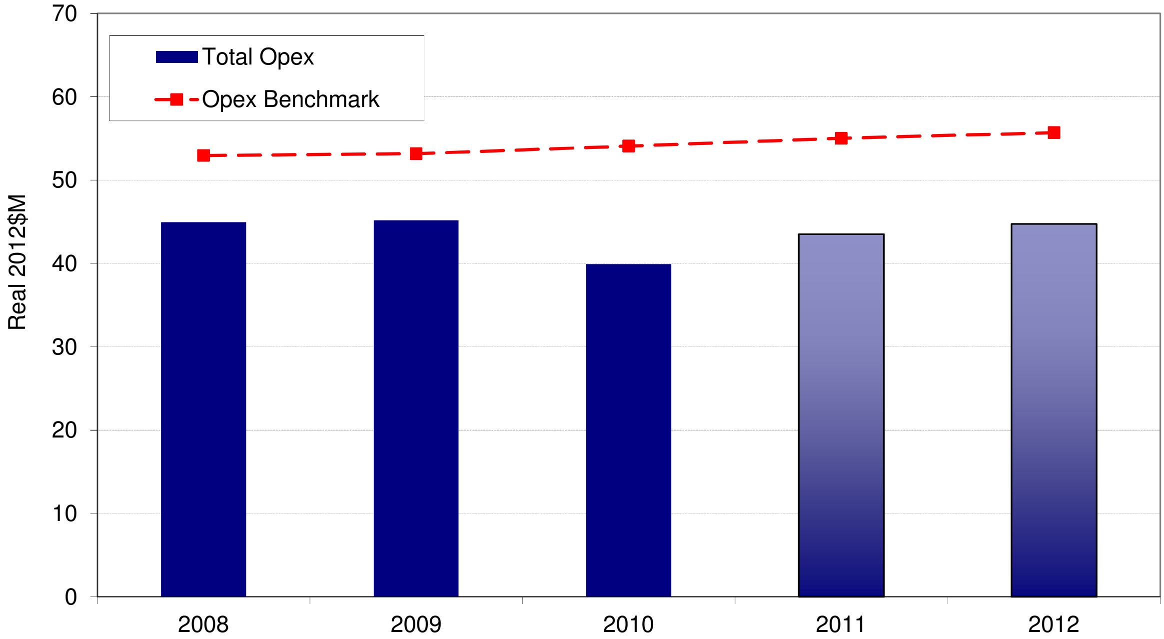
In regard to the maintenance component, input cost increases have been absorbed by SP AusNet's outsourced service provider under the current contract structure.

The operational cost savings achieved result from the last steps of rationalisation of the three SP AusNet regulated infrastructure networks, and ongoing investment in information and communication technology. As is demonstrated in the Appended independent reports from Economic Insights, SP AusNet has the most efficient operating expenditure of any gas distributor in Australia and New Zealand. This performance is in great part facilitated by efficient investment in ICT capability. This investment, in turn, drives delivery of greater efficiencies in other aspects of delivery of natural gas to SP AusNet's customers, thus providing for the long term interests of customers through the provision of reliable and secure gas supply services.

As can be seen from the flat profile of expenditure shown below, these savings have now been fully realised and will be passed on to customers through the Fourth Access Arrangement Period.

The regulatory benchmark expenditure allowances for the current period were based on revealed expenditure in 2006. Effective cost management, contract renegotiation, and investment during the current period prevented expected cost increases in 2007 and 2008, resulting in significant efficiency outcomes.

Figure 3-9: Benchmark and actual/forecast operating expenditure 2008-2012



Source: SP AusNet, actual 2008-10, estimate 2011-12.

Although SP AusNet's operating and maintenance expenditure performance during the current access arrangement period has been impressive there are three specific reasons why SP AusNet is more exposed to pressures now than before. These factors will result in future costs increases:

- As already explained the maintenance contract with Tenix has enabled cost pressures to be absorbed by SP AusNet's service provider. This downward pressure on maintenance costs will not continue as this contract is to be retendered in early 2013. At this time the full impact of increased labour and materials costs will be passed on to SP AusNet.
- Increased expenditure for activities such as leakage surveys will be required to ensure network safety is maintained as part of the gas safety case requirements. This increase in expenditure reflects the average age of the network, which is increasing despite the mains renewal program. Analysis provided in Chapter 6 of this submission clearly demonstrates that the costs of maintaining and repairing the network are rising. Ensuring that such issues are addressed and rectified is vital to ongoing delivery of efficient, reliable and safe gas supply.
- These efficiencies achieved in the period since privatisation are reflected in the present (comparatively low) levels of expenditure, and cannot be repeated. SP AusNet is on the forefront of efficiency in the region. The company therefore has no ability to absorb – through further rationalisation and removal of inefficiencies - future cost pressures generated by increases in labour and materials costs. As a result of being on the frontier of efficiency SP AusNet is more sensitive to the cost impacts of increased activity levels, increased network size, aging infrastructure and input cost pressures as the opportunities to make countervailing cost reductions have been exhausted.

3.7 Performance against KPIs

SP AusNet measures its performance against the following key performance indicators (KPIs):

- Emergency Response;
- Unplanned System Average Interruption Duration Index (USAIDI);
- Unplanned System Average Interruption Frequency Index (USAIFI);
- Unplanned Customer Average Interruption Duration Index (UCAIDI);
- Number of unplanned outages affecting less than 5 customers;
- Number of unplanned outages affecting more than 5 customers;
- Unaccounted for gas;
- Mechanical Damage – Mains;
- Mechanical Damage – Services;
- Mains Replacement – km per annum;
- Network Leaks per kilometre;
- Customer Complaints; and
- Customer Satisfaction.

Performance against these measures can be subject to significant variability, due a number of factors that are beyond SP AusNet's control, including, but not limited to, the following:

- Environment – rapid changes in the environment can cause ground movement, leading to cracks in gas mains and gas leakage. In terms of the low pressure distribution system, water ingress into the network can then occur through these cracks, and this is often the cause of outages.
- Weather – in particular, higher rainfall levels have a marked impact on outages caused by water entering the distribution system (predominantly limited to the low pressure network).
- Third Party Damage – many outages are caused by a third party digging into gas mains. SP AusNet seeks to minimise these outages through the expansion of the Dial Before You Dig program, and the continuation of onsite location proving.
- Multiple outages – restoration of supply times can also be affected by the number of outages experienced simultaneously any particular time. A large number of outages at any one time will lead to longer response times.

SP AusNet's current performance against each KPI is described below. In addition, the targets that SP AusNet proposes to adopt for each KPI for the next access arrangement period are also described. In accordance with the requirements of rule 72(1)(f), it should be noted that these performance targets, along with the demand and customer number forecasts set out in Chapter 4, underpin SP AusNet's capital and operating expenditure forecasts for the forthcoming access arrangement period.

3.6.1 Emergency Response

SP AusNet is required to respond efficiently and effectively in the event of an emergency on its gas distribution network. In particular, SP AusNet is required to meet or exceed minimum response time benchmarks set by Energy Safe Victoria (ESV), which require:

- field response within 1 hour for 'A class' (major leaks / emergencies) emergencies; and

- field response within 4 hours for 'B class' (minor) gas escape repairs.

SP AusNet tracks its performance against these benchmarks on a monthly basis, and provides quarterly performance reports to ESV and ESC for all 'A class' emergencies. Table 3-11 below shows SP AusNet's performance over the period from 2004 to 2011.

Table 3-11: Emergency response KPI

	Benchmark	2004	2005	2006	2007	2008	2009	2010	2011
Metro Business Hours	95%	97%	97%	98%	98%	98%	98%	98%	99%
Metro After Hours	90%	94%	96%	95%	97%	98%	98%	98%	98%
Non Metro All Hours	90%	95%	94%	96%	97%	98%	97%	97%	98%

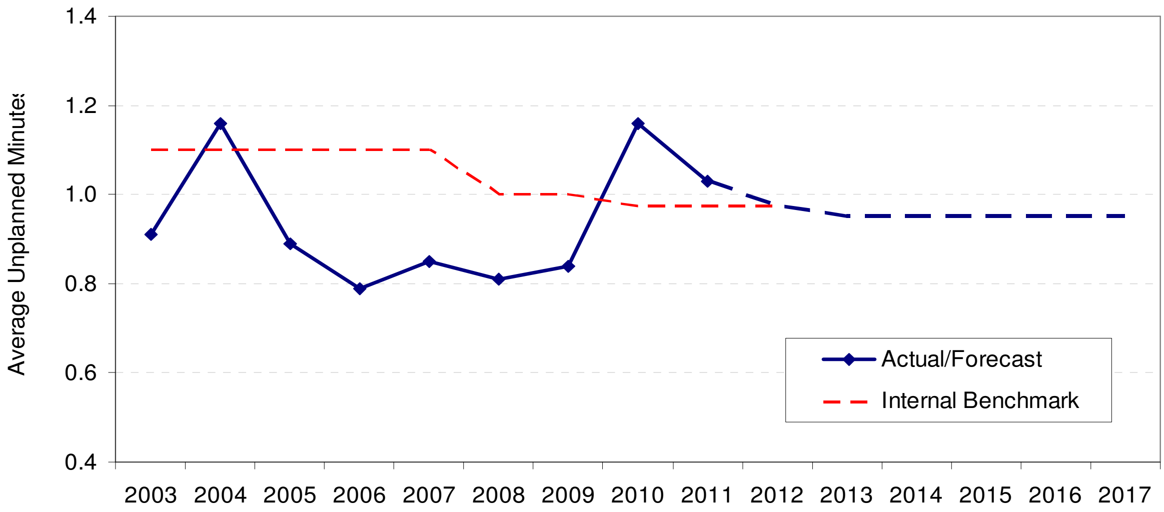
Source: SP AusNet annual reports

SP AusNet's performance targets for emergency response in the forthcoming access arrangement period accord with the minimum response time benchmarks set by ESV.

3.6.2 Unplanned System Average Interruption Duration Index (USAIDI)

USAIDI is an important indicator of network reliability. USAIDI represents the average outage duration for each customer. SP AusNet's USAIDI performance over the current access arrangement period is shown in Figure 3-10 below. SP AusNet's internal target performance for the fourth regulatory period is also shown. SP AusNet's USAIDI has deteriorated over the last 2 years due to higher than average rainfall causing water ingress into the low pressure system. SP AusNet believes that with the safety based mains replacement program reducing the number of system leaks, USAIDI can be kept flat, even in a higher rainfall environment than experienced in the last decade.

Figure 3-10: USAIDI actual and future target performance

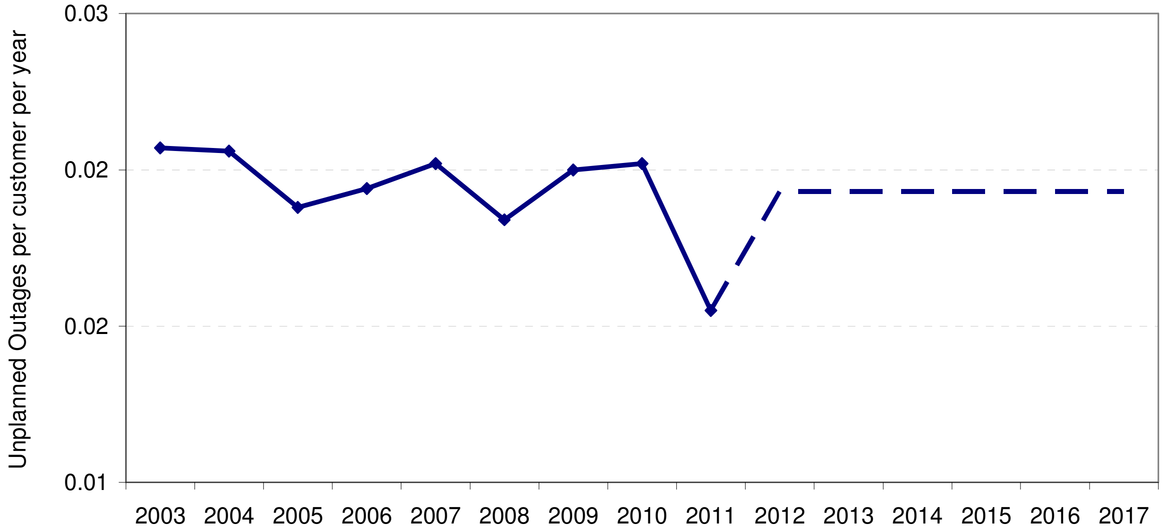


Source: SP AusNet

3.6.3 Unplanned System Average Interruption Frequency Index (USAIFI)

USAIFI represents the number of occasions per year when each customer could, on average, expect to experience an unplanned interruption. SP AusNet's USAIFI performance over the current access arrangement period is shown in Figure 3-11 below. The average USAIFI of 0.02 indicates that a gas customer can expect (on average) to experience an outage every 50 years. SP AusNet's proposed target for the next access arrangement period is to maintain USAIFI at average historic levels.

Figure 3-11: USAIFI actual and future target performance

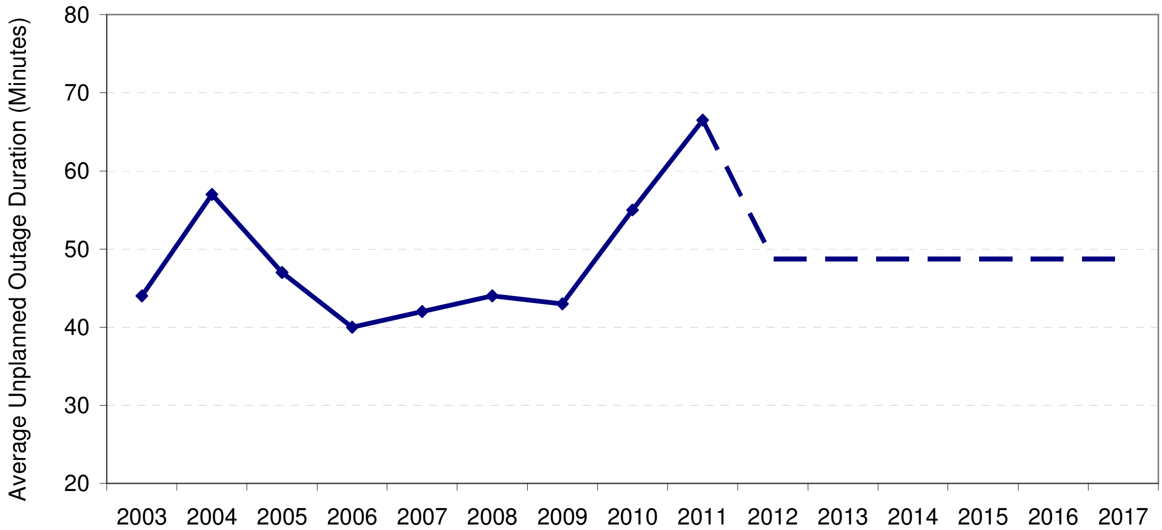


Source: SP AusNet

3.6.4 Unplanned Customer Average Interruption Duration Index (UCAIDI)

UCAIDI represents the average time taken for supply to be restored to a customer when an unplanned interruption has occurred; it is defined as USAIDI / USAIFI. SP AusNet's UCAIDI performance over the current access arrangement period is shown in Figure 3-12 below. It follows from the USAIDI and USAIFI targets that SP AusNet's is also proposing a target for UCAIDI which reflects average historic levels.

Figure 3-12: UCAIDI actual and future target performance



Source: SP AusNet

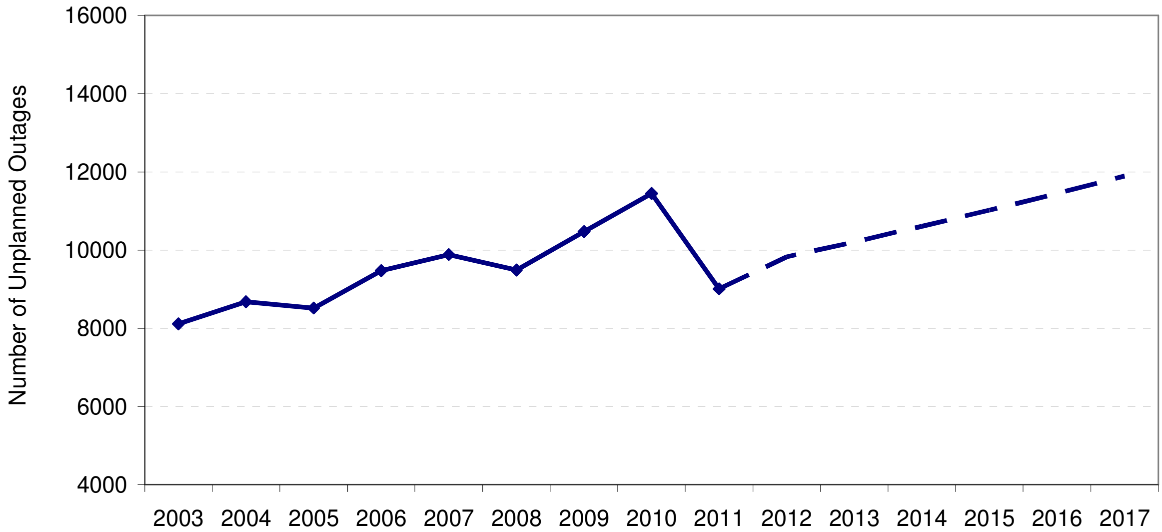
Higher than average rainfall in 2011 (and previous years) has resulted in saturated soil conditions and significant amounts of water ingress into SP AusNet's low pressure network. As a whole, waterlogged soil impedes escapes from the distribution network (as seen in SP AusNet's recent USAIFI performance) but increased levels of water ingress into the low pressure network, increasing average restoration times when compared to other network faults (as seen in SP AusNet's recent UCAIDI performance).

3.6.5 Number of Unplanned Outages affecting less than 5 Customers

As more customers are connected to the network, there is a corresponding increase in network assets. Thus, the number of unplanned outages affecting less than five customers is expected to increase. Figure 3-13 below shows SP AusNet's recent actual and future target performance against this KPI. In contrast with the measures described thus far, the target performance is expected to show a trend increase over the forthcoming regulatory period, which reflects the increasing numbers of customers served by SP AusNet's network.

The number of unplanned outages affecting less than 5 customers is reported externally to the ESV and ESC on a quarterly basis.

Figure 3-13: Number of unplanned outages affecting less than 5 customers



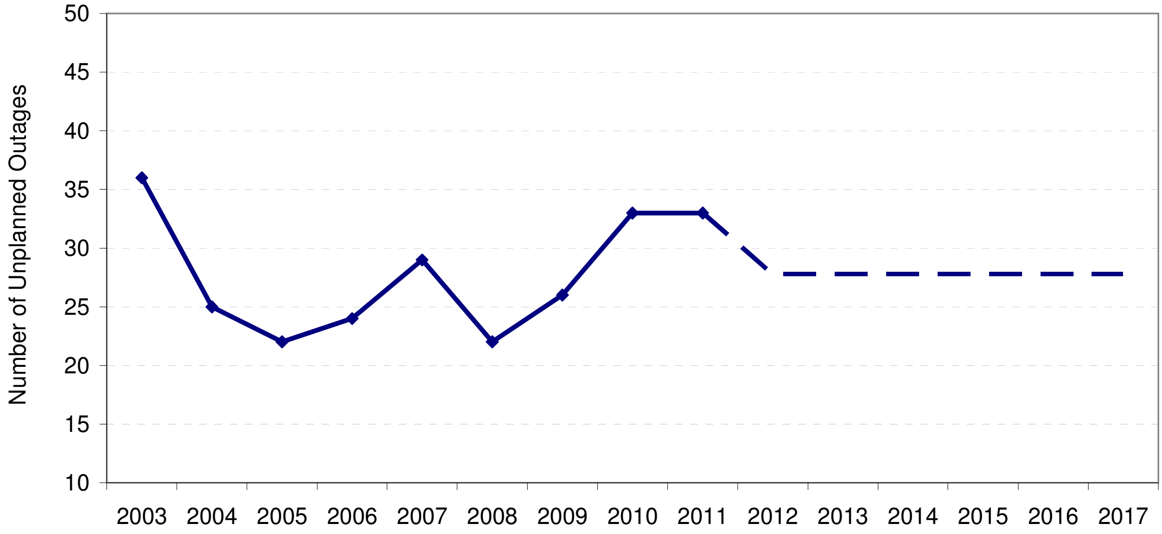
Source: SP AusNet

3.6.6 Number of Unplanned Outages affecting more than 5 Customers

The number of unplanned outages affecting five or more customers indicates relatively major events. This performance measure is targeted to be maintained (which results in a per capita improvement) at average historic levels for the forthcoming access arrangement period, as shown in Figure 3-14 below. In contrast to the previous performance measure of unplanned outages affecting fewer than 5 customers, SP AusNet considers that a constant target is achievable despite the increasing numbers of customers supplied.

The number of unplanned outages affecting more than 5 customers is reported externally to the ESV and ESC on a quarterly basis.

Figure 3-14: Number of unplanned outages affecting more than 5 customers

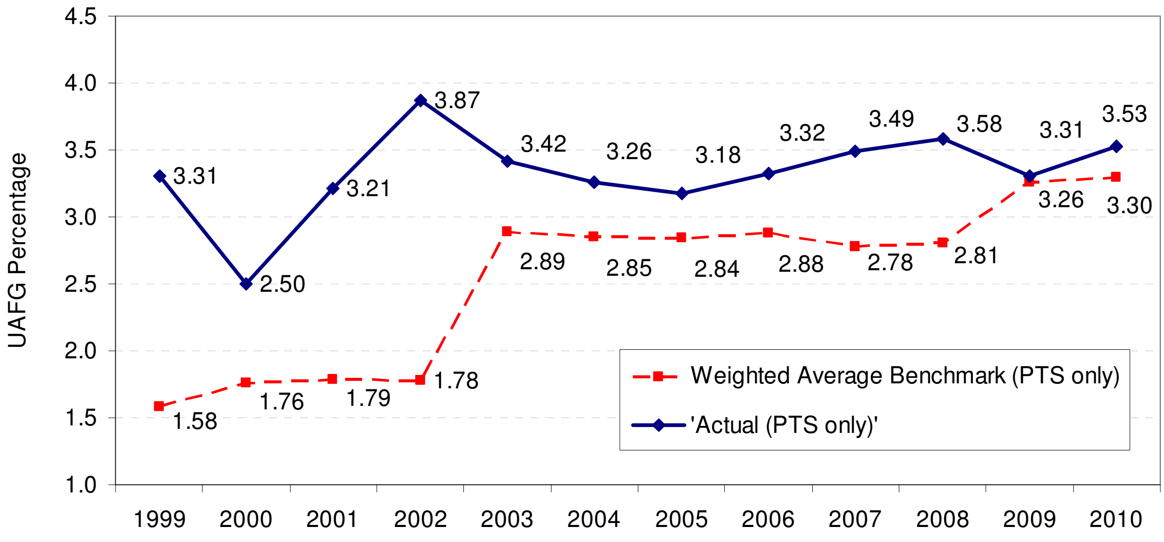


Source: SP AusNet

3.6.7 Unaccounted for gas

Unaccounted for Gas (UAFG) is the difference between the amount of gas injected into the distribution system and the amount of gas withdrawn by consumers. Regulatory benchmarks are established by the regulator for each regulatory period. SP AusNet's performance against the current benchmark, which was set by the ESC, is shown in Figure 3-15 below. Further details on SP AusNet's proposals for UAFG benchmarks and incentive arrangements for the next period are set out in Chapter 10.

Figure 3-15: Unaccounted for Gas (Principle Transmission System Only)



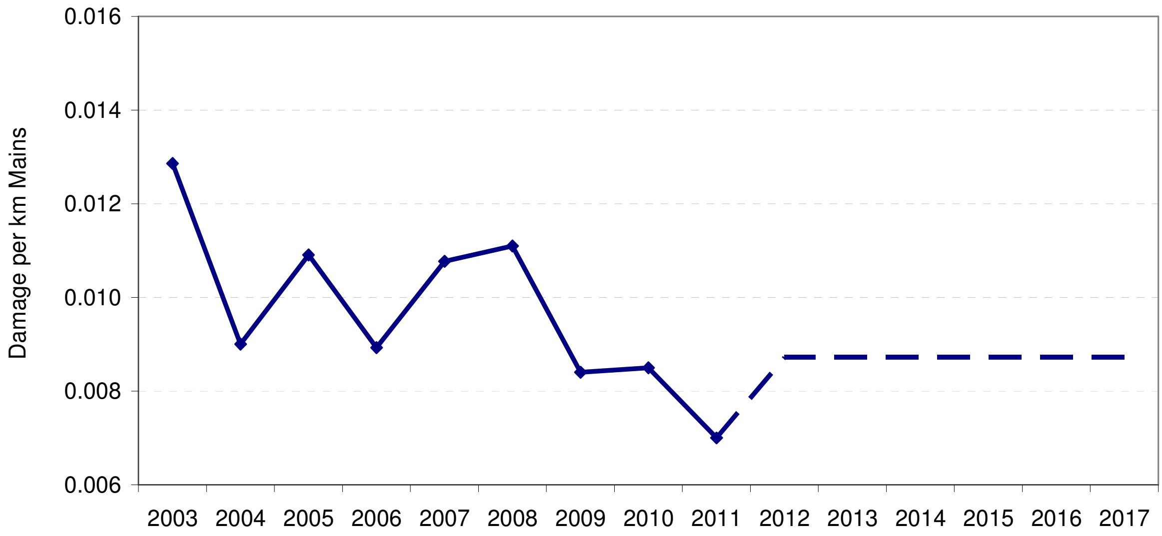
Source: SP AusNet

3.6.8 Mechanical Damage – Gas Mains

The target frequency of mechanical damage per kilometre of mains is expected to be slightly lower than the average historic level as shown in Figure 3-16 below, reflecting the impact of network growth.

The number of distribution main damages is reported externally to the ESV and ESC on a quarterly basis.

Figure 3-16: Mechanical damage per kilometre of mains



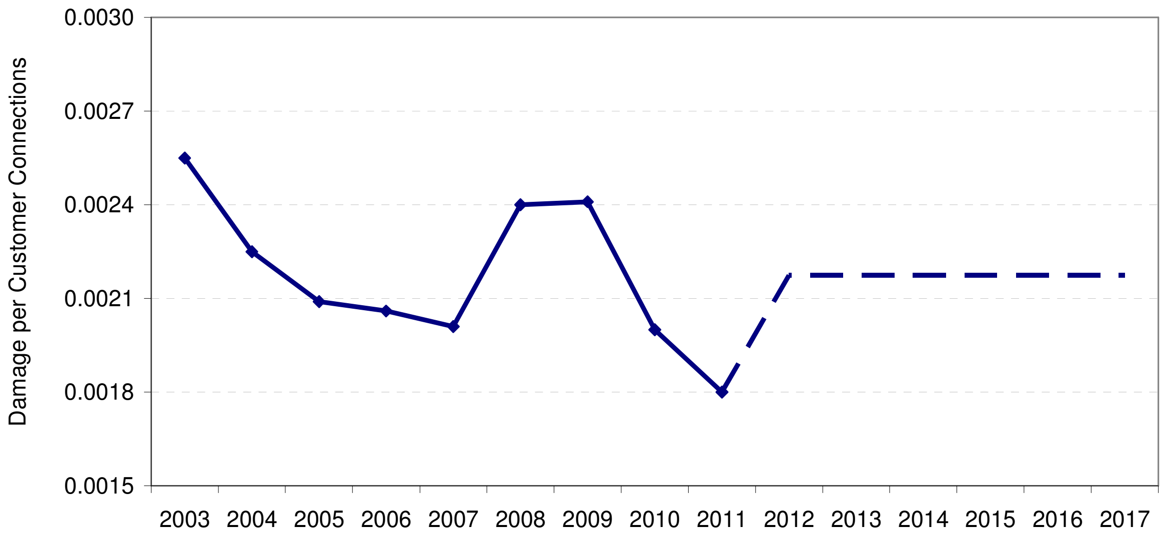
Source: SP AusNet

3.6.9 Mechanical Damage – Customer Connections

The target frequency of mechanical damage to services per customer connection reflects the average historic levels, as indicated in Figure 3-17 below.

The number of distribution service damages is reported externally to the ESV and ESC on a quarterly basis.

Figure 3-17: Mechanical damage per customer connection



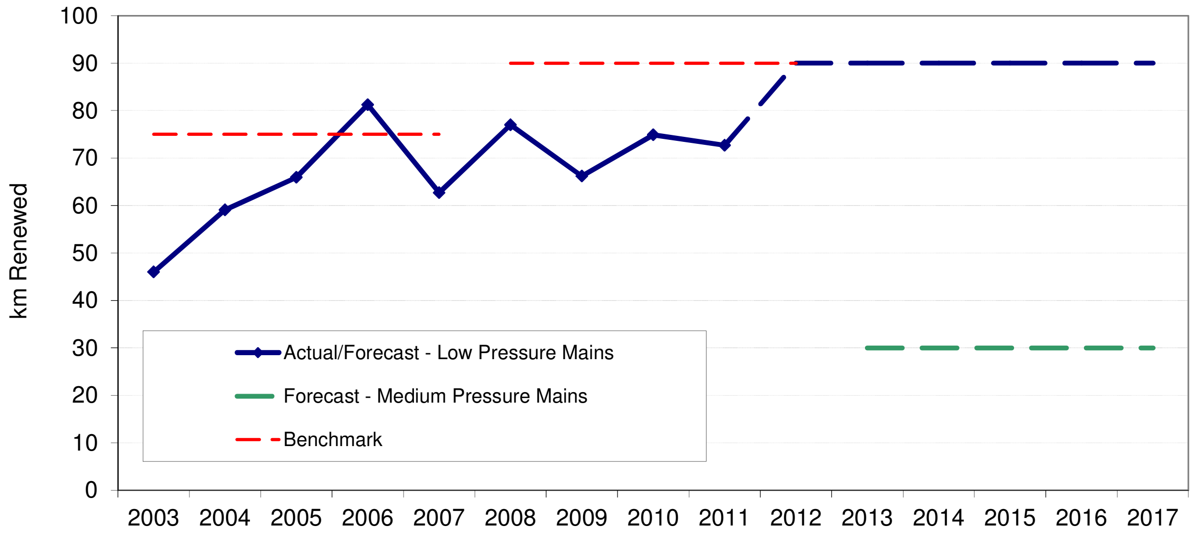
Source: SP AusNet

3.6.10 Mains Replacement

To improve the safety profile of the distribution network, SP AusNet conducts an annual mains replacement program to remove and replace mains to reduce the incidence of leaks on the network and thereby enhance delivery of public safety and reliability improvements, consistent with the NGR, NGL and NGO. The volume of SP AusNet's recent actual and forecast distribution mains replacement work is shown in Figure 3-18 below.

The benchmark for mains replacement is set for each five year period as part of the GAAR process and reported annually with the Regulatory Accounts.

Figure 3-18: Distribution mains replacement



Source: SP AusNet

3.6.11 Network Leaks

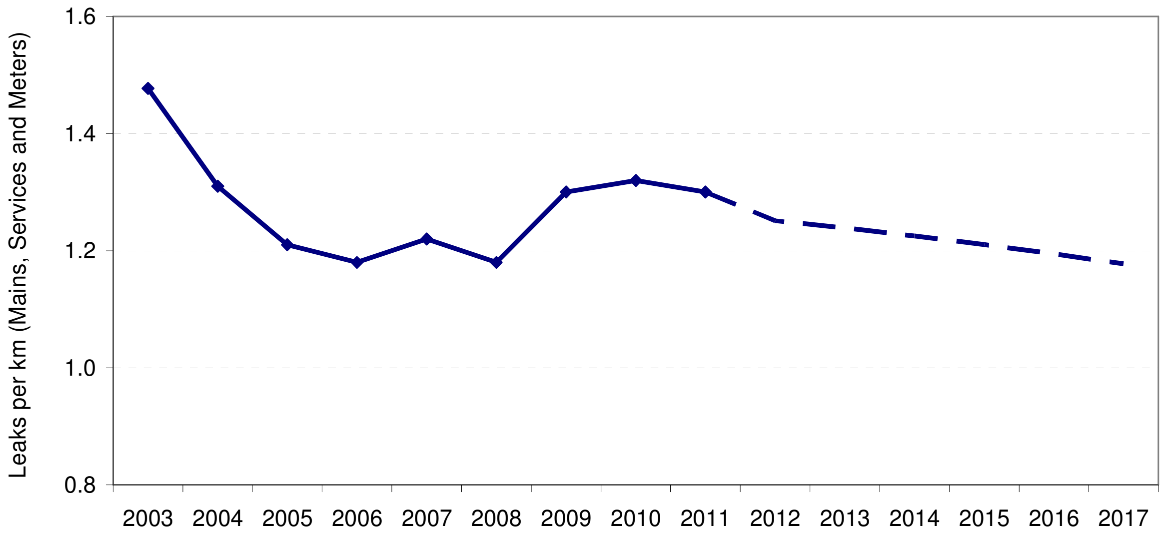
The number of leaks[15] per unit length of main is predicted to fall against historical averages over the coming regulatory period due to an increase in capital expenditure to fund medium and low-pressure mains replacement programs. SP AusNet's recent actual and future forecast performance against this KPI is shown in Figure 3-19 below.

SP AusNet's favourable outcome for network leaks in 2011 (1.06 leaks/km) is again attributable to unseasonably higher than average rainfall during the calendar year. The waterlogged soil impedes escapes from the low pressure network resulting in fewer leaks being identified / repaired.

The number of network leaks (split between meters, services and mains) is reported externally to the ESV and ESC on a quarterly basis.

15 The combination of all leaks (i.e. Meter, Service and Mains) on the distribution system.

Figure 3-19: Network Leaks (Mains, Service & Meter) per kilometre of mains



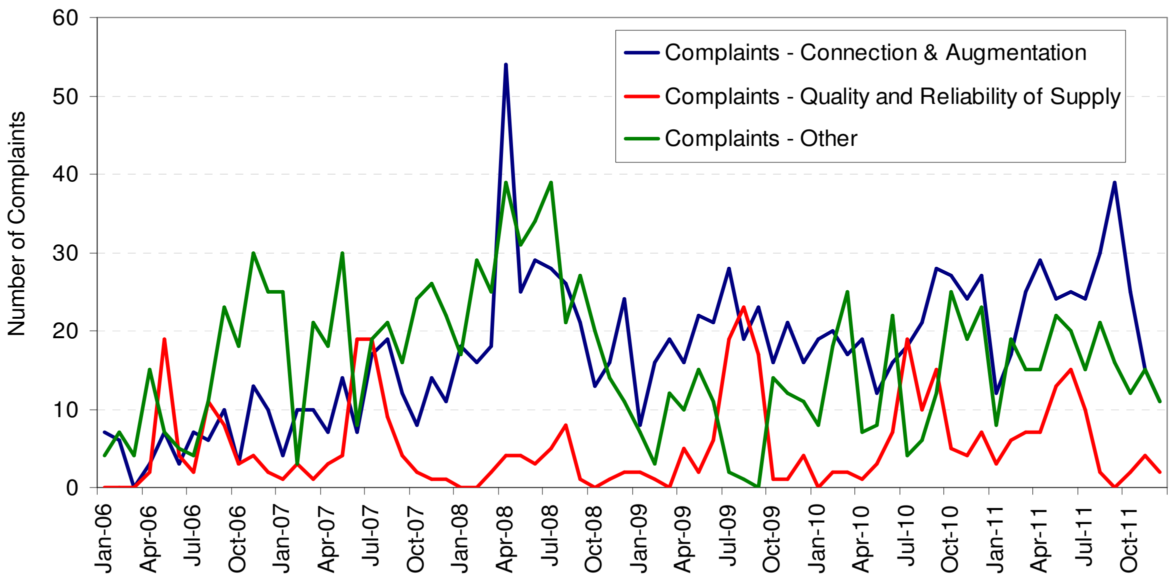
Source: SP AusNet

3.6.12 Customer Complaints

The volume of customer complaints (recorded on a monthly basis) over the current access arrangement period is shown in Figure 3-20 below. SP AusNet is expecting these volumes to remain at around their current levels for the next period.

The spike in connection complaints witnessed in 2008 was due to process changes involving the interface between Retailers, SP AusNet and Tenix (SP AusNet's primary service provider) in respect to new customer connections during the mobilisation of new Service Agreement (which became effective on 1 April 2008). As is evidenced in Figure 3-20 below, internal process improvements were subsequently implemented and this has led to improvements in customer experience associated with this process.

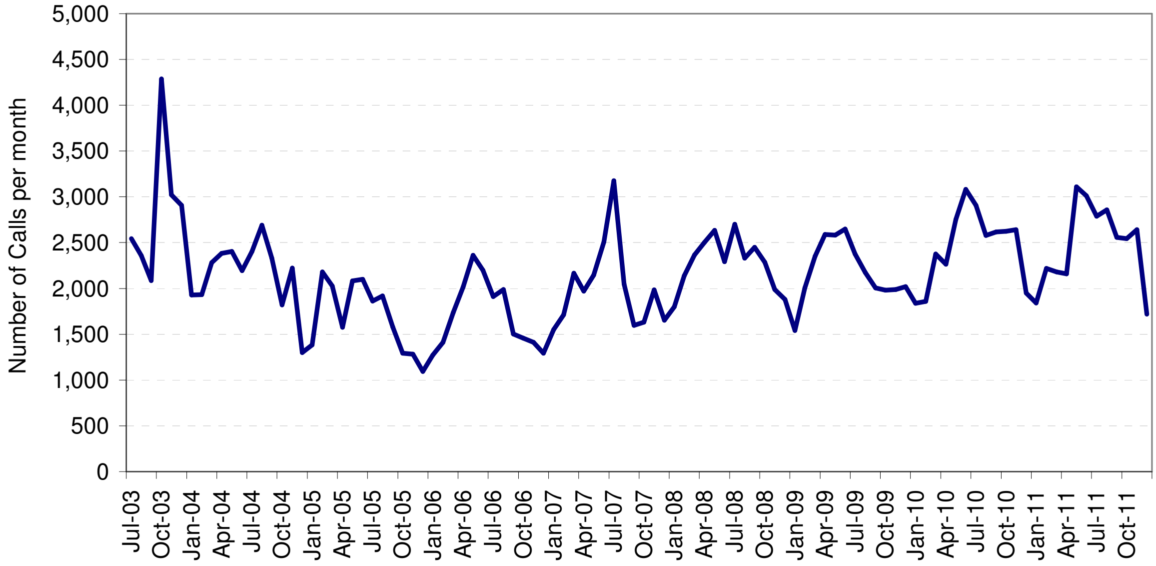
Figure 3-20: Number of customer complaints



Source: SP AusNet

The total number of calls received by SP AusNet's fault reporting line is shown in Figure 3-21 below.

Figure 3-21: Total number of calls to SP AusNet's call centre fault line



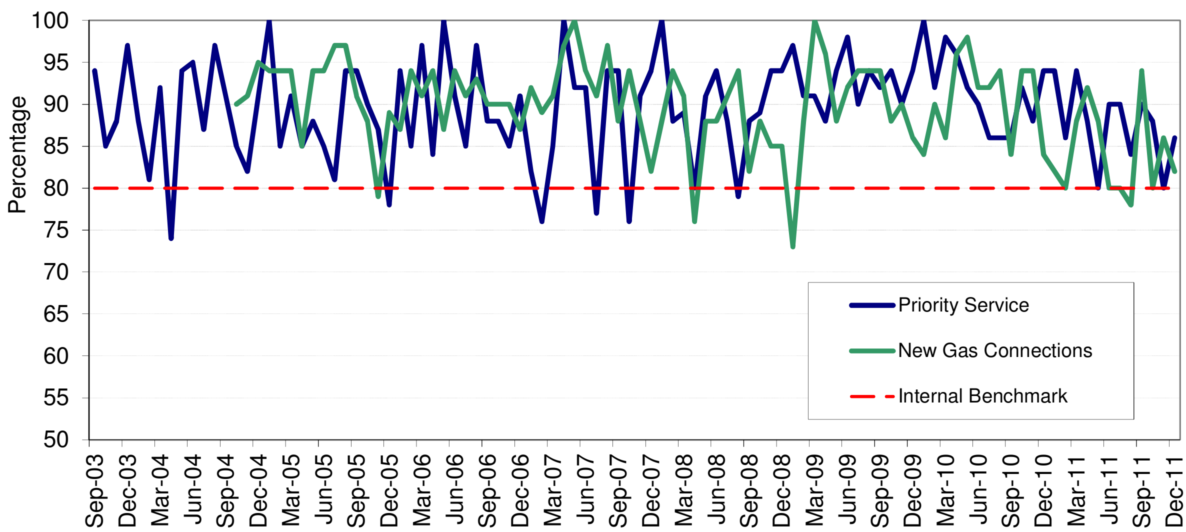
Source: SP AusNet

The number of calls to SP AusNet's call centre fault line and the volume of customer complaints is reported externally to the ESV and ESC on a quarterly basis.

3.6.13 Customer Satisfaction

Customer satisfaction levels are calculated independently by Wallis and Associates on a monthly basis. As shown in Figure 3-22 below, SP AusNet has consistently achieved satisfaction levels higher than the internal 80% benchmark. Satisfaction levels are expected to remain steady across all service offerings into the future.

Figure 3-22: Customer satisfaction



Source: SP AusNet

The data relating to customer complaints and customer satisfaction demonstrates that SP AusNet is continuing to deliver high levels of service.

4 Demand Forecasts

4.1 Summary of Key Points

This chapter provides an overview of SP AusNet's forecasts of gas demand and customer numbers for the forthcoming access arrangement period. The key points are:

- SP AusNet engaged The Centre for International Economics (CIE) to provide an independent forecast of customer numbers and gas usage over the forthcoming regulatory control period, their report is attached to this submission as Appendix 4A. SP AusNet provided a significant amount of historical data to CIE for its analysis including full extracts of its billing database for the period commencing 2003.
- CIE has utilised publicly available information from the Victorian Department of Planning to derive forecasts of dwelling growth in the established Central and West tariff zones. Further, CIE have utilised information on expected customer number growth contained within the ESC's 2008 Final Decision for the Adjoining West and Adjoining Central tariff zones, updated for actual customer numbers as at 2010.
- As a whole, CIE are forecasting growth in net residential customer numbers (gross connections less abolishments) to reduce from the 3.10% per annum experienced over the current regulatory period, to 2.18% per annum over the forthcoming regulatory control period.
- CIE expect the number of commercial customers in the West and Central tariff zones to grow at a rate that reflects the historic relationship between commercial and residential customers. This means that for each additional 1,000 residential customers there will be 6 additional commercial customers.
- Based on analysis provided by CIE, SP AusNet is projecting compound increases in total gas demand of 0.43% per annum for residential customers during the regulatory control period. This reflects the trend derived from the billing database which shows that new dwellings have much lower gas demand than existing dwellings, despite the increasing penetration of gas appliances. Further adjustments to 2010 figures are made to, amongst other things, normalise for weather; account for rising gas prices; and accommodate the impact of new, 6 star building standards.
- Based on analysis provided by CIE, SP AusNet is projecting compound increases in total commercial gas demand of 0.07% per annum during the regulatory control period. This is underpinned by detailed analysis of SP AusNet's billing database, which indicates that newer customers use more gas on average than existing customers. CIE have made further adjustments to, amongst other things, normalise for weather, and to account for rising gas and electricity prices.
- SP AusNet considers there is a material asymmetric risk to CIE's forecasts resulting from the potential for wholesale gas prices to move to international parity over the regulatory control period, thus reducing demand for gas services below the levels contained in this submission. Given the significance of this asymmetric risk, and the associated uncertainty, SP AusNet proposes a demand risk adjustment factor within the 'price cap' formula to address this potential outcome. SP AusNet explains its proposed approach in detail in Chapter 14.
- CIE's projections of maximum hourly quantity (MHQ) for Tariff D and M customers are based on annual gas system demand forecasts. These forecasts were prepared by the Australian Energy Market Operator (AEMO) for inclusion in the Victorian Planning Report. These forecasts assume a medium economic growth scenario. These forecasts indicate a small, incremental increase in MHQ of 0.23% per annum over the regulatory period for both Tariff D and Tariff M customers.

- SP AusNet has utilised the historical relationship between net and gross customer connections in its service area to derive its forecast of gross customer connections from CIE's forecast of net customer connections. Gross customer connections underpin SP AusNet's capital expenditure forecasts for customer connections.
- SP AusNet considers that the forecasts produced by CIE are consistent with the forecasting requirements in the NGR. In particular, the forecasts have been provided by an independent expert, based on publicly available data which has been validated and tested for their historical forecast accuracy. The model is also attached to this submission.

4.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 4.3 cites the applicable regulatory requirements.
- Section 4.4 outlines the historical and forecast residential customer numbers.
- Section 4.5 outlines the historical and forecast commercial customer numbers.
- Section 4.6 provides all relevant information pertaining to residential gas usage.
- Section 4.7 provides all relevant information pertaining to commercial gas usage.
- Section 4.8 outlines the historical and forecast Maximum Hourly Quantities for Tariff D and Tariff M customers.
- Section 4.9 discusses how these forecasts have been translated into gross customer connections forecasts for the purposes of developing capital expenditure forecasts.

4.3 Regulatory Requirements and SP AusNet's Compliance

Rules 74 and 75 set out general provisions relating to the derivation and presentation of forecasts.

Rule 74(1) states:

> *"Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate."*

Rule 74(2) states:

> *"A forecast or estimate:*
>
> *(a) must be arrived at on a reasonable basis; and*
>
> *(b) must represent the best forecast or estimate possible in the circumstances."*

Rule 75 states:

> *"Information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based."*

Rule 72(1)(d) requires the access arrangement information to include:

> *"to the extent it is practicable to forecast pipeline capacity and utilisation of pipeline capacity over the access arrangement period, a forecast of pipeline capacity and utilisation of pipeline capacity over that period and the basis on which the forecast has been derived."*

SP AusNet advises that pipeline capacity and utilisation are difficult concepts to apply to multiple, separate and often interlinked distribution networks, as opposed to a typical 'pipeline'. However, the information set out in this chapter provides analogous data in the form of forecasts of aggregate gas delivery volumes and usage of the gas distribution system.

The forecast information set out in this chapter complies with the applicable requirements of the NGR.

4.4 Residential Customer Numbers

4.4.1 Historical Customer Number Growth

Table 4-1 indicates that net customer number growth has been around 3.1% over the current regulatory period, and that customer number growth has exceeded the forecast growth that was accepted as part of the 2007 GAAR Final Decision.

Table 4-1: Forecast versus Actual – Residential customer numbers

Forecast versus Actual Customers	Start 2008	Start 2009	Start 2010	Start 2011
SP AusNet forecasts(no.)	522 314	535 192	548 490	561 839
Actual (no.)	519,776	535,901	552,859	570,894
Difference (no.)	-2,538	709	4,369	9,055
Difference	-0.5%	0.1%	0.8%	1.6%
Actual Growth Rate – Total		3.1%	3.15%	3.26%

Source: This was based on revised forecasts prepared by NIEIR following the ESC's August 2007 draft decision (p436). See letter from NIER to ESC (dated 26 October 2007), Table 4. These revised forecasts were accepted by the ESC in its final decision.

There are a number of contributing factors that are likely to have driven higher customer connections relative to forecast, namely:

- SP AusNet has experienced higher than expected connection rates in 'new town' areas, relative to forecast, which explains the addition of approximately 2,000 customers compared to forecast. It is further noted that whilst the physical characteristics of the networks in these areas allow for robust estimates of the overall catchment that will be serviced in the long run, the task of estimating the original impact of Government subsidies under the program, and how income factors affect take up rates, in the absence of any tangible history of gas connection in those areas (or similar areas under similar connection arrangements), makes the process of estimating take up rates understandably difficult and prone to error;
- There has been growth in the existing network to service existing dwellings previously not connected to the gas network. For example, the network servicing Bendigo was extended to service Ascot; similar outcomes have ensued in areas such as Williams Landing, Portarlington, Indented Head and St Leonards; and
- Relatively strong macroeconomic conditions have prevailed throughout the period. In addition, growth in customer numbers has been stimulated through broad-based stimulus packages (e.g., the Federal Government's $42 billion stimulus package in 2009), and specific stimulus packages focused on the housing sector (e.g., first home buyers grant), particularly newly constructed houses and newly constructed houses in Regional Victoria (e.g., First Home Bonus; First Home Owner Regional Bonus)[16].

It is noted that despite the higher than forecast number of customers connecting to the system, gas consumption in total is lower than forecast, indicating that the higher outturn

16 http://www.sro.vic.gov.au/sro/SROnav.nsf/alltitle/First%20Home%20Owners?open.

customer numbers have been more than offset by lower average gas usage (relative to forecast) across SP AusNet's residential customer base.

On a related point, SP AusNet notes that the 3.1% per annum average growth rate over the current access arrangement period significantly exceeds historical rates of growth for the previous 3-4 year period (which averaged around 2.8%). Therefore, statistically, the 3.1% growth rate is considered to be abnormally high, relative to historical growth rates. This is also supported by a first principles assessment of the drivers of customer connections over the period. In particular, the higher growth rate reflects the transitory effects of factors such as the 'Gas to Regional Towns' scheme, which contributed around 0.2% to that growth rate, and the organic extension of the gas distribution network to adjacent areas, which increased the overall penetration of gas to existing dwellings. SP AusNet notes that these are predominantly one-off effects and, therefore, are not sustainable. For example, the physical characteristics of the 'Gas to Regional Towns' program means that it will necessarily taper off significantly over the next regulatory period. Further, the impact of the organic growth of the network is considered to have reached a point of saturation, having regard to the economics (i.e., customers that can be connected economically, have been connected) and physical limitations on growth. The areas of St Leonards, Portarlington and Indented Head are examples of this.

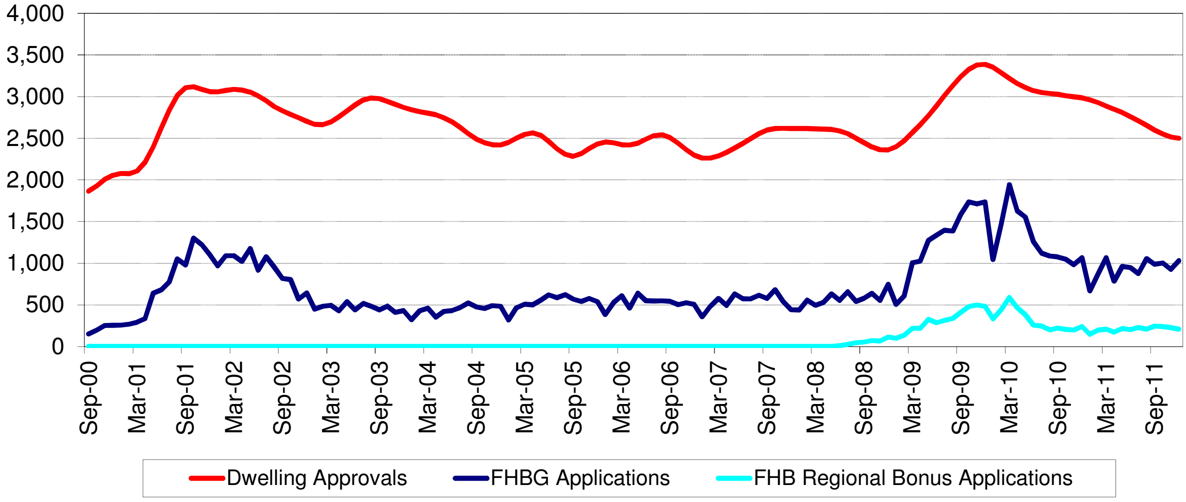
Further to this, SP AusNet also notes that the introduction and significant within-period escalation in the First Home Buyers Grant (FHBG) appears to have driven significant growth in dwelling approvals during the current access arrangement period, thus materially contributing to the abnormally high growth rate of 3.1%. As an example, the FHBG peaked at $36,500 for newly constructed homes in Regional Victoria for contracts entered into between 14 October 2008 and 30 June 2009[17]. This is around three times the Grant of $12,000 for contracts entered into between 1 January 2007 and 5 May 2008. Further, information from the State Revenue Office indicates that the Grant has disproportionately impacted on SP AusNet's service area, with figures up until 30th June 2011 showing that the top three regional areas in Victoria where applications were received for the FHBG were in SP AusNet's service area. It is also noteworthy that of the top ten areas overall, seven of them were in SP AusNet's area[18]. This highlights the impact that this scheme has had on SP AusNet's service area.

Looking at state wide figures, the scheme has contributed to a large rise in dwelling approvals over the current access arrangement period, relative to historical levels. This is illustrated in Figure 4-1 below, which shows that there was an almost 40% increase in the monthly dwelling approvals between January 2009 and January 2010. This increase is highly correlated with FHBG applications received during that same period, and moreover, the FHBG Regional Bonus Applications received during that period.

[17] http://www.sro.vic.gov.au/SRO/sronav.nsf/childdocs/-6BF180369BCB3975CA2575A1004420CF-B82157FB72EC77C8CA2575CA00826CDD?open

[18] http://www.sro.vic.gov.au/sro/SROnav.nsf/LinkView/309CC921E580FC95CA2577B900067AB5D5B4BCE85935D2CDCA2577B900042CDA

Figure 4-1: First Home Buyers Grant versus Dwellings Approvals



Source: Australian Bureau of Statistics; State Revenue Office; SP AusNet

The above information strongly suggests that the FHBG has brought forward the purchase of new dwellings by some first home buyers, thus lifting the growth rate in SP AusNet area above business as usual levels. Further, given the magnitude of the number of first home buyers enticed to enter the market over the last 3 years, the overall future catchment of first home buyers will logically have reduced, thus dampening the likely effect of the FHBG in the future, even if it were to return to previous, historic highs.

Consistent with the dwellings approvals information contained in Figure 4-1 above, the ABS highlights the significant weakness in the current number of dwellings being approved in Victoria in its most recent dwelling approvals data (December, 2011). Specifically, it states that the "*trend estimate for total number of dwelling units approved in Victoria fell 1.4% in December and has fallen for 15 months. The trend estimate for the number of private sector houses fell 0.6% in December and has now fallen for 24 months*"[19]. This indicates a shift to below average levels of growth in the foreseeable future.

4.4.2 Methodology and Key Assumptions

SP AusNet engaged The Centre for International Economics (CIE) to provide it with an independent forecast of customer numbers and gas usage (for all customer categories) over the forthcoming regulatory control period. SP AusNet provided a significant amount of data to CIE for its analysis, including full extracts of its billing database for the period commencing 2003.

SP AusNet briefed CIE on the requirements of the NGR that pertain to the development of gas usage and customer number forecasts. Specifically, it was noted, and acknowledged by CIE, that Rule 74(2) requires that '*a forecast or estimate:…(a) must be arrived at on a reasonable basis' and (b) 'must represent the best forecast or estimate possible in* the *circumstances'*.

CIE also had specific regard to previous AER commentary on the characteristics of best practice forecasting, particularly that forecasts should[20]:

- Be accurate and unbiased;

[19] http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/8731.0Main%20Features3December%202011?opendocument&tabname=Summary&prodno=8731.0&issue=December%202011&num=&view=

[20] These have been articulated by ACIL Tasman 2010, *Victorian electricity distribution price review: review of electricity sales and customer number forecasts*, prepared for the Australian Energy Regulator, April.

- Incorporate key drivers, including weather;
- Incorporate policy impacts;
- Be transparent and repeatable; and
- Include model validation and testing.

Having regard to the above, the projections contained in CIE's report (Appendix 4A) have followed a four step process:

- CIE have described changes in gas use over the period for which data is available. This has typically been undertaken using statistical analysis of SP AusNet's billing database;
- CIE have sought to understand the drivers of these changes, particularly those drivers that can be projected forward;
- CIE have projected forward using independent estimates of drivers and adjustments reflecting the impact of additional changes not part of the historical time series, such as new Government policies affecting gas usage; and
- CIE has reviewed the projections against top down checks such as population growth and growth in the Victorian economy.

Consistent with the above, and after having investigated a number of alternative forecasting methodologies to derive unbiased estimates of future customer number connections to SP AusNet's gas distribution system for the forthcoming regulatory control period, CIE has used two separate approaches to develop its residential customer number forecasts for SP AusNet's gas distribution area.

- Firstly, the Victorian Department of Planning (VDP) dwellings forecasts at a Local Government Area (LGA) level have been used to derive customer number growth forecasts for the West and Central tariff regions. CIE has utilised this approach for these regions as CIE consider that the growth in customer numbers is predominantly linked to growth in dwellings in these regions; and
- Secondly, previously audited and published forecasts of customer connections for the 'new town' regions have been used to underpin the forecast of new connections in the Adjoining Central and Adjoining West tariff zones, adjusted such that the forecasts incorporate new information, namely the actual number of connections as at 2010.

In relation to the former, current VDP forecasts, which were prepared in 2008 using the ABS 2006 Census data, underpin the forecast of customer numbers for the West and Central tariff regions. These are established regions (in that there is generally a saturation of gas penetration in those regions now), and therefore, dwelling forecasts will likely match new gas connections in the region in the future. Further, and importantly, CIE have stated that "*the VDP forecasts provide an independent and unbiased source of information*[21]", which SP AusNet considers to be consistent with the NGR. This is particularly pertinent, when compared against alternative approaches to develop customer number forecasts, such as reliance on:

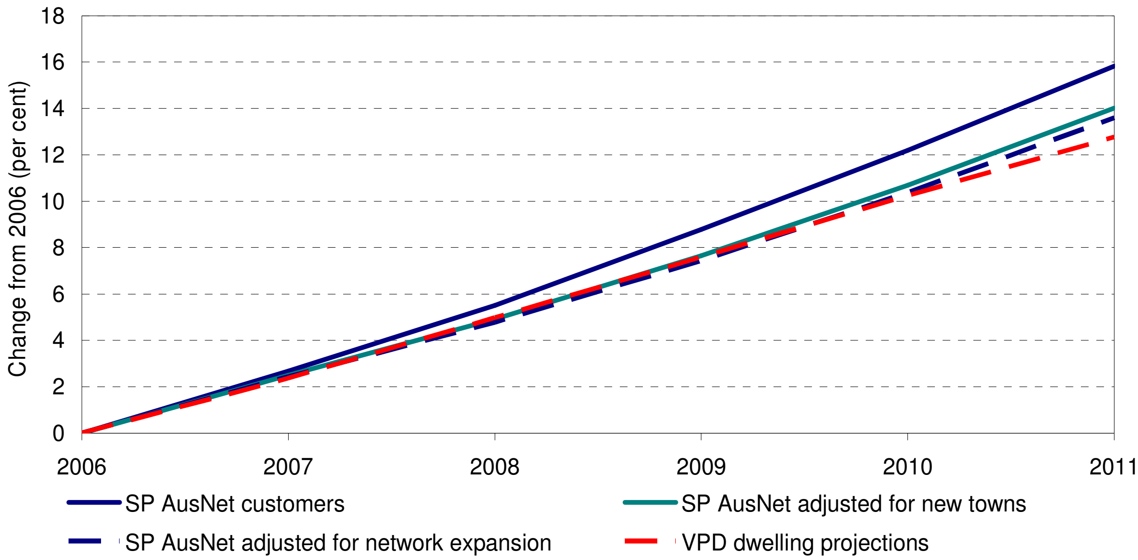
- Projections from industry aligned groups, which, given their source, are more likely to be biased, than a forecast that has been produced by a Government department specifically focused on investigating and planning for growth;
- Outputs from a 'black-box' model which can suffer from a lack of transparency, and influenced to an unknown extent by the accuracy and robustness of the underlying explanatory variables inputted into the model; and

21 Centre for International Economics*; Gas demand forecasting SP AusNet, 2013-17*; January 2012, page 34.

- Trend analysis only, which implies that every factor affecting historical customer connection growth rates, will continue, unabated, into the future. Conceptually, there are issues with this approach, because broader macro-economic and policy drivers are unlikely to match what has historically occurred during the period used to derive the trend. Furthermore, the use of historical trends is prone to error – particularly in relation to forecasting new connections, as historic data has been affected by a number of transitory factors, such as the 'Gas to Regional Towns' scheme.

To provide forecast confidence, CIE has investigated the historical accuracy of the VDP forecasts, relative to outturn connection rates in SP AusNet's area. After allowing for the impact of growth in 'new towns' and other areas (e.g. Indented Heads, St Leonards) where network expansion has led to existing dwellings connecting to the gas network, the difference between the VDP projections for the 2006 – 2011 period and actual customer growth is estimated to be around 1% cumulatively over 6 years.

Figure 4-2: Comparison of VDP forecasts versus actual dwelling growth



Source: CIE.

It is noted that the small 'gap' does not necessarily validate the forecasting approach underpinning the VDP itself, however, it can provide confidence that the VDP forecasts have been historically consistent with SP AusNet's experience. SP AusNet considers that the transparent, unbiased nature of the forecast, along with its historical accuracy, means that VDP forecasts represent the best forecast or estimate possible in the circumstances, in accordance with the requirements of the Rules.

In relation to the growth in connections in new town areas, CIE consider that the increase in customer numbers is driven by existing dwellings choosing to connect to the network which is already in place, which means that the timing of their decision is likely to be due to factors such as when old electric appliances are replaced. The most unbiased source of information is that which underpinned the ESC's 2008 Final Decision. Consistent with the above, CIE have undertaken the following approach[22]:

- *"Maintained the original projections of the maximum number of customers that were originally forecast to be connected to the network. The original estimates took account of the physical characteristics of each of the towns and the proximity of the existing dwellings to the network as well as the likely capital contribution by the customer for the network connection. The original*

[22] Centre for International Economics; *Gas demand forecasting SP AusNet, 2013-17*; January 2012, p. 36.

forecasts also incorporate the Government subsidised connection costs which was believed to encourage a higher uptake in the initial years.

- *Calculated the difference between the actual number of customers currently connected to the network and the original estimate of the maximum number of connections. We define this as the 'gap'.*
- *Estimate the proportion of 'gap' that will be reduced in each year over the regulatory period. Over the past 5 years, the 'gap' has been filled by approximately 30 per cent per annum. Given that the growth rates typically diminish into the future , we have assumed that 25 per cent of the gap will be reduced in each year of the regulatory period."*

Overall, SP AusNet considers that the forecasts produced by CIE are consistent with the forecasting requirements of the NGR, in particular, they are unbiased, transparent – in that they are based on publicly available data and have been validated and tested for their historical forecast accuracy – and have been arrived at on a reasonable basis.

Chapter 3 of CIE's Report (Appendix 4A) explains their approach to forecasting residential customer number connections in more detail.

4.4.3 Forecast Residential Customer Numbers

Table 4.2 outlines SP AusNet's forecasts of average net (gross, less abolishments) residential customer numbers by tariff zone for each year of the forthcoming access arrangement period.

Table 4.2: Forecast residential customer numbers

Weighted Average Residential Customer Numbers	2012	2013	2014	2015	2016	2017
Central	457 015	468 414	479 822	491 232	502 494	513 665
Growth Rate – Central	2.59%	2.49%	2.44%	2.38%	2.29%	2.22%
West	127 617	129 534	131 451	133 368	135 285	137 213
Growth Rate – West	1.75%	1.50%	1.48%	1.46%	1.44%	1.43%
Adjoining Central	1 126	1 194	1 245	1 283	1 311	1 333
Growth Rate – Adjoining Central	11.59%	6.03%	4.26%	3.06%	2.23%	1.63%
Adjoining West	7 362	7 693	7 940	8 126	8 265	8 370
Growth Rate – Adjoining West	8.12%	4.49%	3.22%	2.34%	1.71%	1.26%
Total	**593,120**	**606,834**	**620,458**	**634,009**	**647,355**	**660,581**
Growth Rate – Total	**2.49%**	**2.31%**	**2.25%**	**2.18%**	**2.11%**	**2.04%**

Source: SP AusNet and CIE

As can be seen from Table 4.2 above, the growth rate in the Central tariff zone is expected to exceed the growth rate in the West tariff zone. This is not unexpected, as the West tariff zone incorporates primarily regional and rural areas, such as Bendigo, Ballarat, Horsham, Warrnambool, the Grampians region and Colac/Otway's region. These areas have historically experienced lower growth rates in dwelling establishment than the more urbanised localities that make up the Central tariff zone, for example the Councils of Hobsons Bay, Maribyrnong, Moonee Valley and Melbourne. In support of the above forecasts, SP AusNet notes that between 2006 and 2010, the average growth rate in customer numbers in the West tariff zone has been around 0.6% lower than in the Central tariff zone.

In relation to both the Adjoining Central and Adjoining West tariff zones, connection rates show a tapering off over the forthcoming access arrangement period. This is consistent with what was expected as part of the original projections that were accepted as part of the 2007 Final Decision, and more broadly, is a logical by-product of rolling out a 'Gas to Regional Towns' scheme, with subsidies for early connection and high early adopter rates, once a customer is physically able to make a gas connection.

4.5 Commercial Customer Numbers

4.5.1 Historical Customer Number Growth

As can be seen from Table 4.3 below, unlike for the residential customer segment, actual commercial customer numbers have been below the forecasts contained in the ESC's 2007 Final Decision.

Table 4.3: Forecast versus Actual – Commercial customer numbers

Forecast versus Actual Customers	Start 2008	Start 2009	Start 2010	Start 2011
SP AusNet forecasts(no.)	15 469	15 749	16 012	16 322
Actual (no.)	15,235	15,351	15,500	15,643
Difference	-1.5%	-2.5%	-3.2%	-4.2%
Actual Growth Rate – Total		0.76%	0.97%	0.92%

Source: This was based on NIEIR (2008) Demand Forecasts Report, March (Table 6.4).

Whilst the growth rates forecast for the current regulatory period ranged from 1.8% for 2009 (versus 2008), 1.6% for 2010 (versus 2009) and 1.9% for 2011 (versus 2010), the outturn growth rate in commercial customer connections was substantially lower than this at 0.76% to 0.97% per annum.

The forecast growth rates for commercial customers over the current regulatory period were substantially more optimistic than the growth that actually transpired. Given fairly robust economic conditions throughout much of the evaluation period (except, of course in 2008 and early 2009, due to the GFC), it would be difficult to ascribe this lower than expected customer growth to macro-economic conditions.

4.5.2 Methodology and Key Assumptions

CIE assessed the relationship between commercial customer growth and a number of possible variables, including, economic growth rates, average weekly earnings and residential customer growth.

CIE note in their report that the data does not imply a strong year to year correlation between economic growth across Victoria and growth in customer numbers in SP AusNet's distribution area, and there appears to be little relationship between growth in average weekly earnings and customer numbers.

CIE did, however, find that there has been a strong relationship between new residential customers and new commercial customers across the different local government areas that SP AusNet services. This is consistent with the ESC's previously held view that the number of new dwellings was a key driver of the growth in commercial and industrial gas connections. More specifically, in its draft decision, the ESC concluded that[23]:

> *"Due to the high penetration of gas connection to new dwellings, the key driver for customer connections is the number of new dwelling completions within each distributor's zone. Commercial and industrial connections are generally proportionate to the new dwelling completions, but represent a relatively minor proportion of total new connections."*

Having regard to the above, CIE has used two separate approaches to develop its commercial customer number forecasts for SP AusNet's gas distribution area:

- Growth in commercial customers in the West and Central tariff zones is linked to dwellings (and residential customer) growth. More specifically, statistical analysis indicates that for every 1000 new residential customers there are 6 new commercial customers that connect to SP AusNet's network. CIE have used this relationship and the forecast growth in residential customer numbers to establish the forecast growth in commercial customer numbers.
- For the 'new towns' tariff zones, dwellings growth (and consequent growth in residential customer numbers) is not expected to be a driver of the growth in commercial customer numbers, because residential customer number growth is not driven by new dwellings, but rather the connection of existing premises to the new network. Therefore, to project commercial customer numbers in the 'new towns', CIE use a similar approach to what they used to develop forecasts for residential customer numbers in these areas, namely, forecasts are based on the maximum take up approved by the ESC for 2025.

Overall, SP AusNet considers that the methodology used by CIE to produce the forecast of commercial customer numbers is consistent with the NGR. As previously highlighted, the methodology is both unbiased and transparent; as it is based on publicly available data obtained from the VDP forecasts (for residential customer number growth) and previously accepted forecasts for commercial customer growth in the new town regions. Additionally, the statistical relationship between residential and commercial customer growth which underpins the modelling approach has been validated, in fact, it reflects historical outturn results experienced by SP AusNet. SP AusNet notes that to its knowledge, there is no identifiable structural break with the data, nor is there anything conceptually that it considers would lead to this relationship not holding over the forthcoming access arrangement period.

Finally, SP AusNet notes that CIE tested the validity of using other approaches, however, the explanatory power of these approaches was not found to match the use of the historical relationship between residential and commercial customers.

Overall, having regard to the above, SP AusNet considers that this forecast methodology will provide the 'best forecast or estimate possible in the circumstances', and therefore, it is consistent with the NGR, and it is reasonable for SP AusNet to rely on it in the circumstances.

Chapter 4 of CIE's Report (Appendix 4A) explains their approach to forecasting commercial customer number connections in more detail.

4.5.3 Forecast Commercial Customer Numbers

Table 4.4 outlines SP AusNet's forecasts of average net (gross connections less abolishments) commercial customer numbers by tariff zone for each year of the forthcoming access arrangement period.

[23] ESC 2007, Gas Access Arrangement Review 2008-2012 — Draft Decision, August, p. 440.

Table 4.4: Forecast average commercial customer numbers

Weighted Average Commercial Customer Numbers	2012	2013	2014	2015	2016	2017
Central	9 487	9 557	9 627	9 697	9 766	9 835
Growth Rate – Central	0.71%	0.74%	0.73%	0.73%	0.71%	0.70%
West	6 078	6 090	6 102	6 114	6 125	6 137
Growth Rate – West	0.30%	0.19%	0.19%	0.19%	0.19%	0.19%
Adjoining Central	10	11	12	13	14	15
Growth Rate – Adjoining Central	11.72%	9.69%	8.14%	6.79%	6.40%	6.05%
Adjoining West	183	193	204	219	234	250
Growth Rate – Adjoining West	10.48%	5.51%	5.93%	7.14%	6.90%	6.67%
Total	**15 758**	**15 851**	**15 945**	**16 042**	**16 139**	**16 236**
Growth Rate – Total	**0.66%**	**0.59%**	**0.60%**	**0.61%**	**0.60%**	**0.60%**

Source: SP AusNet and CIE

Given the methodology utilised, the spatial pattern of growth follows the growth in residential customer numbers, with Central region growth (0.7%) outstripping the West region growth (0.2%). Relative to historical growth rates in these regions, these forecast growth rates are considered aggressive, with historical rates being slightly higher in the Central region (estimated to be 0.8% between 2006 and 2011), but materially lower in the West region (estimated to be -0.06% between 2006 and 2011).

For the Adjoining Central region and Adjoining West tariff zones, compound per annum growth rates over the regulatory period are similar at around 7.5% and 6.5% respectively.

4.6 Residential Gas Usage Numbers

4.6.1 Historical Usage Growth

Table 4.5 compares the forecasts of gas usage that underpinned the ESC's 2007 Final Decision against actual gas usage over the four years between 2007 and 2010.

Table 4.5: Forecast versus Actual – Residential usage

Forecast versus Actual Usage	2007	2008	2009	2010	2011
ESC Final Decision (TJ)	27 592	28 092	28 542	29 000	29 497
Actual – Tariff Report (TJ)	25 442	28 750	28 624	30 109	28 854
Actual adjusted for weather to 1285 EDD (TJ)	26 837	28 241	28 802	28 781	29 925
Difference between actual and forecast	- 7.8%	2.3%	0.3%	3.8%	-2.2%
Difference between actual (weather corrected) and forecast	-2.7%	0.5%	0.9%	-0.8%	1.5%

Source: SP AusNet tariff reports and ESC Final Decision

As can been seen from Table 4.5, after allowing for weather, total gas consumption by SP AusNet's residential customers has been marginally lower than forecast. This is despite SP AusNet undertaking more customer connections than were forecast as part of the ESC's Final Decision. It follows that usage per customer has been generally lower than forecast over the period, as shown in the table below.

Table 4.6: Forecast versus Actual – Usage per customer

Usage per Customer	2007	2008	2009	2010
Forecast Usage per Customer (GJ)	52.83	52.49	52.04	51.62
Actual (weather corrected) usage per Customer (GJ)	51.63	52.70	52.10	50.41
Difference	-2.26%	0.40%	0.11%	-2.33%

Source: Weather corrected usage divided by actual customer numbers; forecast usage divided by forecast customer numbers.

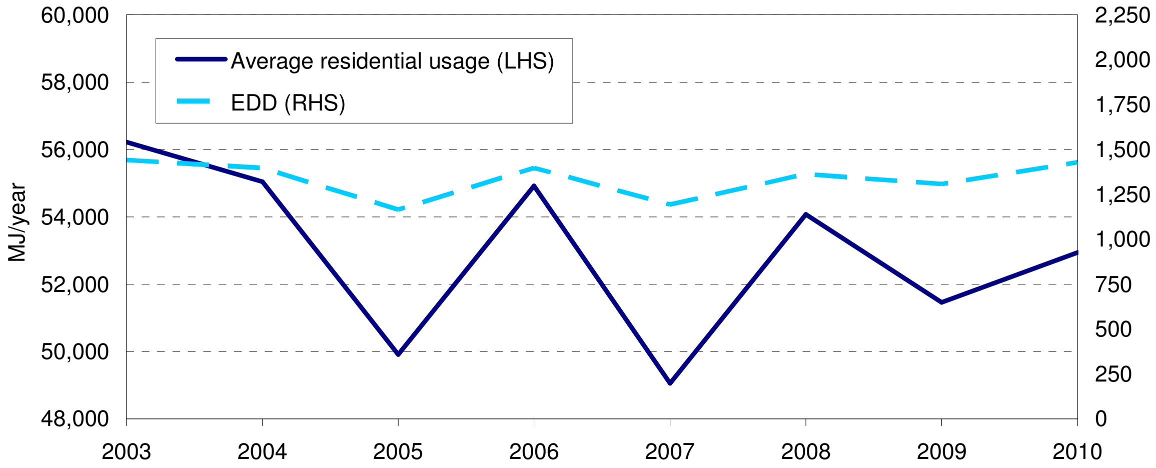
This high level analysis is consistent with the detailed outcomes that CIE found when interrogating SP AusNet's billing database.

More specifically, CIE found that[24]:

> *"Average gas use per connection appears to have fallen since 2003."*

[24] Centre for International Economics; *Gas demand forecasting SP AusNet, 2013-17*; January 2012; p.46.

Figure 4-3: Gas use per dwelling

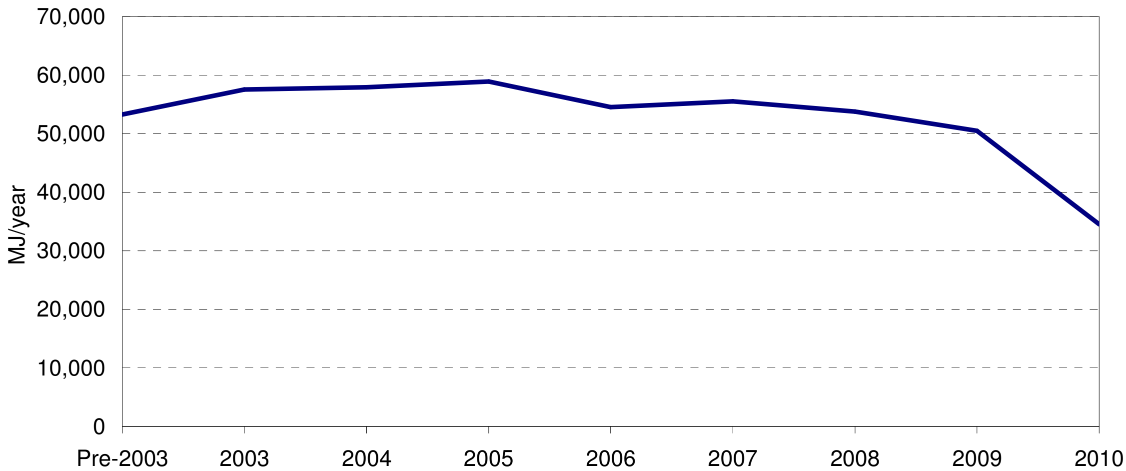


Source: CIE.

CIE notes that:

> *"The gas used by new dwellings appears to have peaked in 2005 and to now be substantially below the gas use of existing dwellings. This aligns with changes to building energy efficiency standards."*

Figure 4-4: Gas use for 2010 by year of gas connection

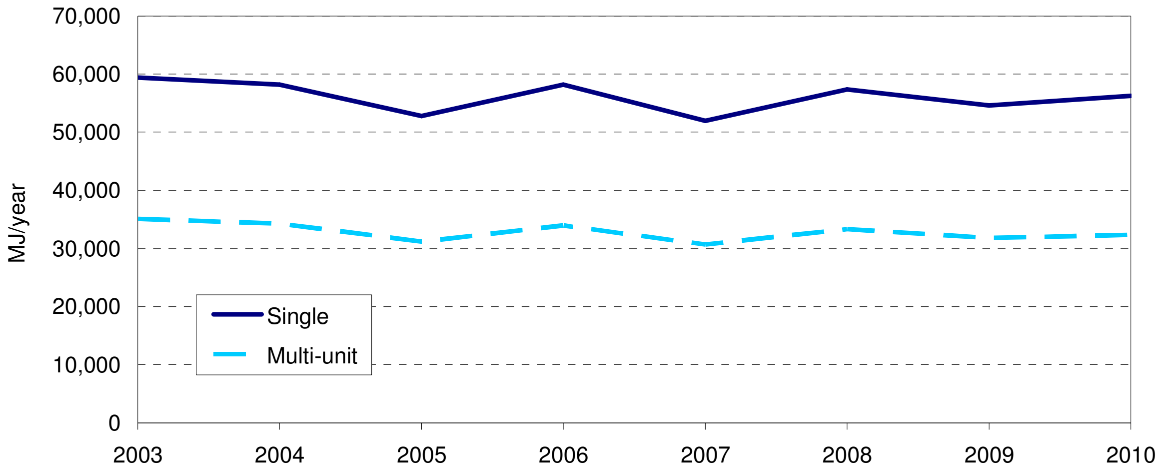


Source: CIE.

CIE also states:

> *"There is markedly different gas use between different types of dwellings. Using billing data we can identify single dwellings and multi-unit dwellings. Multi-unit dwellings (mainly units/flats) use much less gas per dwelling. The composition of new dwellings is also shifting more towards these types of dwellings."*

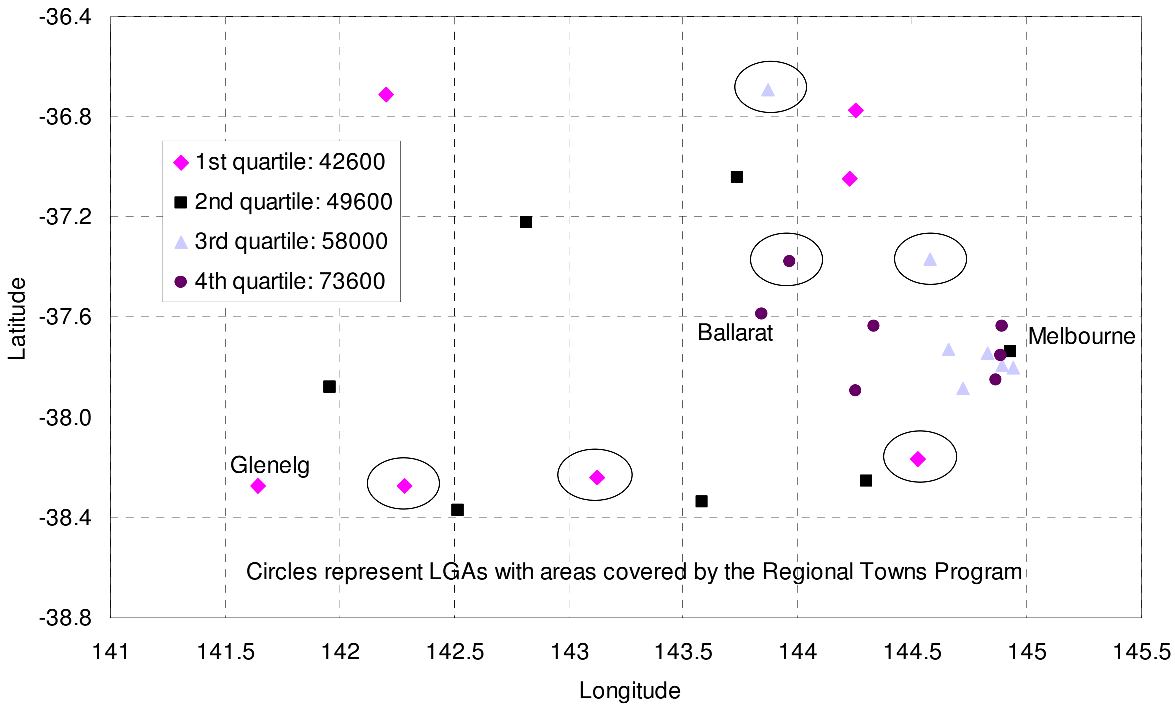
Figure 4-5: Gas use for single and multi-unit dwellings



Source: CIE.

SP AusNet requested CIE to analyse the impact that the spatial distribution of growth might have on gas usage. Consequently, CIE investigated the relationship between the location of a connection and average per customer gas usage. It found a definitive relationship between location and gas usage, with this being predominantly based on the connection's proximity to the coast, closer to the coast the lower the gas usage. This is not unexpected given the significance of weather as a driver of gas usage, and in particular, heating load.

Figure 4-6: Gas use for different LGAs (MJ per year)



Source: CIE.

The lower than average usage, relative to forecast, may have also been driven by the location of development during the current access arrangement period, relative to forecast, with the largest growth rate being recorded in the Wyndham Council area, which is situated close to the coast, and three of the top five customer growth areas being situated predominantly close to the coast (City of Geelong; Surf Coast).

These locational effects on average gas usage have certainly been magnified by the impact of various policy changes that are directly focused on energy efficiency, including more efficient usage of gas. A number of these policy initiatives were either not anticipated in the ESC's Final Decision or their effects were underestimated. The policy changes include, but are not limited to:

- 5 star energy efficiency standards, which came into effect in Victoria in July 2005;
- Solar hot water system take up;
- Low flow showerheads that reduce water use and hence gas used for heating water;
- Greater efficiency of gas instantaneous hot water systems; and
- Programs aimed at thermal efficiency improvements such as ceiling insulation.

4.6.2 Methodology and Key Assumptions

CIE have undertaken a detailed analysis of SP AusNet's historical billing data to derive a statistical model of residential gas usage, the details of which are contained in Chapter 5 of Appendix 4A. In summary, SP AusNet notes that CIE have developed a base model for all residential dwellings and for single dwellings and multi-unit dwellings. The key findings of this model are summarised below:

- Once other factors are accounted for, units use about 50 per cent less gas than single dwellings.
- In 2006, there is a significant downward step in gas use from new dwellings. This likely reflects the adoption of 5 star energy efficiency standards. A dwelling built in 2006 uses about 12.4 per cent less gas than one built in 2005.
    - Single dwelling use falls sharply for dwellings connected in 2006 and remains relatively constant thereafter.
    - Multi-dwelling use falls in 2006, 2007 and 2008, before stabilising. The overall reduction in use of new units is higher than for houses. This pattern may reflect longer lead times in multi-unit dwelling approvals that are subject to the 5 star building requirements and a greater existing inefficiency of multi-unit dwellings.
- Gas use trends downward by 0.7 per cent per year for all residential dwellings.
- This effect is larger for units, which fall by 1 per cent each year compared to single dwellings at 0.6 per cent.
- The estimated price elasticity is 0.17 for residential gas use. That is, a 1 per cent increase in price leads to a 0.17 per cent reduction in use. Moving to a new retailer is associated with a small increase in gas use that may also reflect the lower price from a market offer as against a standing offer.

Having regard to the base model outputs, and numerous other tests and cross-checks outlined in Chapter 5 of Appendix 4A, CIE undertook the following process for developing forecasts of gas usage for SP AusNet's residential customer's over the forthcoming access arrangement period. This is summarised below:

- CIE adjusted 2010 per dwelling consumption for each Tariff Zone and each usage block to reflect 'typical' climatic conditions. CIE note in their report that typical climatic conditions are modelled using annual effective degree day measures from CSIRO projected forward with a continued decline in EDDs;
- CIE have continued a downward trend in per capita gas consumption, reflecting the continuation of government policies to improve appliance efficiency, building efficiency and increased take up of solar hot water. CIE have used the same trends that have been

observed historically for peak (0.1 per cent increase) and off-peak (1.6 per cent decrease) gas use;

- CIE have assumed that the location of dwelling projections for the forecast period closely matches the geographic spread of dwelling creation throughout the evaluation period; therefore, they have not made any adjustment in their forecasts to account for a different geographic spread of dwellings in the forecast period. If the VDP projections are updated prior to the Final Decision, and these updated projections show a difference in the spatial distribution of dwelling construction in SP AusNet's area, then an adjustment could be made then;
- CIE generated a base measure of consumption for new dwellings based on a statistical analysis of gas usage for new dwellings as against existing dwellings. The analysis indicates that new dwellings use less gas than an existing dwelling; there is a greater proportion of flats in new dwellings than existing dwellings; and flats use less gas on average;
- CIE have applied a further step down in gas use in 2012 for new dwellings as a result of the introduction of 6 star building standards for residential buildings that became mandatory in Victoria for new houses and apartments on 1 May 2011. CIE has estimated the impact of 6 star energy efficiency standards as against 5 Star for the Australian Building Codes Board, with a 12 per cent reduction being used in the projections; and

CIE has applied a price elasticity of demand to prices based on their model for peak and off-peak price elasticity's. Prices are increased to reflect projections of increases in wholesale gas prices provided by Australian Treasury. CIE has not sought to equalise Victorian wholesale gas prices with prices reported by Australian Treasury over the period of the regulatory determination. CIE note that with Victorian wholesale prices well below prices reported by Australian Treasury, there is the potential for steep gas rises to match export parity prices. This means the implied wholesale prices are below those in Treasury modelling. CIE have applied a price increase to household and gas prices based on a share of 20 per cent of the retail price being driven by wholesale prices. It is further noted that CIE tested the cross price elasticity of demand between gas and electricity for residential customers, and found that the evidence suggests that the most appropriate assumption for forecasting for residential gas use is to allow for no relationship between electricity prices and gas consumption.

4.6.3 Wholesale Gas Price Risk

SP AusNet notes that the approach taken by CIE in forecasting gas prices to remain below the forecasts of the Australian Treasury is based on a 'median' case, as opposed to assessing the expected value of the entire distribution of possible outcomes for wholesale gas prices. SP AusNet notes that where the distribution of possible outcomes is 'normal', CIE's approach is entirely appropriate (it will deliver forecasts and outcomes that are consistent with the Rules and the Law). However, there is a real possibility that in the current environment that is not the case as an asymmetric risk of wholesale gas prices moving to international parity presently exists. The combination of domestic and international energy market conditions has created unprecedented uncertainty in the outlook for gas prices over the 2013 -17 access period because of a combination of the following:

- A number of LNG facilities will be commissioned on the eastern seaboard towards the end of the forthcoming access arrangement period;
- The current integrated gas supply network would allow gas that would have otherwise been sold into the Victorian market to be transported to areas where these facilities are to be located. Further, it is highly probable that further pipeline development will occur during the forthcoming access arrangement period to further facilitate transmission of

gas to these areas, because of the large value differential between domestic gas and international gas; and

- The opportunity cost of selling gas into the domestic market will increase even prior to the commissioning of these plants, because the economics of withholding gas supply to the domestic market, to sell on the world market at some point in the future, increases, the closer the plants are to commissioning and the greater the capacity of those plants is to process that withheld gas.

CIE have also noted[25] this risk in their report:

> *currently Victorian wholesale gas prices are substantially below export parity prices and there is the potential for much sharper rises in wholesale prices than factored into our forecasts…..*
>
> *A major risk to the projections [in its report] is that there are substantial changes in gas wholesale prices above that embedded in the projections. If Victorian wholesale prices move towards Australian average prices, this would lead to an almost doubling of prices. Based on our estimates of the response of residential and commercial customers to gas prices, this could reduce usage by 5 to 10 per cent relative to base projections. This reduction would be greater if prices moved to match international prices.*

Attachment E of their report provides a full discussion of their wholesale gas price projections.

In this context, SP AusNet faces an uncertain yet very material asymmetric risk that the price path that the AER determines for 2013-2017 access period will not adequately provide for recovery of the determined cost of supply. If actual wholesale and therefore retail gas prices are materially higher than that underpinning the demand forecast (the 'GAAR demand forecast') which is used to determine regulatory parameters (in particular average prices), then actual demand for gas would be materially lower and the calculated average price will not recover approved costs. Such an outcome would be inconsistent with the NGL s.24(2) requirement that SP AusNet be provided a reasonable opportunity to at least recover its efficient costs.

There are two possible ways of mitigating this asymmetric risk:

- CIE could adopt an ex ante, probability weighted estimate of the possible wholesale gas price forecasts, for inclusion in their gas usage forecasts model; or
- The AER could allow SP AusNet to adopt an ex post adjustment in the price control formula to accommodate for the actual outcomes that result from this risk eventuating.

SP AusNet notes that a probabilistic assessment, including the impact of this move to international parity in the baseline gas usage forecasts, may create a situation in which SP AusNet may:

- Over-recover revenue as a result of over-forecasting the probability weighted impact of this exogenous event, which impacts on allocative efficiency; or
- Under-recover revenue as a result of under-forecasting the probability weighted impact of this exogenous event, which impacts on SP AusNet's longer term ability to invest in the network for the longer term benefit of customers.

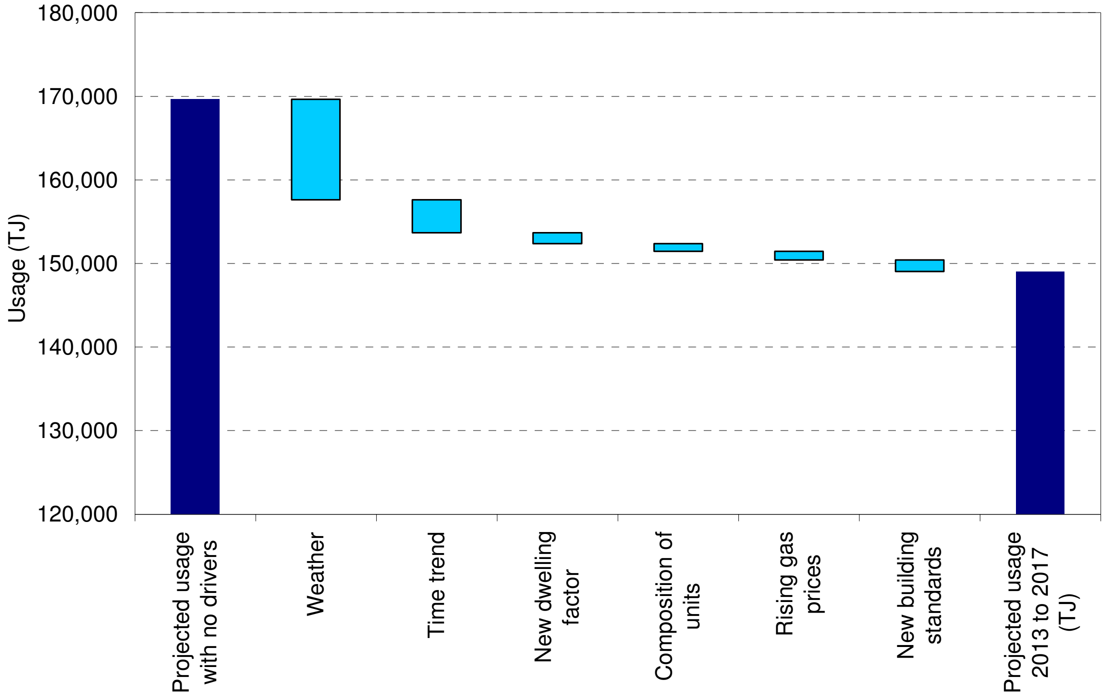
Given the significance of the risk and the associated uncertainty, SP AusNet proposes a demand risk adjustment factor within the 'price cap' formula to address this potential outcome. SP AusNet explains its proposed approach in detail in Chapter 14.

[25] CIE, Gas demand forecasts, SP AusNet 2012-17, January 2012, p.127

4.6.4 Summary of Demand Adjustments

In summary, this leads to the following compositional changes in residential gas usage for the forthcoming access arrangement period.

Figure 4-7: Drivers of residential usage



Source: CIE.

Consistent with previous AER commentary on the characteristics of best practice forecasting, SP AusNet considers that CIE's forecasts:

a) are unbiased, with virtually all explanatory variables being derived from either external, publicly available information, and/or historical trends in gas consumption observed in SP AusNet's service area;

b) incorporate the key drivers of gas usage, such as weather, household type, household location, and the impact of known changes in those drivers, for example price;

c) incorporate policy impacts, via the use of historical trends in gas consumption which implicitly include the impact of previous policy changes, plus explicit allowance for the future changes in the policy relating to 6 star efficiency standards;

d) are transparent and repeatable, with CIE clearly stating the co-efficients utilised in the forecasting model, along with how they were derived; and

e) include model validation and testing.

Given the above, SP AusNet considers CIE's methodology to be consistent with Rule 74(2), which requires that a 'forecast or estimate: a) must be arrived at on a reasonable basis; and (b) must represent the best forecast or estimate possible in the circumstances." Accordingly, there is no justification for departing from the use of forecasts provided by CIE.

Chapter 5 of Appendix 4A provides a detailed discussion of CIE's modelling approach, including model parameters, statistical tests and risks and sensitivities of outcomes to changes in certain explanatory variables.

4.6.5 Forecast Residential Gas Usage

The following table outlines SP AusNet's forecasts of total residential usage by tariff zone.

Table 4.7: Forecast residential gas usage

Residential Gas Usage (TJ)	2012	2013	2014	2015	2016	2017
Central	22 645	22 574	22 716	22 853	22 972	23 100
Growth Rate – Central	2.18%	-0.31%	0.63%	0.60%	0.52%	0.56%
West	6 399	6 332	6 325	6 318	6 308	6 303
Growth Rate – West	1.56%	-1.05%	-0.11%	-0.12%	-0.15%	-0.08%
Adjoining Central	36.62	37.76	38.74	39.34	39.64	39.77
Growth Rate – Adjoining Central	10.46%	3.12%	2.59%	1.54%	0.78%	0.33%
Adjoining West	385.74	392.52	398.98	402.50	403.72	403.65
Growth Rate – Adjoining West	7.39%	1.76%	1.65%	0.88%	0.30%	-0.02%
Total	**29 466**	**29 337**	**29 479**	**29 613**	**29 724**	**29 847**
Growth Rate – Total	**2.12%**	**-0.44%**	**0.48%**	**0.45%**	**0.38%**	**0.41%**

Source: SP AusNet and CIE

Table 4.7 above indicates a slight decline in growth in overall consumption over the forthcoming access arrangement period. This reflects the impact of new building standards on the usage of new customers from 2012, and the profile of the forecast annual customer growth rate, which is expected to taper off from 2.49% in 2012 to 2.04% in 2017.

4.7 Commercial Gas Usage

4.7.1 Historical Usage Growth

Table 4.8 compares the forecasts of gas usage that underpinned the ESC's 2008 Final Decision against commercial actual gas usage over the four years between 2007 and 2010.

Table 4.8: Forecast versus Actual – Commercial usage

Forecast versus Actual Usage	2007	2008	2009	2010	2011
ESC Final Decision (TJ)	5 582	5 755	5 912	6 050	6 198
Actual – tariff reports (TJ)	5 413	5 814	5 455	5 851	5 769
Actual adjusted for weather to 1285 EDD (TJ)	5 579	5 756	5 473	5 703	5 885
Difference between actual and forecast	- 3.0%	1.0%	- 7.7%	- 3.3%	-6.9%
Difference between actual (weather corrected) and forecast	0%	0%	-7.4%	-5.7%	-5.0%

Source: SP AusNet tariff reports and ESC Final Decision

Overall commercial usage, adjusted for weather, has been materially lower than forecast. In fact, after adjusting for weather, usage in every year of the evaluation period was either equal to or lower than forecast, and even without adjusting for weather, all except one year was lower than forecast. It should be stated that part of this may be explainable by customers moving into, and out of, Tariff V, from Tariff D and Tariff M. Notwithstanding this, the overall trend is clearly lower growth than expected at the time of the last regulatory decision. This is further illustrated in Table 4.9 below, which shows that the actual average usage per commercial customer was materially lower than assumed in the ESC's 2008 GAAR.

Table 4.9: Forecast versus Actual – Usage per commercial customer

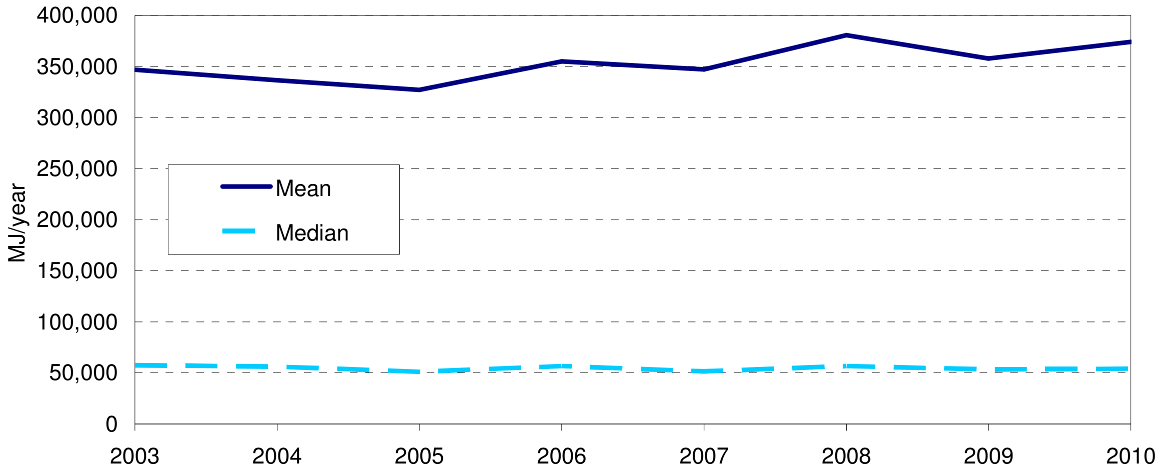
Usage per Customer	2007	2008	2009	2010
Forecast Usage per Customer (GJ)	360.85	365.42	369.22	370.67
Actual (weather corrected) usage per Customer (GJ)	366.19	374.95	353.09	364.57
Difference	1.48%	2.61%	-4.37%	-1.64%

Source: Weather corrected usage divided by actual customer numbers; forecast usage divided by forecast customer numbers.

4.7.2 Methodology and Key Assumptions

The characteristics of the commercial customer segment are that usage is skewed with a larger number of very small customers and a small number of large customers. As shown in the table above, the average commercial customer uses around 350 GJ/year, however, the median commercial customer uses only 50 GJ/year — slightly less than a single dwelling.

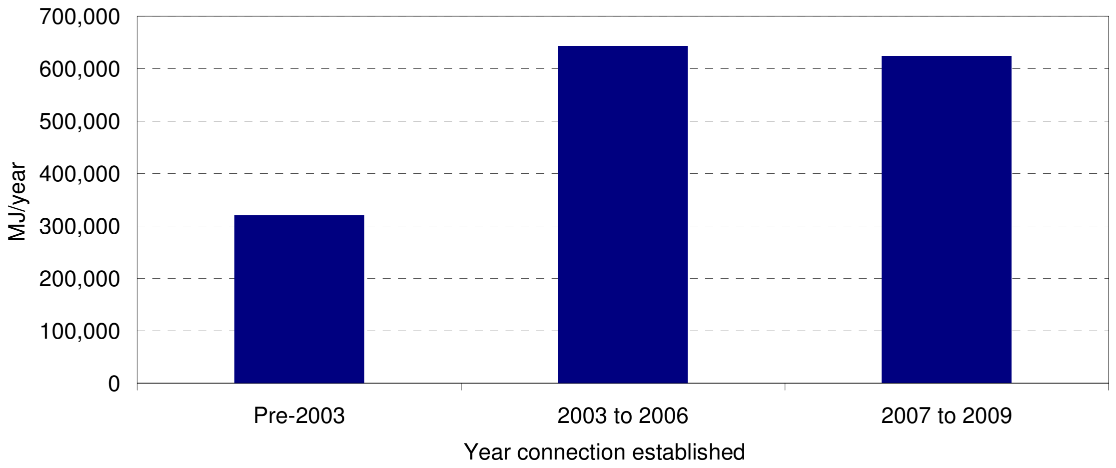
Figure 4-8: Historical mean and median usage for commercial customers



Source: CIE.

In their report, CIE note that older and newer commercial sector customers exhibit different usage patterns, with newer customers using more gas on average than existing (older) customers.

Figure 4-9: Average usage by customer connection year



Source: CIE.

The lower figure in 2007 to 2009 (above) is considered by CIE to likely reflect the fact that some of these customers have not moved into full use of gas since connecting – commercial customer gas usage is expected to take longer to reach a normal level post connection than for residential customers.

Similar to the methodology adopted for the residential customer sector, CIE have constructed projections of commercial gas use based on a continuation of patterns observed to date. CIE's base model specification for commercial customers is shown in Table 6.5 of Appendix 4A, however the key points are:

- Effective degree days and the price of gas are the only variables that are statistically significant in the first stage regression. The price elasticity suggests that a 1 per cent increase in the real gas price is associated with a 0.77 per cent reduction in use.
- While not statistically significant, the sign of the coefficient for value added and electricity price is as expected and of reasonable magnitudes. A one per cent increase in value added compared to trend is associated with a 0.87 per cent increase in commercial gas

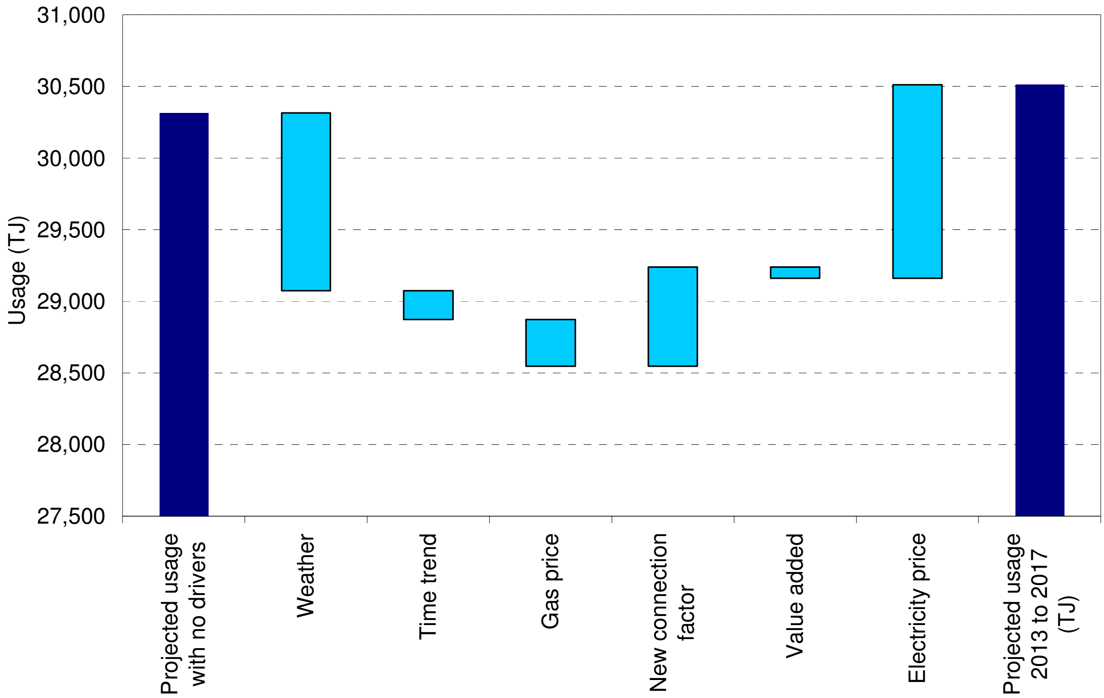
use, while a one per cent increase in the electricity price is associated with a 0.26 per cent increase in gas use. There is minimal change through time in commercial gas use for a connection once other factors are accounted for.

Consistent with the above, CIE's methodology for forecasting future commercial gas usage is:

- New commercial customers are assumed to use the same amount of gas on average as customers connecting to the network after 2002.
- 2011 consumption has been adjusted to reflect expected climatic conditions and used as the basis of projecting forward consumption. Typical climatic conditions are modelled using annual effective degree day measures which include a projected continued decline in EDDs. CSIRO's analysis which underpins this trend is attached as Appendix 4B and Appendix 4C.
- CIE have applied parameters from their base model on a continuing basis including for time trend, impact of value added and electricity and gas prices.
- CIE have applied a price elasticity to prices based on their model for peak and off-peak price elasticity's. Prices are increased to reflect projections of increases in prices from Australian Treasury. CIE note that they have not sought to equalise Victorian wholesale gas prices with prices reported by Australian Treasury over the period of the regulatory determination. CIE further note that with Victorian wholesale prices well below prices reported by Australian Treasury, there is the potential for steep gas rises to match export parity prices. This means the implied wholesale prices are below those in Treasury modelling. CIE have applied a price increase to businesses' gas prices based on a share of 30 per cent of the retail price being driven by wholesale prices.
- CIE have applied electricity price rises based on projections from Deloitte Access Economics for Victoria as a whole from 2011 to 2017 (including a price on carbon) and on actual electricity inflation for residential customers from 2010 to 2011. CIE do not have specific figures for business electricity prices.
- CIE have derived the deviation in value added from trend by using the output gap used in statistical analysis for 2010, rolled forward according to a trend increase in Gross State Product of 2.5 per cent and Victorian Treasury Gross State Product projections.

In summary, this leads to the following compositional changes in commercial gas usage for the forthcoming access arrangement period.

Figure 4-10: Drivers of commercial usage



Source: CIE.

For similar reasons to those which were outlined in Section 4.6.2, SP AusNet considers that CIE's forecasts for commercial usage are consistent with the characteristics of best practice forecasting, and moreover, consistent with Rule 74(2), which requires that a 'forecast or estimate: a) must be arrived at on a reasonable basis; and (b) must represent the best forecast or estimate possible in the circumstances." Again, there is no justification for departing from reliance on the forecasts provided by CIE.

Chapter 6 of Appendix 4A provides a detailed discussion of CIE's modelling approach, including model parameters, statistical tests and risks and sensitivities of outcomes to changes in certain explanatory variables.

4.7.3 Forecast Gas Usage

Table 4.10 outlines SP AusNet's forecasts of total commercial usage by tariff zone.

Table 4.10: Forecast commercial gas usage

Commercial Gas Usage (TJ)	2012	2013	2014	2015	2016	2017
Central	4 294	4 213	4 248	4 258	4 248	4 250
Growth Rate – Central	-0.30%	-1.87%	0.84%	0.22%	-0.23%	0.05%
West	1 372	1 332	1 330	1 319	1 303	1 292
Growth Rate – West	-1.13%	-2.89%	-0.19%	-0.78%	-1.20%	-0.89%
Adjoining Central	3.87	4.11	4.42	4.67	4.89	5.13
Growth Rate – Adjoining Central	9.92%	6.19%	7.59%	5.62%	4.80%	4.77%
Adjoining West	77.37	79.03	83.29	88.25	92.92	97.92
Growth Rate – Adjoining West	8.70%	2.14%	5.39%	5.96%	5.28%	5.38%
Total	5 746	5 628	5 666	5 670	5 649	5 645
Growth Rate – Total	**-0.39%**	**-2.05%**	**0.66%**	**0.07%**	**-0.37%**	**-0.08%**

Source: SP AusNet and CIE

Table 4.10 above indicates that forecast commercial gas usage will reduce across much of the forthcoming access arrangement period, despite forecast customer number growth remaining relatively constant over the period.

4.8 Tariff D and Tariff M MHQ

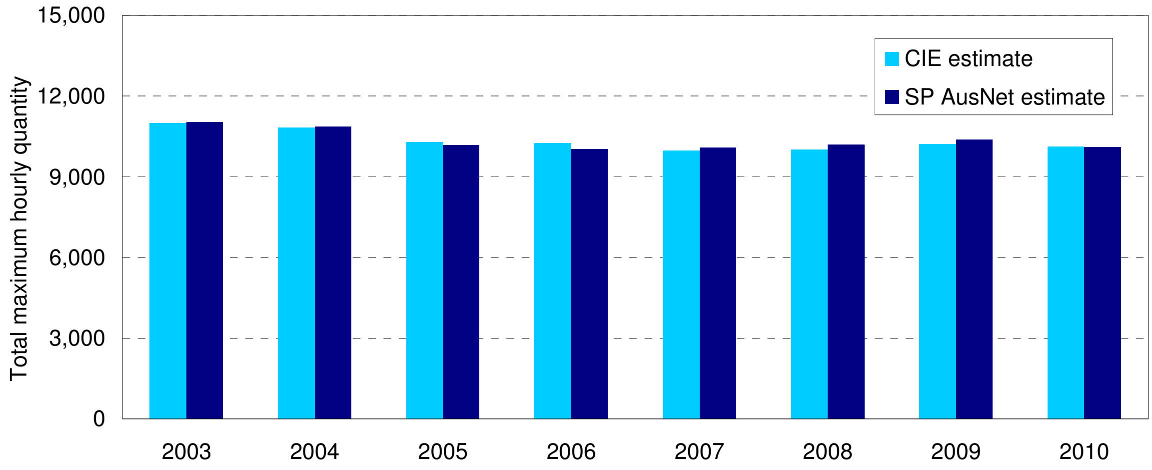
4.8.1 Historical Usage Growth

SP AusNet has provided CIE information from its customer billing database from the start of 2003 to the start of 2011.

CIE note in their report that over the period 2003 to 2010 SP AusNet's Tariff D and M customer base decreased from 304 to 288 customers (a 5 per cent decrease), and the average maximum hourly quantity per customer also decreased between 2003 and 2010 by 3 per cent. However, the maximum hourly quantity of the top ten customers increased by 5 per cent from 2003 to 2010. Sectors represented by the top ten customers include petroleum, oil, aluminium, steel and manufacturing.

Overall, CIE note that from 2003 to 2006, maximum hourly quantity decreased, before staying constant from 2006 to 2010.

Figure 4-11: Total maximum hourly quantity (Gj)



Source: CIE.

CIE assessed the relationship between economic activity and MHQ for tariff D customers; however they found that this relationship was weak. For example, in 2008, MHQ was very similar to 2009 despite poorer economic conditions. CIE note that this is probably due to the way the tariff is structured, with an entire calendar year of low output being required to reduce maximum hourly quantity.

CIE find that tariff D consumption projections are likely to be more at risk from significant structural changes, such as changes in the manufacturing sector or use of substitute fuels such as waste.

4.8.2 Methodology and Key Assumptions

CIE projections of maximum hourly quantity for 2012 to 2017 are based on annual gas system demand forecasts for Tariff D assuming a medium economic growth scenario. These forecasts were prepared by the AEMO for the Victorian Planning Report.

Overall, SP AusNet observes that CIE have utilised independent forecasts by AEMO, which should ensure that the underlying source is unbiased (and transparent). The validity of the forecast is confirmed by reference to its relative stability, as compared to historical growth in MHQ, which is to be broadly expected for this parameter. CIE's analysis tested the possible use of other explanatory variables, for example, the relationship between economic activity and MHQ for tariff D customers. This relationship was assessed as being weak.

In this context, and given the unbiased nature of the AEMO forecast, and the lack of an reasonable alternative forecasting approach, SP AusNet considers that CIE's forecasts are consistent with the requirements of Rule 74 (2), which requires that a 'forecast or estimate: a) must be arrived at on a reasonable basis; and (b) must represent the best forecast or estimate possible in the circumstances."

Further information on the approach adopted by CIE can found in Chapter 7 of Appendix 4A.

4.8.3 Forecast Tariff D and Tariff M MHQ

The following tables outline the forecasts developed by CIE for the MHQ of Tariff D and Tariff M customers.

Table 4.11: Tariff D – MHQ (Gj)

Tariff D	2012	2013	2014	2015	2016	2017
Total	10 141	10 200	10 200	10 200	10 223	10 259
Growth Rate – Total	3.18%	0.58%	0.00%	0.00%	0.23%	0.35%

Source: SP AusNet and CIE

Table 4.12: Tariff M – MHQ (Gj)

Tariff D	2012	2013	2014	2015	2016	2017
Total	186	187	187	187	187	188
Growth Rate – Total	1.18%	0.58%	0.00%	0.00%	0.23%	0.35%

Source: SP AusNet and CIE

As can be seen from Table 4.11 and Table 4.12 above, a small per annum compound increase of 0.23% is expected during the forthcoming access arrangement period for both Tariff M and Tariff D MHQs. This is broadly consistent with historical trend growth rates, for example the compound growth rate from 2006 to 2010 is estimated to be around 0.17% per annum.

4.9 Translation into Gross Connection Forecasts

It is noted that the above forecasts are net forecasts – that is, they represent the overall increase in the average number of customers that will be serviced by SP AusNet in each year of the access arrangement period. However, it is noted that for the purposes of developing capital expenditure forecasts for customer connections, these net numbers must be translated into gross connection numbers, as it is the number of gross customer connections that drive customer connections capital expenditure. New customers are connected to the network but every year a number of abolishments, or permanent disconnections occur, and the difference between these two trends results in net customer additions to the customer base. A good example of the difference between net and gross customer numbers is subdivision; a property maybe disconnected and two properties built in its place, in this case two connections are required, but this will result in only one additional customer. For the purpose of capital expenditure forecasting, it is the number of gross connections – in this example, 2 – which is the relevant driver.

To derive a forecast of gross customer connections, SP AusNet has escalated forecasted net connections by the trend of annual network abolishment by connection type. Residential customer numbers have been increased by an average of 0.28% per annum (minimum of 0.26% in 2012, maximum of 0.30% in 2017) to produce forecasts of gross residential network connections over the regulatory period. The trend of abolishment for commercial connections has been shown to be considerably more significant in recent history. An increase of 0.88% per annum (minimum of 0.70% in 2012, maximum of 0.99% in 2017) has been applied to total commercial network customer numbers to produce a forecast of gross connections. Percentages are derived from historical rates of abolishment from 2007.

Table 4.13 outlines the forecast number of gross connections for the forthcoming access arrangement period.

Table 4.13: Gross connection forecasts

Gross Connections	2012	2013	2014	2015	2016	2017
Net Customer Connections	609.176	622.983	636.701	650.349	663.793	677.115
Gross Customer Connections	15 512	15 573	15 579	15 530	15 450	15 467
Residential	15 310	15 354	15 345	15 288	15 202	15 211
Commercial	202	219	234	242	248	256

Source: SP AusNet

SP AusNet considers its approach to deriving the number of gross connections in each year of the access arrangement period to be consistent with the requirements of the Rules. In particular, SP AusNet considers that the use of historical trends in the relationship between gross versus net customer connections is reasonable in the circumstances, and to its knowledge, there are no exogenous variables that are likely to impact on this relationship over the forthcoming access arrangement period. Therefore, in these circumstances, the use of this historical relationship best allows SP AusNet to derive forecasts of gross customer connections that are consistent with Rule 74 (2).

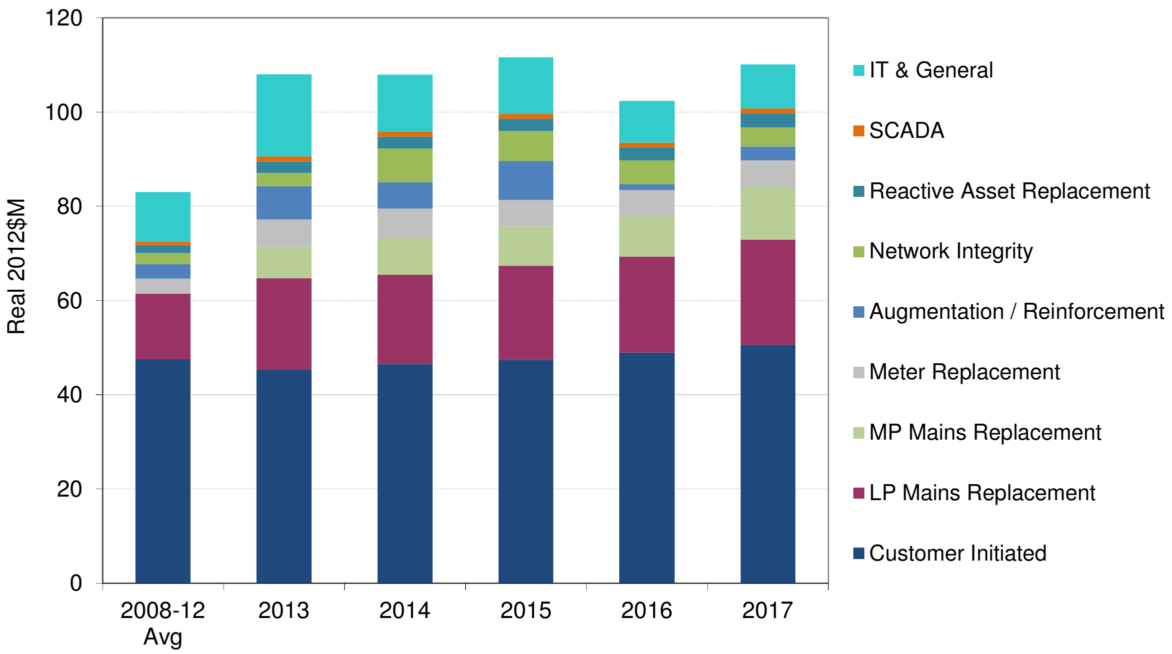
5 Capital Expenditure Forecast

5.1 Summary of Key Points

This chapter provides an overview of SP AusNet's capital expenditure forecast. The key points are summarised below and expanded on in further detail in the body of the chapter. SP AusNet further submits a number of appendices supporting the capital expenditure forecasts including the Asset Management Strategy (AMS), the Asset Management Plan (AMP), supporting plant strategies and an Information and Communications Technology (ICT) Strategy document which outlines the plans for ICT expenditure specifically.

SP AusNet's forecast annual gross capital expenditure over the forthcoming access arrangement period compared with the average expenditure from the current access arrangement period is summarised in Figure 5-1 below.

Figure 5-1: SP AusNet's total forecast capital expenditure



Source: SP AusNet

- Forecast capital expenditure for the forthcoming access arrangement period indicates a 30% increase compared to the current regulatory period. The forecast increase reflects:
  - the impact of forecast materials and labour escalation rates, which have been developed independently using econometric forecasting techniques;
  - forecasts of gas demand and customer growth;
  - the costs of complying with SP AusNet's Gas Safety Case and the Gas Distribution System Code; and
  - the proposed work program developed in accordance with SP AusNet's Asset Management System, which gained accreditation to the British Standards Institution's (BSI) PAS 55 requirements in March 2011.
- Customer initiated capital expenditure is the largest single category of expenditure, which is 44.2% of forecast capital expenditure. The forecast for the forthcoming access arrangement period reflects:
  - Realistic benchmark customer connection unit cost forecasts, noting that these rates have been consistently underestimated at previous access arrangement reviews; and

- An easing of the customer growth rates observed during the current access arrangement period, in line with Victorian Planning Institute Forecasts.

- The mains replacement program is the second largest category of capital expenditure, comprising 26.6% of the total. Safety compliance is the primary driver for this expenditure program. The forecast for the forthcoming access arrangement period reflects:
  - A continuation of SP AusNet's policy to replace of 90km of low pressure mains per annum; and
  - The additional replacement of 30 km per annum of medium pressure mains targeting all cast iron, PE CL250 and those unprotected steel mains identified as highest risk, to improve safety and to mitigate the risk of major disruptions to customers.
- The third largest field work program is meter replacement, which is approximately 5.4% of the 5 year capital expenditure plan. The forecasts for the forthcoming access arrangement period reflect:
  - SP AusNet's better understanding of the requirements of Field Life Extension as specified by AS 4944; and
  - SP AusNet's policy of smoothing the rate of meter replacement in order to achieve better unit rates and better NPV cost outcomes.
- In relation to ICT, SP AusNet has developed a long-term strategy to move towards a fully integrated gas business system, replacing obsolete systems and rationalising the number of discrete applications currently existing.
  - The programs are focused on further improving safety and maintaining network capacity and integrity and maintaining customer service levels, all of which are consistent with the NGR and NGL and contribute to the achievement of the NGO. The programs of work align with SP AusNet's corporate ICT strategy principles of reducing complexity, best fit solutions and capturing data once. The total level of capital expenditure on ICT for the forthcoming regulatory period is consistent with the expected actual level of ICT investment for the current period.
  - The capital program of work for the 2013-2017 period builds on the programs that have been previously approved by the AER for electricity distribution and AMI, on the basis of costs being shared by SP AusNet's three network businesses.

5.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 5.3 cites the applicable regulatory requirements
- Section 5.4 provides an overview of SP AusNet's asset management plan.
- Sections 5.5 to 5.7 discuss SP AusNet's three major work programs that comprise 77% of network capital expenditure over the forthcoming access arrangement period:
  - Customer initiated capital expenditure;
  - Mains replacement program; and
  - Meter replacement program.
- Sections 5.8 explains SP AusNet's minor capital expenditure programs:
  - Augmentation and reinforcement;
  - Network Integrity;
  - Reactive asset replacement; and

- SCADA and remote control.

- Section 5.9 presents SP AusNet's Information and Communication Technology capital expenditure forecast.
- Section 5.10 explains SP AusNet's general capital expenditure.
- Section 5.11 discusses SP AusNet's approach to capital overheads.
- Section 5.12 presents the labour and material escalators that have been employed in developing the capital expenditure forecasts.
- Section 5.13 presents a summary of the total capital expenditure forecast.

5.3 Regulatory Requirements and SP AusNet's Compliance

Rule 72(1)(c)(i) requires the access arrangement information for a full access arrangement proposal to include a forecast of conforming capital expenditure for the period and the basis for the forecast. Rule 79(1) defines conforming capital expenditure as follow:

> *"Conforming capital expenditure is capital expenditure that conforms with the following criteria:*
>
> *(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;*
>
> *(b) the capital expenditure must be justifiable on a ground stated in sub rule (2)."*

Rule 79(2) states that:

> *"Capital expenditure is justifiable if:*
>
> *(a) the overall economic value of the expenditure is positive; or*
>
> *(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or*
>
> *(c) the capital expenditure is necessary:*
>
> *(i) to maintain and improve the safety of services; or*
>
> *(ii) to maintain the integrity of services; or*
>
> *(iii) to comply with a regulatory obligation or requirement; or*
>
> *(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or*
>
> *(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c)."*

As noted in section 4.2, rules 74 and 75 require SP AusNet to explain the basis of any forecasts or estimates adopted in its access arrangement proposal. In addition, any input data used in producing the forecasts or estimates must be provided. The NGR also require that the resulting forecasts or estimates must be the best possible in the circumstances.

The forecast information set out in this chapter accords with all of the applicable requirements of the NGR. Any additional information requirements arising from the RIN are addressed in the completed templates or otherwise noted in the RIN Response, which is included as Chapter 20 in the proposal.

In addition to the required information SP AusNet provides a number of Appendices, which support the expenditure forecast, including

- Appendix 5A – SP AusNet's Asset Management Strategy;

- Appendix 5B – SP AusNet's Asset management Plan;
- Appendix 5C – Customer connections paper;
- Appendix 5D – Meter management paper;
- Appendix 5E – ICT Strategy;
- Appendix 5F and Appendix 5G – Independent Expert Reports on labour and materials cost pressures, respectively;
- Appendix 5H – Gas maintenance Plan;
- Appendix 5I – SP AusNet's Gas Safety Case; and
- Appendices 5J – Which is comprised of a number of detailed Plant and Network Strategies which provide granular detail on the build-up of the capital works program.

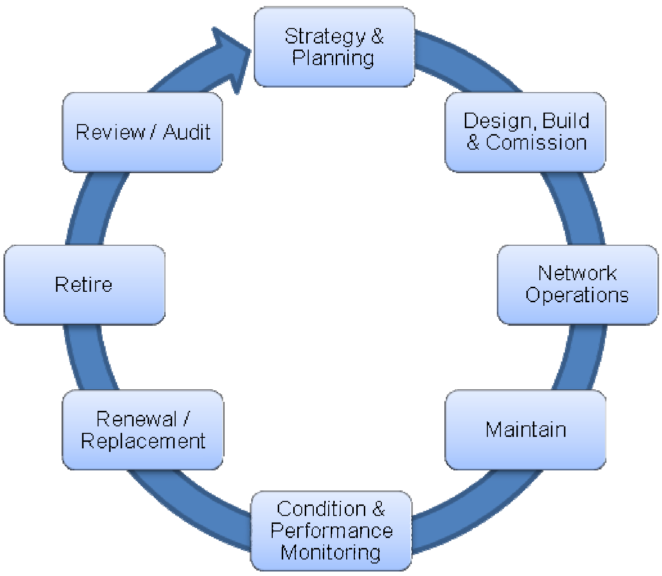
All the above Appendices are confidential except 5A, the Asset Management Strategy.

5.4 SP AusNet's Approach to Asset Management

Effective asset management is critical to delivering efficient capital expenditure in accordance with rule 79. To assist stakeholders, this section provides a broad overview of SP AusNet's asset management processes. In accordance with the RIN, SP AusNet has provided the AER with copies of its asset management documentation.

Asset Management involves the development of a plan for the management of one or more infrastructure assets that combines technical, financial and other drivers over the life cycle of the asset in the most cost effective manner to provide a target level of service. Figure 5-2 below depicts the asset life.

Figure 5-2: Asset life cycle



Source: SP AusNet

It is acknowledged that in most cases, a particular output may be delivered in a multitude of different ways, each with their own specific costs and benefits. Therefore, asset management involves the assessment of different feasible options to maximise the net benefits (both in terms of economic efficiency and benefits to customers), or alternatively, where benefits or outputs are mandated (by the statutory requirement to deliver that service to the community) to minimise the cost to society of delivering that outcome.

For SP AusNet's gas distribution network, asset management decisions are often driven by mandated standards set out in legislation, codes, regulations or standards. In particular, the network must be designed and managed to satisfy the requirements prescribed by the following instruments, many of which are Victorian regulations with which SP AusNet must comply:

- Distribution Licence;
- Gas Industry Act/Gas Safety Act;
- Gas Distribution System Code;
- Victorian Occupational Health and Safety Act 1985;
- Pipeline Regulations 2007; and
- Appropriate Australian and International Standards.

In addition to the above, SP AusNet focuses on the protection of the immediate environment through its AS/NZS ISO 14001 certified environmental management system. The environmental management system is the principal tool through which SP AusNet identifies environmental risks, develops and implements solutions and monitors success in controlling such risks.

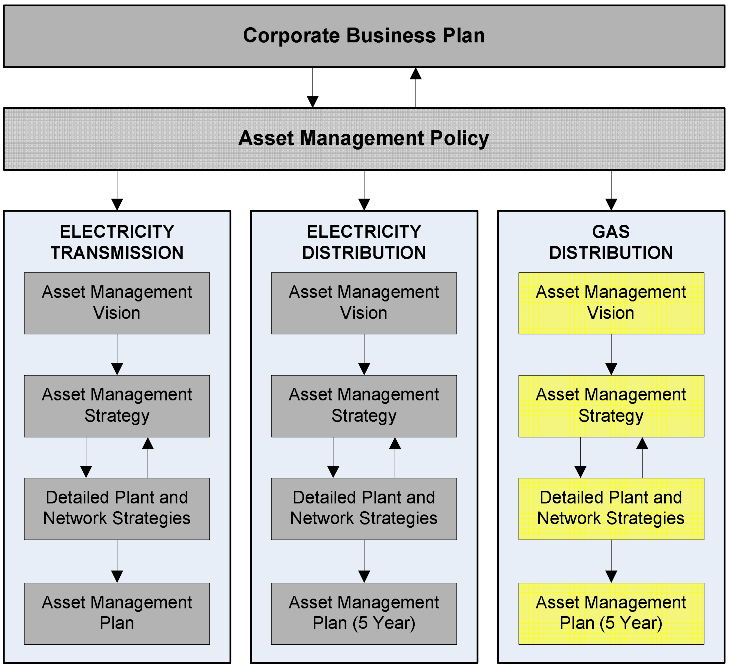
As part of its environmental program, SP AusNet continues to mitigate risks associated with asbestos containing materials, oil contamination, greenhouse gas emissions and noise in order to address community and customer expectations. Unaccounted for Gas (UAFG) reduction and the capability of the gas distribution network to interconnect distributed generation are emerging expenditure drivers. SP AusNet's key performance indicators, described in Section 3.6, provide a further important driver for SP AusNet's asset management practices.

Although the vast majority of SP AusNet's expenditure requirements are driven by mandated standards, effective cost benefit analysis remains an important underlying principle of effective asset management. In particular, SP AusNet's approach recognises the importance of providing a comprehensive definition of the benefits and costs as follows:

- **Benefits:** The need for the asset must be clearly identified, having regard to either the mandated (by law) or imputed (by monetising) value placed on the outputs of the asset by the community.
- **Costs:** The costs of an asset, or group of assets, should be assessed across their full lifecycle. This will include:
  - Provision of the asset;
  - Ongoing maintenance and rehabilitation of assets;
  - Operation of the asset; and
  - Decommissioning and disposal of the asset.

Figure 5-3 below depicts SP AusNet's asset management documentation for its gas and electricity networks. It illustrates that SP AusNet has an overarching Asset Management Policy across each of its network businesses which is consistent with the corporate business plan. Within the gas distribution network, SP AusNet's Asset Management Strategy gives effect to the Asset Management Vision and also provides a key input to development of the Detailed Plant and Network Strategies. The Detailed Plant and Network Strategies are given effect through the Asset Management Plan for the next 5 year period.

Figure 5-3: SP AusNet's asset management documentation



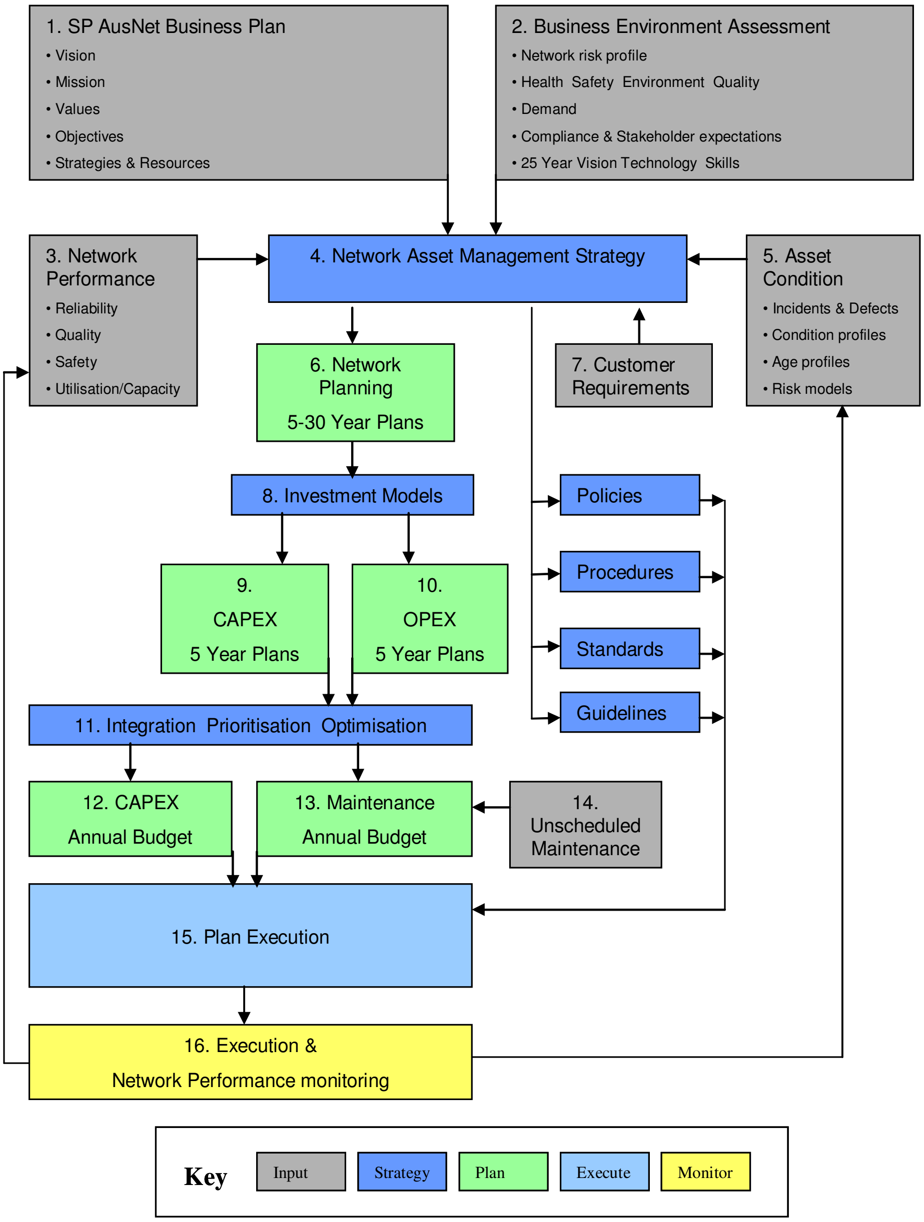
Source: SP AusNet

The assets covered by SP AusNet's Asset Management Strategy for the gas distribution network include:

- Transmission pipelines, distribution mains and associated easements and access tracks;
- Regulators and regulating stations (including building and civil infrastructure), valves, heaters, filters, vents, syphons and auxiliary assets used in the operation of the distribution and transmission networks from the Declared Transmission System (DTS) to end consumers;
- Corrosion protection, control, metering and communications equipment;
- Related functions and facilities such as spares, maintenance and test equipment; and
- Asset management processes and systems such as System Control and Data Acquisition (SCADA) and asset management information systems (including asset repositories).

SP AusNet's overall asset management process is illustrated in Figure 5-4 below. It brings together the external influences, investment drivers, business values, asset management directions and the selected strategies to deliver sustained performance for the benefit of stakeholders.

Figure 5-4: SP AusNet's asset management processes



Source: SP AusNet

The above asset management processes occur in the context of the primary driver of the Gas Safety Case (GSC). The Gas Safety Case is a statutory requirement under the Gas Safety Act 1997 and the Gas Safety (Safety Case) Regulations 2009 No.6. This safety legislation requires gas network businesses to lodge a GSC Management System with Energy Safe Victoria (ESV). The objectives of these regulations are to make provision for safety cases in relation to facilities, gas installations and appliances and to provide for the reporting of gas incidents. SP AusNet's GSC for the forthcoming regulatory period was approved by the ESV in 2010 and is valid up to 2015. The GSC identifies the mitigation controls required to manage risks associated with the gas network, to ensure that safety and integrity are maintained and improved. The GSC is an important driver of many of SP AusNet's capital and operational programs.

To ensure the ongoing development of SP AusNet's Asset Management System in line with international good practice, SP AusNet gained accreditation to the British Standards Institution's (BSI) PAS 55 requirements in March 2011.

PAS (Publicly Available Specification) 55 is a UK standard for the optimised management of physical infrastructure assets to achieve a desired and sustainable outcome. It is applied where physical assets are a critical factor in achieving business objectives and effective service delivery, and permits organisations to assess their asset management systems in a similar manner to other management systems such as ISO 9000 and ISO 14001. PAS 55 implements a risk management focussed approach to asset management.

Accreditation requires the demonstration of robust and transparent asset management policies, processes, procedures, practices and a sustainable performance framework. Accreditation is recognised as an indicator of best practice in asset management. The capital and operating expenditure forecasts presented in this proposal have been prepared in accordance with the asset management processes outlined above.

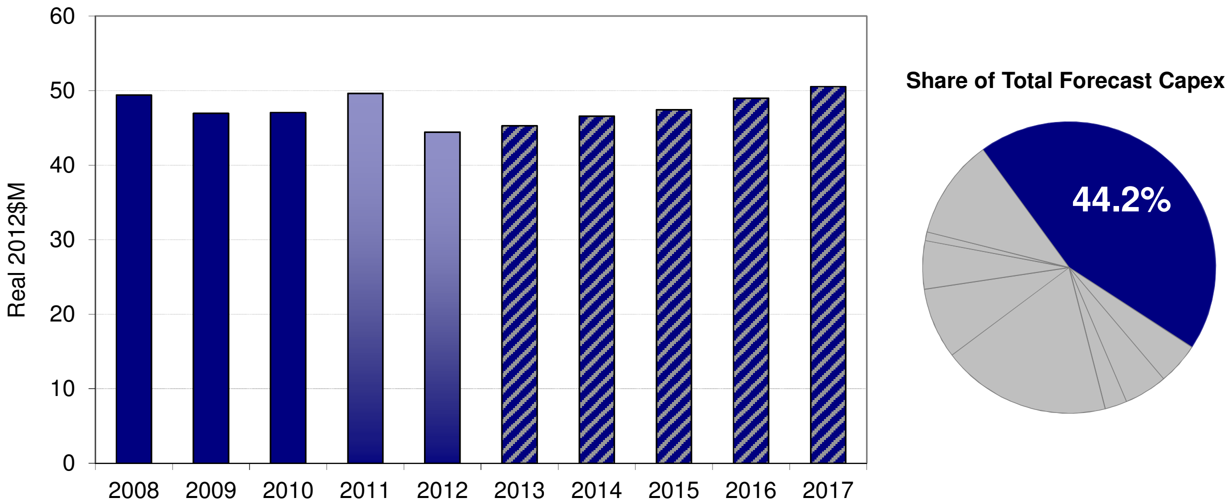
SP AusNet highlights that in the UK, the economic regulator, Ofgem, encourages businesses to gain PAS 55 accreditation and from that accreditation takes assurance about the practices and procedures being used by the companies in the management of their infrastructure assets.

5.5 Customer Initiated Capital

5.5.1 Overview

SP AusNet's actual and forecast customer initiated capital expenditure is shown in Figure 5-5 below. The pie chart shows customer-initiated capital as a proportion of total capital expenditure. All customer initiated capital expenditure forecasts are gross. Customer contributions are discussed in Section 5.5.3.

Figure 5-5: Recent actual and forecast customer-initiated capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

The apparent out-of-trend expenditure 2011 reflects a number of transitory factors including:

- Higher levels of non-standard connections in commercial and domestic categories, ($9.5m in 2010 against $14.8m in 2011) this results in higher unit rates per connection;
- Slightly higher number of commercial connections in 2011 compared to 2010; and
- The impact of the forecast decline in customer connections from 2011 to 2012.

As noted earlier, customer-initiated capital expenditure is the largest category of network expenditure, comprising 44.2% over the forthcoming access arrangement period. The forecast expenditure is driven by:

- Compliance with the Gas Distribution System Code, which requires SP AusNet to offer to connect new customers that are within 1 km of the existing network; and
- The softening in overall customer growth rates but continued development of the Western growth corridors and the redevelopment of existing Western suburbs.

In the context of the NGR requirements in relation to forecast capital expenditure, the following provisions are particularly relevant to customer-initiated capital expenditure:

- Rule 79(1) requires that the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;
- Rule 79(2)(b) states that capital expenditure is justified if the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure;
- Rule 79(2)(c) states that capital expenditure is justified if the capital expenditure is necessary to:
  - (i) maintain and improve the safety of services; or
  - (ii) maintain the integrity of services; or
  - (iii) comply with a regulatory obligation or requirement; or
  - (iv) maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

As explained in further detail below, SP AusNet's approach to forecasting customer-initiated capital expenditure is consistent with these NGR requirements. As explained in section 5.5.3, customer contributions are determined by the gap between the incremental revenue and the costs of connection. This approach is consistent with ensuring that the capital expenditure included in the regulated asset base satisfies rule 79(2)(b).

5.5.2 Explanation of Proposed Expenditure

Customer initiated capital expenditure is required to connect new customers to the distribution network. The capital works typically includes the installation of new mains, the gas service pipe from the main to the meter, and the meter itself. SP AusNet's methodology for determining the total capital expenditure for connections is derived by determining the unit costs for each item and assessing the proposed number of new connections. Under this approach, it is appropriate to distinguish between business customers and residential customers.

As explained in Chapter 4 of this proposal, forecast gross customer number growth for the forthcoming access arrangement period is 2.41 per cent per annum (being approximately 2.11% net customer growth plus 0.3% abolishments), or approximately 15,550 customers (including new regional town growth). This represents a continued strong growth in the rate of new customer connections although slightly moderated from that observed in the current access arrangement period, which averaged 3.39 per cent per annum. The forecast customer numbers for the forthcoming access arrangement period are substantiated in a report from CIE, which is provided as Appendix 4A.

The customer connection average unit cost per domestic customer is expected to increase by 15 per cent from $2,398[26] for the current access arrangement period to $2,761[27] for the

26 Weighted average connection rate (Gross) per domestic connection 2008-10 Actual, 2011 Estimate and 2012 Forecast

27 Weighted average connection rate (Gross) per non-domestic connection, 2013-17 forecast

next. A smaller rate of increase is also expected to apply to commercial customers (11.5% from $16,954[28] to $18,912[29]). The principal reasons for the increase in unit costs are:

- SP AusNet is expecting the proportion of connections that are infill to increase, which leads to higher average unit rates for connection. The higher proportion of infill connections is a consequence of the slower rate of new greenfield developments over the forthcoming access arrangement period;
- Unit rates are directly affected by the expected increase in labour and material costs, which are explained in detail in Chapter 6; and
- Over the current regulatory period, benchmark customer connection unit rates have consistently underestimated the actual costs. SP AusNet has, therefore, applied a contingency allowance to the cost of customer connections capex. This contingency is 10% for domestic and 5% for commercial connections. SP AusNet has employed this approach to avoid a repeat of the previous situation where the costs have been significantly higher per connection than allowed for in the decision. It is essential that the forecast unit rates for the forthcoming access arrangement period provide a more realistic assessment of the actual efficient costs of connecting customers.

In accordance with rule 74(2), the forecasts and estimates used to establish the customer-initiated capital expenditure have been arrived at on a reasonable basis and are the best possible forecasts or estimates in the circumstances.

5.5.3 Customer contributions

Customers contribute to the cost of works to connect to the network where the present value of the increased network revenue, resulting from the new connection, is less than the present value of the additional costs of that connection. It is, therefore, necessary to reduce the forecast capital expenditure by the forecast customer contributions. This standard approach ensures that the capital base only increases by the amount of capital expenditure that is not funded by customer contributions.

For large customer-initiated projects (either Tariff D customers or major alterations to the existing network), SP AusNet has assumed that the customer requesting the works will contribute 100% of the costs required to meet the specifications of the request. This ensures that other customers are not required to contribute to these projects in the form of higher tariffs, as these large customer projects are not added to the capital base.

For other, Tariff V connections, SP AusNet has had reference to the historical customer contributions as a percentage of total gross capital expenditure. Specifically, for each project type, SP AusNet has adopted the average percentage over the period 2008 to 2011 and applied this percentage to the gross capital expenditure for each year in the forthcoming access arrangement period. For example, if total customer contributions on supply mains over the period 2008 to 2011 were $1 million and the total gross capital expenditure over the same period was $7 million, then the average contribution percentage was 14%. For each year in the 2013 to 2017 period, SP AusNet has assumed that customer contributions on supply mains will be 14% of annual gross expenditure.

The above methodology results in the following forecast customer contributions.

28 Weighted average connection rate (Gross) per non-domestic connection 2008-10 Actual, 2011 Estimate and 2012 Forecast

29 Weighted average connection rate (Gross) per non-domestic connection, 2013-17 forecast

Table 5-1: Forecast customer contributions, 2013 to 2017

($M)	2013	2014	2015	2016	2017
Customer contributions	3.89	4.00	4.08	4.22	4.36

Source: SP AusNet

SP AusNet considers that, given customer contributions are sought from customers where the present value of incremental costs is higher than the present value of incremental revenue, its forecast customer initiated capital expenditure is conforming capital expenditure. SP AusNet notes that forecast capital expenditure presented above is consistent with providing customers with a timely and efficient connection experience.

5.6 Mains Replacement Program

5.6.1 Overview

SP AusNet assesses the safety of its assets with regard to the leak incidence per kilometre of mains and services, as set out in Figure 3-19 within Chapter 3 of this document. Leak incidence rates have been rising, with the exception of 2011 (due to ground moisture conditions, explained in Chapter 6) as assets age and deteriorate. Leaks from higher pressure sources have significantly greater safety implications. Leak incidence rates and mains failures correlate highly with material type. SP AusNet's proposed replacement program is based on risk assessments which identify highest risk material types and the appropriate mitigation control for the identified risk.

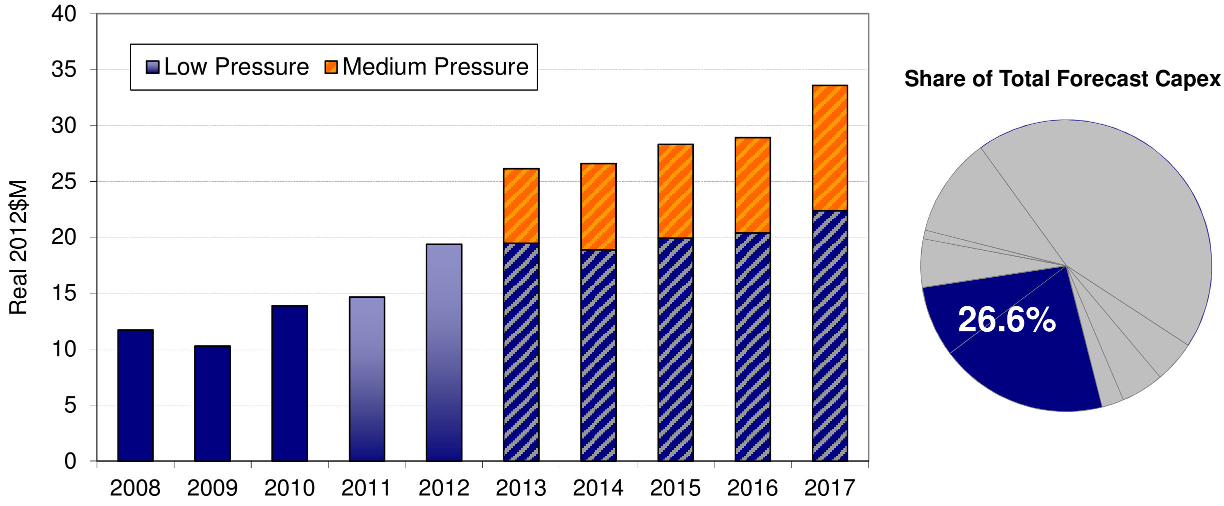
Each leak in a distribution main represents a real and present risk to safety; with each having the potential to cause death or injury should leaking gas build up to sufficient levels to become explosive. Although this risk can never be entirely eradicated, it is SP AusNet's legal obligation to minimise these risks as far as is reasonably practicable. Cast iron, the original PE grade introduced during the 1970s (PE CL250) and unprotected steel mains present the highest risk categories and SP AusNet replaces its highest risk assets as a key mitigation control as set out in its GSC. The mains replacement program is designed to fulfil SP AusNet's GSC obligations by appropriately mitigating the existing risk to the public and employees. The program is also required in order to ensure that SP AusNet's assets comply with the safety aspects of the NGO.

The most relevant NGR provisions relating to the mains replacement program are:

- Rule 79(1),which requires that the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services; and
- Rule 79(2)(c), which states that capital expenditure is justified if the capital expenditure is necessary to:
  - (i) maintain and improve the safety of services; or
  - (ii) maintain the integrity of services; or
  - (iii) comply with a regulatory obligation or requirement; or
  - (iv) maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

SP AusNet's actual and forecast mains replacement capital expenditure is shown in Figure 5-6. The pie chart shows the forecast mains replacement program as a proportion of forecast total capital expenditure. The projected step up in expenditure reflects the replacement of 90kms per annum of low pressure mains (in comparison to an average of approximately 76.4kms during the current access arrangement period) and an additional 30kms per annum of medium pressure mains replacement.

Figure 5-6: Recent actual and forecast mains replacement capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

SP AusNet's mains replacement program is the second largest category of network capital expenditure, comprising 26.6% of the total. As explained in further detail below, the mains replacement program addresses the problems associated with legacy cast iron, PE CL250 and unprotected steel mains, which are more susceptible to deterioration through corrosion and stress cracking; resultantly these assets have a higher incidence of leaks.

5.6.2 Explanation of Proposed Expenditure

SP AusNet replaces its gas pressure mains and services in order to:

- Lower the risk to personnel public and property due to mains leaks and mains blockages;
- Limit maintenance costs;
- Enhance customer service in areas of the network serviced by defective pipes;
- Improve reliability of supply;
- Improve system supply capacity;
- Decommission 'old' type low pressure District Regulating stations; and
- Move towards a uniform high pressure gas network.

Mains replacement capital expenditure is justified on the basis that it conforms with rule 79(1)(a) and 79(2)(i) and (ii). A prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of providing services, would seek to manage its risk through mitigating the safety exposure associated with deteriorating assets. Further, the capital expenditure maintains and improves safety; and maintains both the capacity and the integrity of the SP AusNet distribution network.

SP AusNet's current program, of replacing low-pressure mains with high-pressure mains, dates back to the second access arrangement period. The targeted mains replacement rate was 40 kilometres in 2003, 'ramping up' to 100 kilometres per annum in 2006 and 2007. These rates of replacement were substantially achieved (47km short of the 375 km aggregate target), although the costs per km were higher than expected.

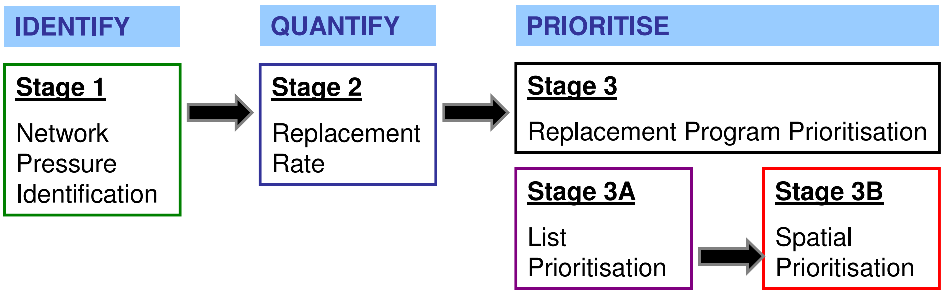
In the current access arrangement period SP AusNet planned to achieve a stable rate of replacement of 90 kilometres per annum. As explained in Chapter 3, however, current estimates indicate that actual levels of replacement will be 13.6 km per annum fewer than planned.

In recent years; cast iron, PE CL250 and unprotected steel mains operating at medium pressure have required increased maintenance due to breakage, stress cracking and corrosion related faults. While the long-term strategy has been to focus on the removal of the existing low pressure network, the increasing deterioration of the medium pressure network has prompted SP AusNet to review the replacement program. This review has identified the need to replace higher risk medium pressure mains, predominantly those made from cast iron, PE CL250 and unprotected steel.

The proposed program of mains to be replaced was determined through the three stage process; Identify, Quantify and Prioritise.

Figure 5-7 below outlines the three stage approach to determining SP AusNet's Mains Replacement Program.

Figure 5-7: Mains Replacement Programme Determination Methodology



Source: SP AusNet

Failure modelling has indicated that replacing the low pressure network and additionally targeting some medium pressure mains of specific material types will improve safety and reliability by reducing incidence of leaks and, resultantly, outages.

The analysis in Table 5-2 below shows the relative risk associated with different main material types at different pressures. SP AusNet maintains that the gradual replacement of the entire low pressure network is required and intends to continue this process over the coming access arrangement periods. Low pressure leaks can go undetected for periods of time, presenting a different risk profile through the potential for gas to build up to explosive quantities.

Medium pressure leaks are generally detected soon after they occur due to the relatively high volume of gas which escapes. This presents a different risk profile, one with potentially catastrophic outcomes presents a significant occupational health and safety risk to SP AusNet staff during repair. The pictures below show the challenges of making safe a medium pressure main leak. Staff are required to wear medical air apparatus and work in confined spaces in potentially dangerous conditions.

Figure 5-8: Repairs on an SP AusNet medium pressure main

Source: SP AusNet

Within the risk assessment process, 3 material types presented significantly higher risks based on leak incidence and gas flow ratio analysis.

- Cast Iron, these assets are susceptible to cracking and have the highest leakage incidence per km of all the medium pressure mains categories.
- PE CL250, this was the original grade of high density polyethylene pipe which began to be laid in gas distribution networks in the 1970's. At the time this was state of the art technology; however, it was quickly superseded and phased out in the early 1980's. This grade of pipe has low strength, low ductility and rapid crack propagation properties. The material has been found to be susceptible to cracking during and after the squeeze off process. SP AusNet has experienced many "split mains" on class 250 pipe originating from a location where the pipe had previously been squeezed off. The operation of this pipe poses a risk to the occupational health and safety of maintenance crews who may inadvertently cause a major gas leak while undertaking squeeze off procedures.
- Unprotected steel, these assets have the potential to deteriorate quickly under certain ground conditions, in some circumstances mains fail with many leaks in the same area creating significant occupational health and safety issues during the repair process. The example shown above in Figure 5-8 demonstrates a significant number of leaks as discussed. The cost of reactive replacement of these assets is often over 10 times higher than the cost of proactive risk assessment based replacement activities.

In targeting these asset types within the medium pressure systems SP AusNet can deliver significant safety improvements to both the public and employees working on the gas distribution network.

Table 5-2: Pressure and materials risk analysis

	Material	Average Leak Incidence (leaks / km) (A)	Gas Flow Ratio[30] (B)	Risk Weighting (AxB)
High Pressure	PE	0.02	11.95	0.24
	Steel (Pr)	0.03	11.95	0.36
Medium Pressure	PE	0.04	4.01	0.16
	Steel (Pr)	0.19	4.01	0.76
	Steel (UPr)	0.36	4.01	**1.44**
	PE CL250	0.95	4.01	**3.81**
	Cast Iron	1.28	4.01	**5.13**
Low Pressure	PVC	0.16	1.00	0.16
	Steel (Pr)	0.54	1.00	0.54
	Steel (UPr)	0.68	1.00	0.68
	Cast Iron	1.47	1.00	**1.47**

Source: SP AusNet

SP AusNet has given particular focus to stage 2 of its Mains Replacement Determination Methodology as it focuses on the replacement rate, and the resultant capital expenditure forecast, required to achieve the network objectives and comply with the NGL and NGR. Detailed modelling to determine the optimum rates of replacement for both the low and medium pressure networks was undertaken with regard to three key criteria:

- Average network age analysis to identify replacement rates that improve or at least maintain the current average age profile of the network;
- Leak incidence per km analysis to predict the rate of asset deterioration and the countering influence of varying mains replacement rates; and
- Economic/ Technical lifecycle analysis using a range of likely engineering lives to determine optimum rates of replacement.

In replacing 30kms per annum of medium pressure mains (a total of 150kms over the fourth regulatory period), SP AusNet will target the worst performing medium pressure mains. As is evident from Table 5-2 these are cast iron, PE CL250 and unprotected steel. During the fourth regulatory period SP AusNet proposes to replace all cast iron and the worst pockets of PE CL250 and unprotected steel assets within the medium pressure system.

Much of SP AusNet's more modern medium pressure assets demonstrate similar characteristics to the high pressure system and SP AusNet does not envisage any requirement for early replacement. Therefore, towards the end of the fourth regulatory period

[30] Refer to SP AusNet's detailed Mains and Service Strategy, Appendix 5J.3 for the underlying calculations.

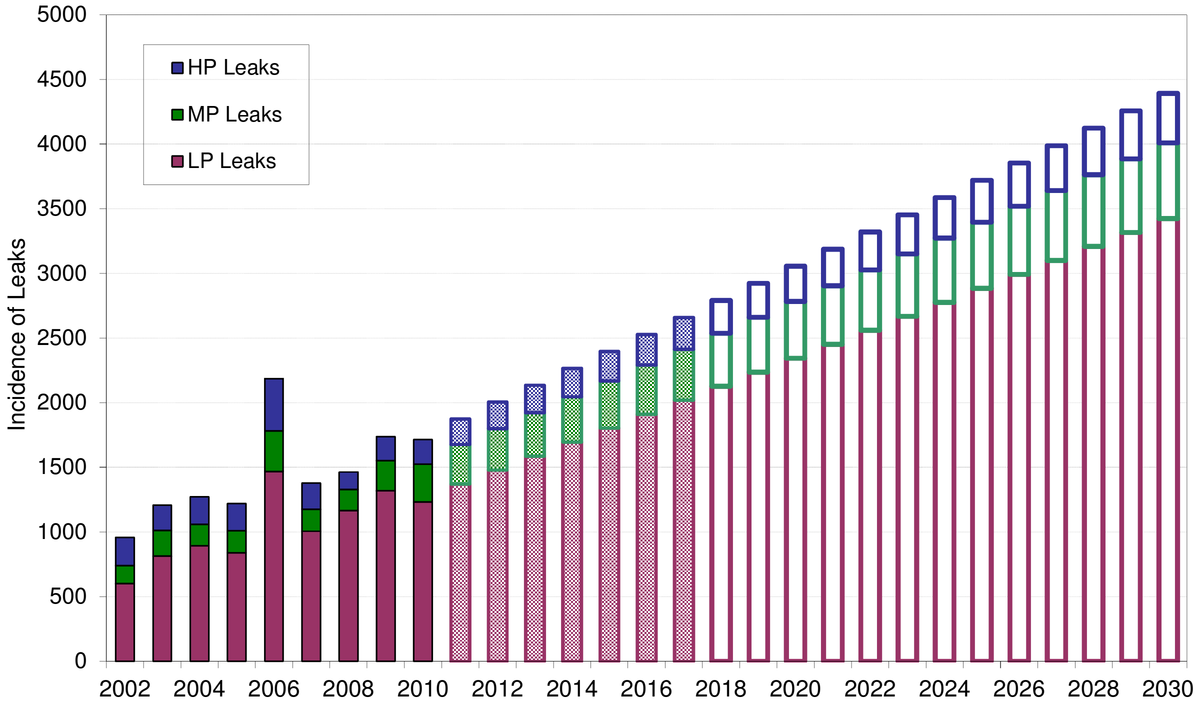
SP AusNet will re-evaluate the medium replacement rate to determine whether the resulting risk profile associated with the remaining material types warrants a continuation, acceleration or potentially even a cessation of the medium pressure replacement program.

SP AusNet's analysis demonstrates that 120 km of mains replacement per annum, comprised of 90 km of low pressure and 30 km of medium pressure replacement, is optimal. The indicated replacement rates will enable the entire low pressure distribution network to be decommissioned by 2025, and all cast iron and all currently identified high risk PE CL250 and unprotected steel medium pressure mains to be replaced by 2017.

In the absence of a mains replacement program, SP AusNet forecasts that total leak incidence, as shown in the figure below, will increase by approximately 60% over the course of the Fourth Access Arrangement Period. This represents an unacceptable deterioration in network safety and will create a bow wave of required asset replacements in the future.

The incidence of leaks on the high pressure network is expected to increase simply as a result of network growth; as all growth assets are constructed to high pressure standard. Consistent with the forecast in Figure 5-11, high pressure network leak incidence per km is expected to remain broadly constant but as SP AusNet moves closer to a uniform high pressure network the length of high pressure mains increases. The drivers of the increase in network leaks is low pressure mains deterioration, and, to a lesser extent medium pressure, mains deterioration.

Figure 5-9: Cumulative forecast of network leaks by pressure tier (no replacement)

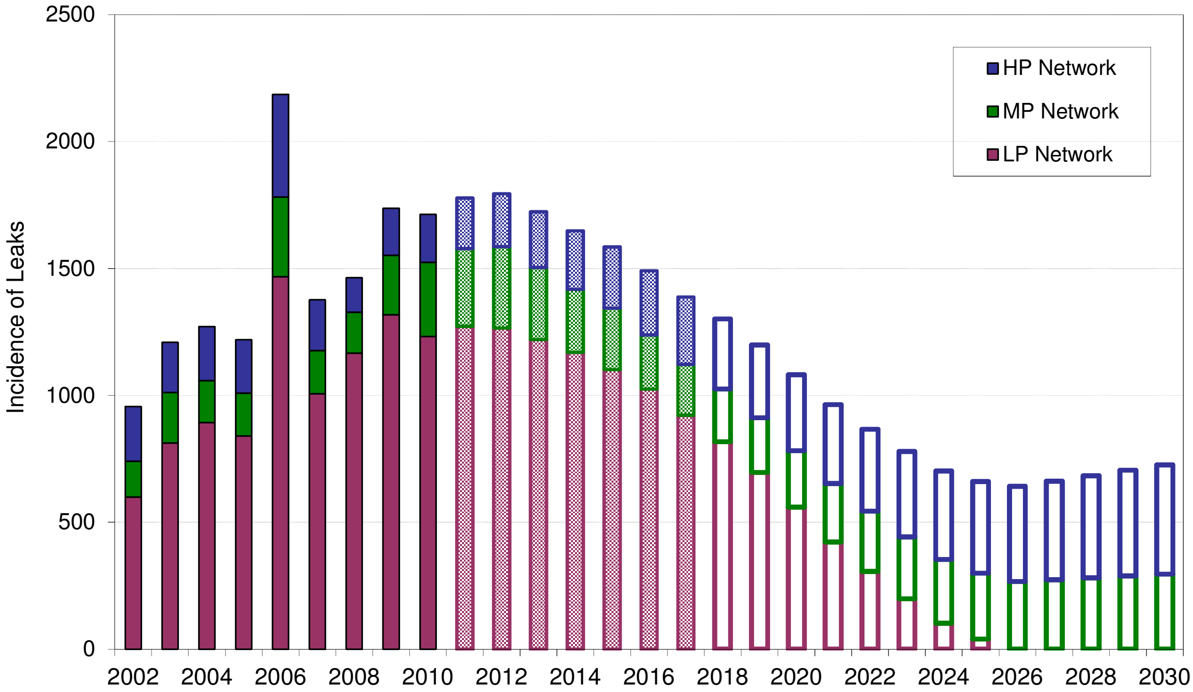


Source: SP AusNet

Note that the significantly higher number of leaks requiring repair during 2006, was the result of a transition to a new leakage management strategy which brought forward many reported leaks.

However, based on SP AusNet's proposed overall 120 km of annual replacement during the Fourth Access Arrangement Period, and an assumed return to replacing only low pressure mains thereafter (a policy for future evaluation), the number of leaks on mains is forecast to decrease within the fourth regulatory period as indicated in below.

Figure 5-10: Cumulative forecast of network leaks by pressure tier (with replacement)



Source: SP AusNet

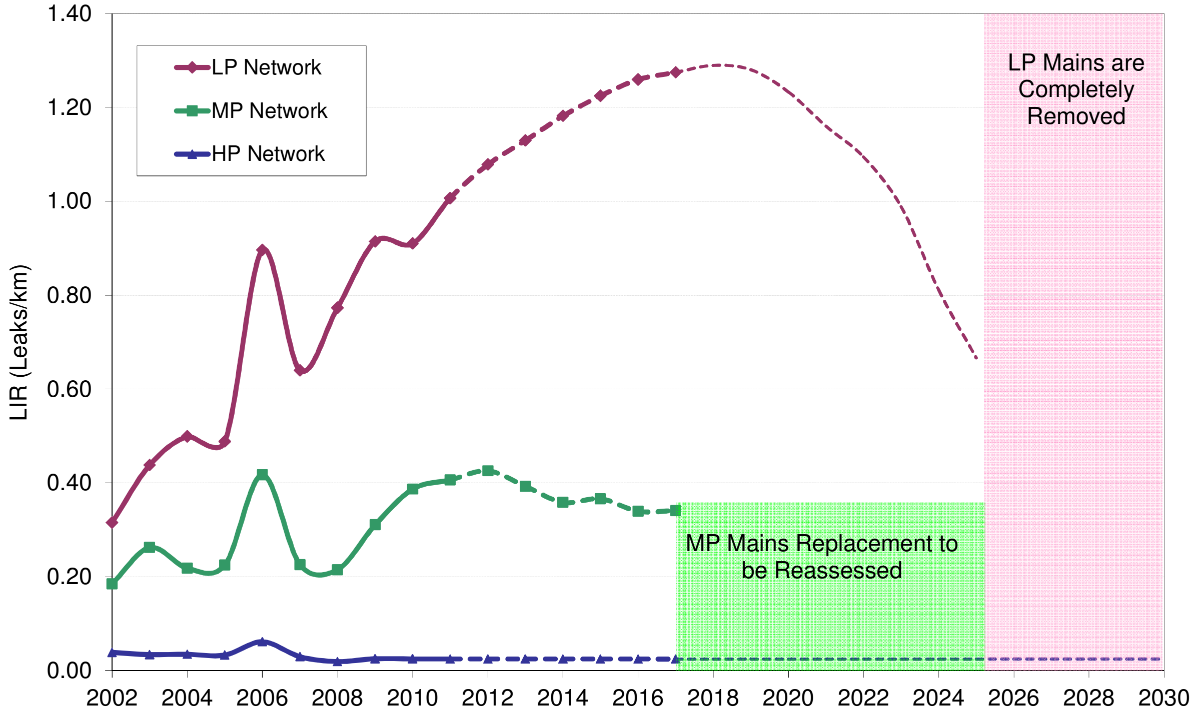
Note that the significantly higher number of leaks requiring repair during 2006, was the result of a transition to a new leakage management strategy which brought forward many reported leaks.

When leak incidence is considered per km of main, 30 km of medium pressure mains replacement is sufficient to reduce the leak incidence per km. This improves both the current risk profile of the remaining medium pressure network and overall network risk. As the length of the medium pressure network is reduced by replacing the worst performing sections, the remaining assets operated by SP AusNet represent an improved safety risk outcome.

However, this is not the case for the low pressure distribution network which is deteriorating at a rate that indicates maintaining the current number of leaks per km is not realistic or sustainable[31]. The renewal rate of 90 km per annum provides a reduction in the total volume of leaks but an increase in leak incidence per km, peaking at approximately 1.3 leaks / km in 2019 as indicated in Figure 5-11. Past 2019, the fastest deteriorating assets have been replaced and at that stage the leak reduction impacts (from removing mains) exceed the rate of deterioration; thus improvements are dramatic. As shown below, in 2025 the last section of low pressure main is expected to have an average leak incidence per km of approximately 1 when it is replaced.

31 Over 400 km of renewal is required in 2012 to maintain leak rates at the current level.

Figure 5-11: Leak incidence per km of mains by pressure tier



Source: SP AusNet

Note that the significantly higher number of leaks requiring repair during 2006, was the result of a transition to a new leakage management strategy which brought forward many reported leaks.

With an expected increase in leak incidence per km for the low pressure network, identification of highest risk areas for mains replacement becomes essential for limiting the risk to which customers, public and employees are exposed. SP AusNet uses the geographical information system (GIS) to select areas for upgrading based on core criteria including leakage rates, network supply and the proximity to high pressure networks.

The forecast capital expenditure for replacing high and medium pressure mains reflects SP AusNet's best assessment of the rate of replacement that would be undertaken by any prudent service provider seeking to mitigate the safety risk inherent in the supply of gas.

Specifically in relation to the NGR, SP AusNet notes that the proposed mains replacement program is justified principally with reference to rule 79(2)(c) in order to:

(i) maintain and improve the safety of services; and

(ii) maintain the integrity of services.

In addition, as mentioned, failure to undertake the expenditure would almost certainly undermine achievement of the safety elements of the NGO, under section 23 of the NGL.

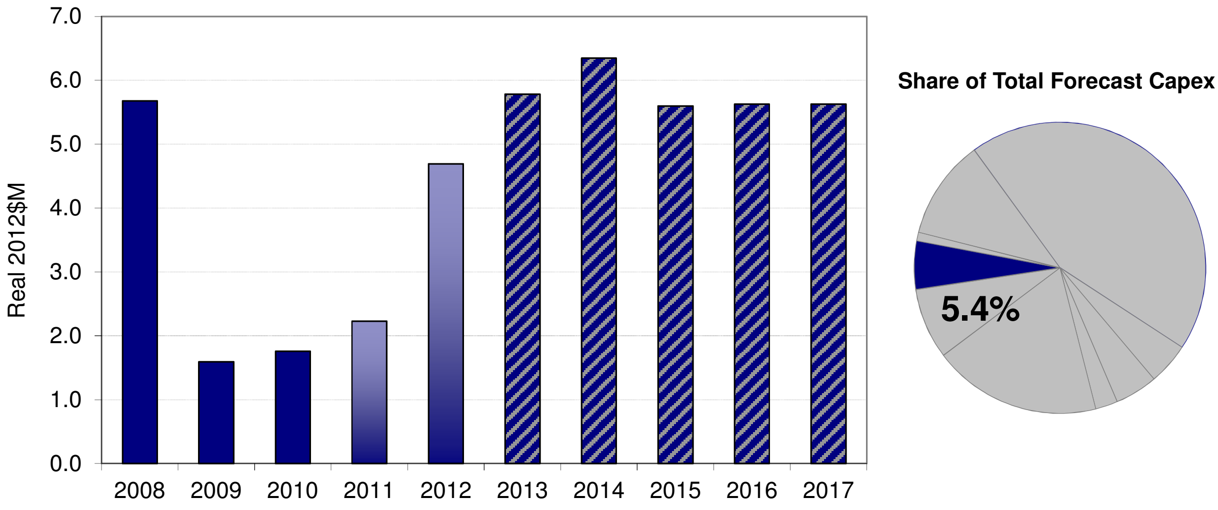
The forecast capital expenditure complies with the requirement of rule 79(1). In particular, the proposed capital expenditure is the amount that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.

5.7 Meter Replacement Program

5.7.1 Overview

SP AusNet's actual and forecast meter replacement capital expenditure is shown in Figure 5-12. The pie chart shows the meter replacement program as a proportion of total capital expenditure.

Figure 5-12: Recent actual and forecast meter replacement capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

While substantially smaller than customer-initiated and mains replacement capital expenditure, the meter replacement program is the third largest network capital expenditure category in the forthcoming access arrangement period. As explained below, the meter replacement program is driven compliance with the Gas Distribution System Code. SP AusNet's planned capital expenditure seeks to manage the profile of meter replacement to minimise the overall costs of the program. In terms of the NGR requirements, therefore, the capital expenditure is justified principally with reference to rule 79(2) (c), as it is necessary to:

(i) maintain and improve the safety of services; or

(ii) maintain the integrity of services; or

(iii) comply with a regulatory obligation or requirement.

The proposed capital expenditure is consistent with the amount that would be incurred by a prudent service provider, acting efficiently, as required by rule 79(1), and in recognition that a company may recover its efficient costs associated with providing reference services under section 24 of the NGL.

5.7.2 Explanation of Proposed Expenditure

Gas meters are used to measure the volumetric flow rate of gas passing through the device. The volume of energy that passes through the meter is dependent on both gas pressure and temperature at the time of measurement.

SP AusNet is required by the Gas Distribution System Code to provide an appropriate metering installation at each supply point (i.e. connection) off the distribution network. SP AusNet is required to periodically maintain these installations, replace meters when their field life has expired, and provide periodic metering information to retailers for billing purposes.

SP AusNet undertakes a range of annual meter testing and replacement programs to ensure ongoing compliance with the Gas Distribution System Code, as summarised below:

- **In-service compliance testing program:** Annual in-service compliance testing is completed on small capacity (<25m^3/hr) diaphragm meter families nearing the end of their in-service compliance periods. Testing follows the requirements of AS/NZS 4944:2006 where meters are tested through either the 'variables' or 'attributes' sampling methods. Outcomes of compliance testing leads to a field life extension (5, 3, or 1 year) or the meter family being removed from the field.

The in-service compliance testing program does not extend to Industrial and Commercial meters, which are automatically removed from the field at the end of their in-service compliance periods.

- **Time expired meter replacement program:** Meters at the end of their in-service compliance periods (i.e. useful life) are removed from the field and replaced with new or refurbished assets of similar capacity

  The domestic replacement program includes meters that are at the end of their in-service compliance periods; meters outstanding from previous replacement programs; and meter families being prematurely retired to avoid extreme volatility in replacement program sizes. Analysis set out in the Meter Strategy documentation demonstrates the efficiency of this approach. Typically, SP AusNet aims to remove 25,000 to 35,000 meters per annum through the domestic meter replacement program.

  The Industrial and Commercial meter replacement program includes meters at the end of their in-service compliance periods and those outstanding from pervious programs. Typical program sizes vary from 300 to 500 meters per annum.

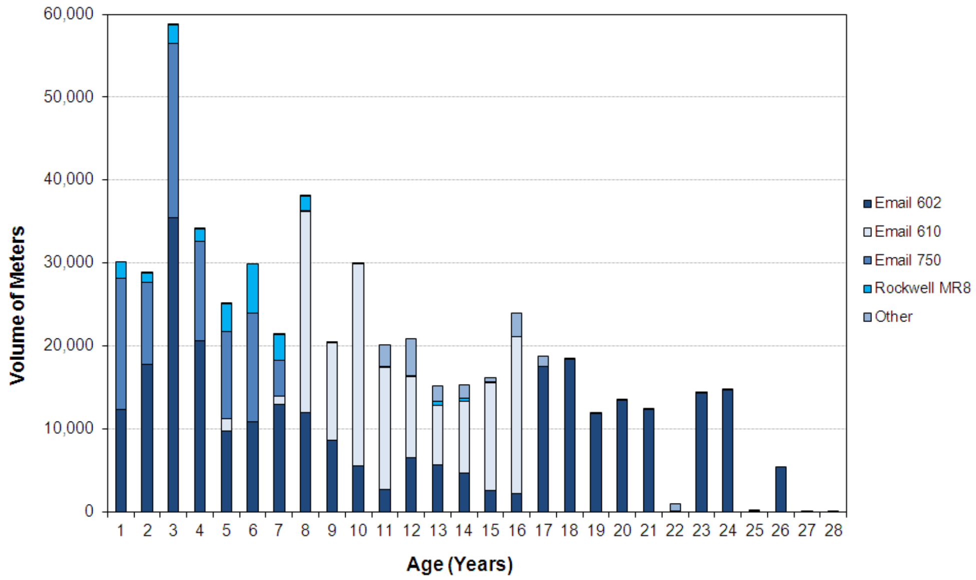
- **Non-compliant meter:** Dedicated programs are established to target and replace meters that remain in the field beyond their in-service compliance periods. An inability to gain access to the meter during the time expired replacement program (due to locked gates, guard dogs, refused entry, etc.) is the primary reason for non-compliant meters within SP AusNet's network. In total, non-compliant meters equate to approximately 0.15% of all commissioned meters.

- **Meter Faults:** SP AusNet reactively replaces meters that fail in operation. Typically, SP AusNet replaces approximately 1,500 to 1,800 failed meters annually, equating to 0.3% of the metering fleet.

Overall SP AusNet has a fleet of 595,800 meters installed, of which 547,686 are classed as residential meter types and 48,114 are Industrial and Commercial (I&C) meter types[32]. Figure 5-13 and Figure 5-14 illustrate the age profile for domestic and I&C meters.

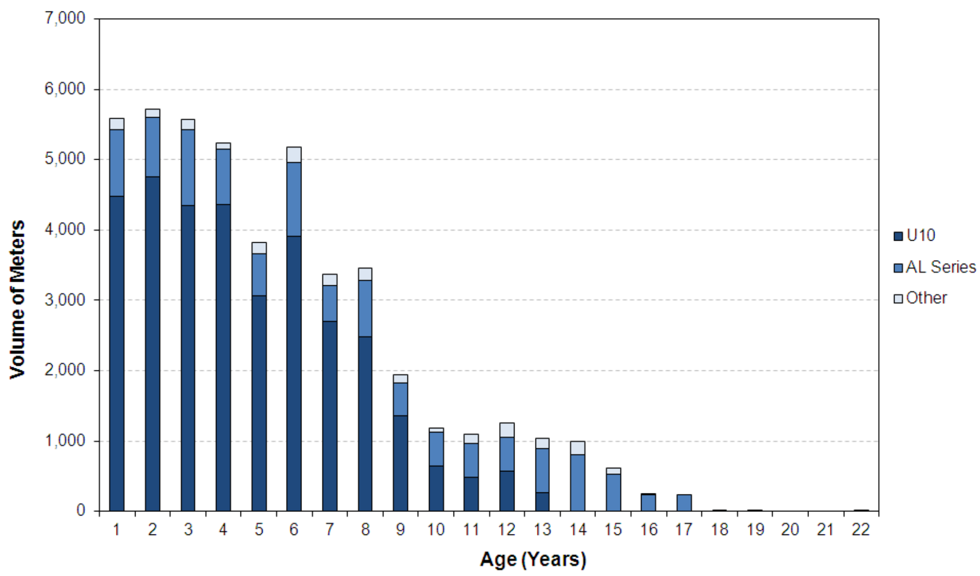
[32] NB: Figures classify the type of meter at a connection point, not the classification of the connection. Typically meters with a capacity of >10m3/hr are classified as I&C meter types

Figure 5-13: Domestic meter age profile (June 2011)



Source: SP AusNet

Figure 5-14: Industrial & Commercial meter age profile (June 2011)



Source: SP AusNet

Annual time expired replacement programs consistently achieve replacement rates of >95% per program, with the exception of the 2010 industrial & commercial program which was hampered by both labour and material (i.e. replacement meter availability) resourcing issues. Resultantly, SP AusNet enforced a compliance obligation upon its service provider to ensure appropriate resources were dedicated to the program by the service provider.

Table 5-3 below summarises the historic performance of domestic and I&C meter types and the meter replacement program.

Table 5-3: Historic performance of domestic and I&C meter types

Year	Meter Class	Meter Faults	In-service Compliance Testing- Meters Tested (Failed[33])	Time Expired Replacement Program Size (% Completed)
2008	Domestic	1,488	144,484 (9.2%)	47,938 (96.2%)
	I&C	79	-	459 (98.9%)
2009	Domestic	1,631	88,437 (13.5%)	14,478 (97.6%)
	I&C	131	-	295 (96.3%)
2010	Domestic	1,620	25,437 (35.7%[34])	11,699 (97.3%)
	I&C	147	-	277 (75.8%)
2011	Domestic	1,761	37,567 (24.3%)	15,394 (97.4%)
	I&C	191	-	634 (99.4%)

Source: SP AusNet

SP AusNet seeks to minimise the costs of meter replacement through:

- a continuation of in-service compliance testing programs;
- balancing meter refurbishment and replacement programs; and
- a 'smoothing' strategy to replace an average of 25,000 to 35,000 meters per year to prevent extreme volatility within replacement programs, which tends to inflate per unit replacement costs.

The forecast capital expenditure for the next access arrangement period reflects SP AusNet's best estimate of the efficient and prudent level of capital expenditure in light of the available data on failure rates and the age profile of the domestic and I&C meter population. The capital expenditure forecast is therefore consistent with rule 79(1) and justified with reference to rule 79(2)(c).

5.8 Minor Capital Expenditure Programs

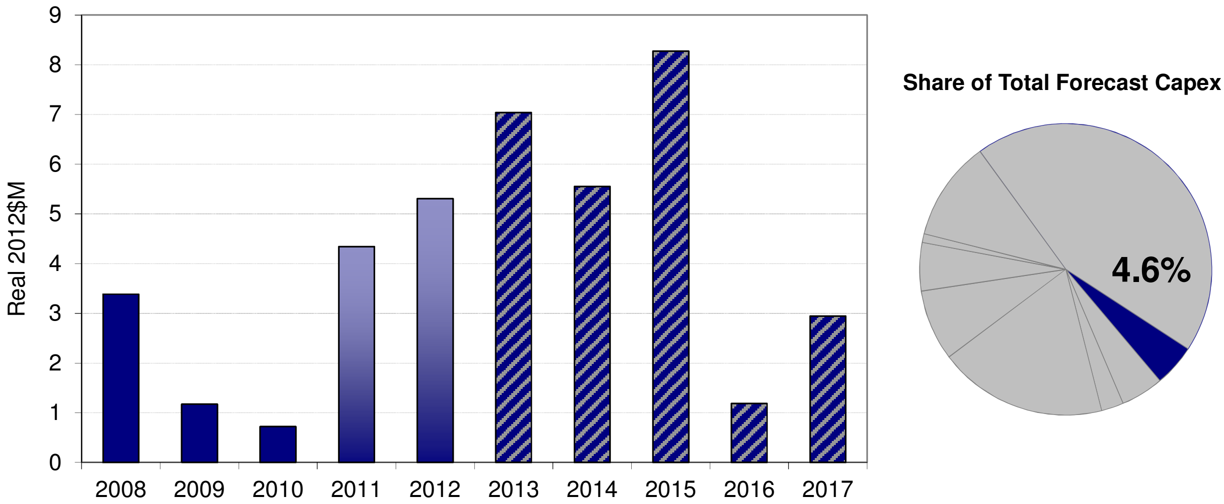
5.8.1 Augmentation/Reinforcement

Figure 5-15 shows SP AusNet's recent actual and forecast capital expenditure for network augmentation/reinforcement. The pie chart shows the network augmentation/reinforcement capital expenditure as a proportion of total capital expenditure.

[33] Failed meters are to be replaced within the preceding years meter replacement program.

[34] Voluntary failure of meter family Email 602 New 1985.

Figure 5-15: Recent actual and forecast augmentation and reinforcement capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

SP AusNet has an obligation to maintain and manage the supply of natural gas to its customers in accordance with its Gas Safety Case (pursuant to the Gas Safety Act and Gas Safety Regulations) and the Gas Distribution System Code. In particular, SP AusNet is required to maintain network pressures above the minimum levels shown in Table 5-4.

Table 5-4: Minimum network pressure – Gas distribution system code

Network Pressure	Minimum Obligated Pressure
High Pressure	140kPa
Medium Pressure	7kPa
Low Pressure	1.4kPa

Source: Gas Distribution System Code, version 9, Schedule 1, Part A.

SP AusNet's annual network augmentation program creates new assets or upgrades the capacity or functionality of existing assets to ensure that gas supplies can continue to be delivered over the longer term, in a safe and reliable manner.

Network augmentation includes:

- Installation of new supply and reticulation mains;
- Upgrade of existing regulating and metering facilities, including auxiliary equipment;
- Installation of new regulating and metering facilities, including auxiliary equipment; and
- Installation of future supply mains as an enabler for network growth.

As explained in Chapter 2, SP AusNet's gas distribution network has experienced significant growth in demand and customer numbers. This is primarily due to continued strong residential development; the increasing penetration of, and reliance on natural gas appliances; and the steady uptake of natural gas in regional towns following the completion of the natural gas extension program.

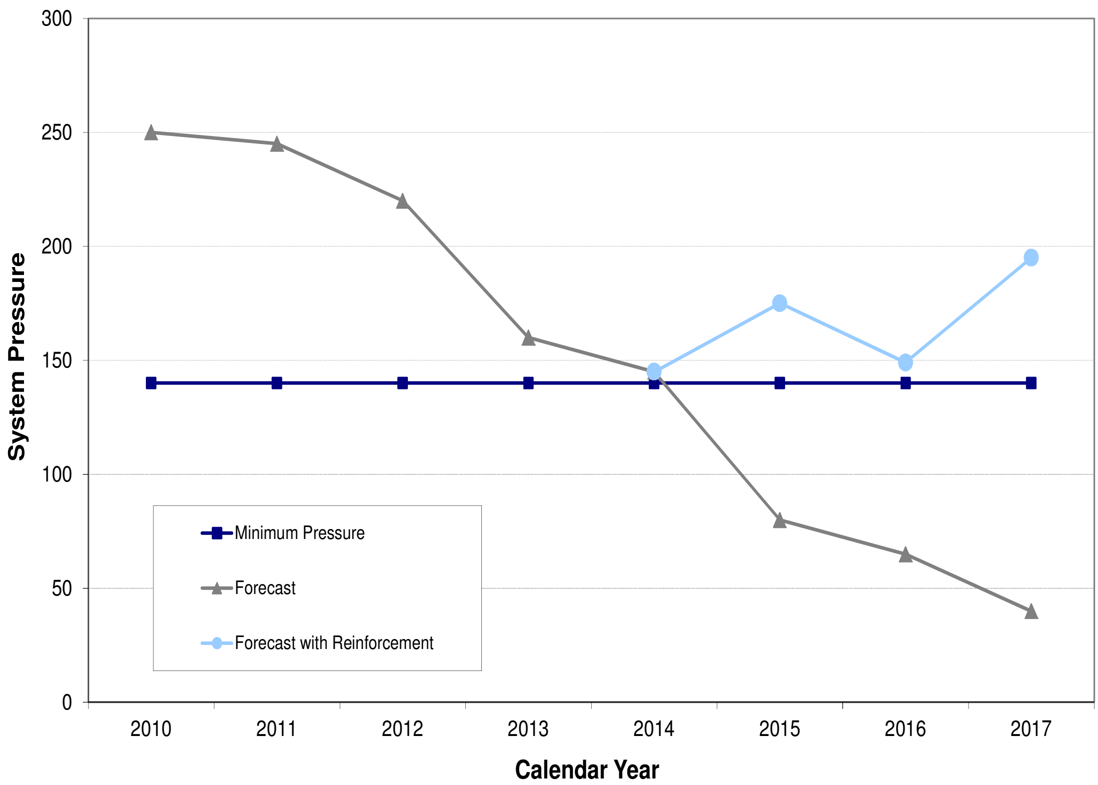
Modelling of forecast gas consumption indicates that augmentation is required to ensure the security of supply and maintenance of fringe pressures in accordance with the Gas Safety

Case and the Gas Distribution System Code. SP AusNet identifies necessary augmentation work by simulating the impacts of forecast growth and demand on system pressures, which in turn determines the efficient timing of individual projects.

A major input to augmentation planning is the winter testing program, which is a detailed pressure monitoring program conducted at selected locations across the network during peak load conditions. Winter testing data is analysed and used to ensure the accuracy of network models and identify the reinforcements required to ensure that network fringe pressures remain above required minimum levels even in peak load conditions. Network models are validated on a periodic basis or as required (i.e. following a major augmentation project on a network).

An example of a typical network analysis is presented in Figure 5-16. It illustrates the consequence of not implementing planned augmentation work, with network pressures falling below 140kPa, which is the mandated standard specified in both the Gas Distribution System Code and SP AusNet's Gas Safety Case.

Figure 5-16: Forecast system pressure reflecting reinforcements (Example Case)



Source: SP AusNet

SP AusNet's forecast augmentation and reinforcement capital expenditure for the forthcoming access arrangement period reflects the outcomes of SP AusNet's detailed modelling. Section 24 of the NGL recognises the need to incentivise businesses to invest in infrastructure to ensure safety, reliability and security of gas supply, and allows a gas distribution service provider the opportunity to recover *at least* the efficient costs that are incurred in the course of delivering services to which an access arrangement applies. In terms of the NGR requirements, rule 79(2)(c) states that capital expenditure is justified if the capital expenditure is necessary to:

(i) maintain and improve the safety of services; or

(ii) maintain the integrity of services; or

(iii) comply with a regulatory obligation or requirement; or

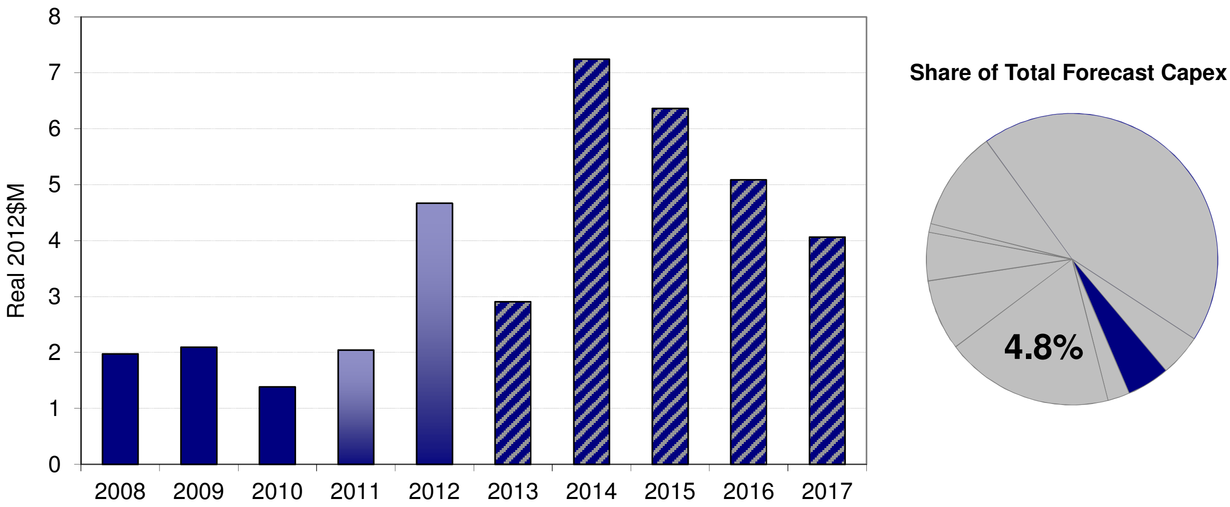
(iv) maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

As indicated in the above example, augmentation and reinforcement capital expenditure is driven by mandated minimum pressure limits and, therefore, is non-discretionary. The proposed capital expenditure is therefore justified with reference to the NGL and rule 79(2)(c)(iii).

5.8.2 Network Integrity

Figure 5-17 below shows SP AusNet's recent actual and forecast capital expenditure for Network Integrity. The pie chart shows the Network integrity capital expenditure as a proportion of total capital expenditure. During 2012 SP AusNet will install heaters at 2 significant city gates and upgrade a number of regulating stations, this accounts for the observed step change.

Figure 5-17: Recent actual and forecast network integrity capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

Network Integrity capital expenditure represents 4.8% of SP AusNet's forecast expenditure over the forthcoming access arrangement period. This expenditure relates to:

- the replacement of assets which are prone to failure;
- safeguarding the safety of both employees and the public;
- increasing the operability of networks (resulting in cost savings and increasing asset longevity); and
- security of supply, reducing negative publicity and reducing operational costs.

Failure to implement undertake this expenditure these elements may undermine or detract from will compromise SP AusNet's ability to deliver the key outcomes of safety, reliability, security of supply and gas quality, and may therefore impede the achievement of the NGO.

Network Integrity capital expenditure includes projects relating to:

- Regulator replacement (obsolete assets);
- Asset Relocation (safety);
- Corrosion Protection (maintain asset life);
- Surge Protection (safety);
- Mainstream SCADA (asset monitoring); and

- Heater installations (security of supply).

For each of these project areas, SP AusNet's capital expenditure is driven principally by safety, compliance and performance considerations, with the objective of delivering services to customers at lowest sustainable cost. For example:

- The reliability of SP AusNet's regulating stations is critical to system integrity and continuity of supply. The capital expenditure program for network regulating facilities reflects the following principles and strategies:
  - Proactive replacement of aged regulators operating at high, medium and low pressures where spare parts are no longer available or difficult to source;
  - Periodic overhauls of network regulators to extend operational life and prevent regulator failure;
  - Installation of new heaters to major regulating stations. Freezing of pipework creates a safety hazard and will adversely affect the performance of the regulating station;
  - Installation of water bath heater platforms to reduce OH&S risks onsite; and
  - Upgrade of security fencing at high risk sites to prevent unauthorised access.
- SP AusNet utilises cathodic protection to defend against corrosion of its buried steel assets within its gas transmission and distribution networks. The corrosion protection work program ensures cathodic protection levels are maintained in accordance with SP AusNet's Gas Safety Case, reducing corrosion rates and hence minimising the safety risk of corrosion induced leakage.
- SP AusNet's surge protection program mitigates the chances of electrical surges and hence the dangers of electrocution, equipment damage and ignition of fugitive emissions.

The forecast capital expenditure in relation to network integrity reflects a prudent and efficient work program to achieve the required outcomes in terms of safety, compliance and network performance. The capital expenditure is justified with reference to rule 79(2)(c).

5.8.3 Reactive Asset Replacement

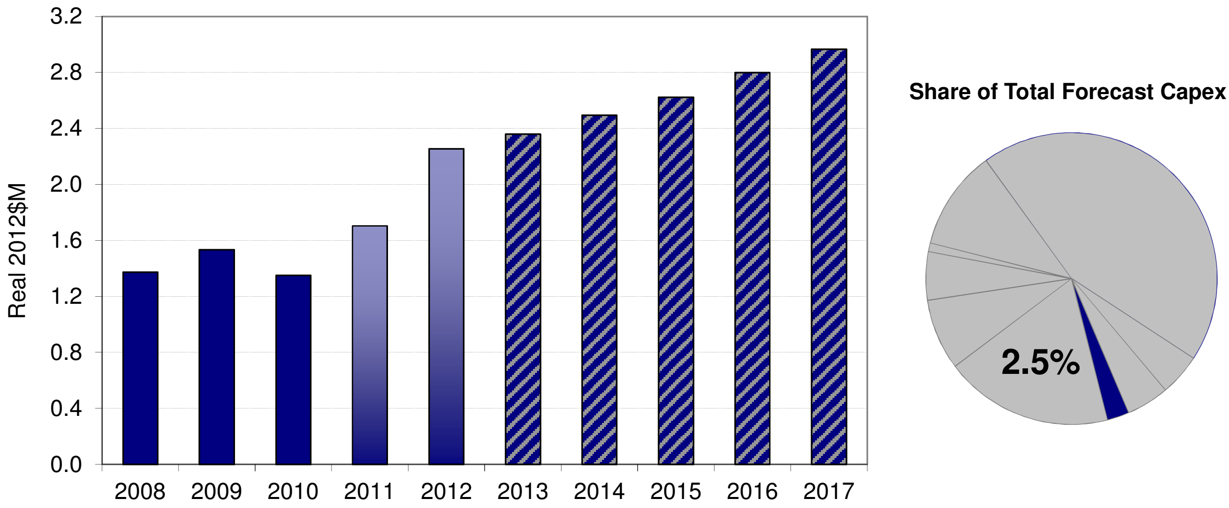
Figure 5-18 shows SP AusNet's recent actual and forecast capital expenditure for Reactive Asset Replacement. The pie chart shows the Reactive Asset Replacement capital expenditure as a proportion of total capital expenditure.

The reactive replacement of assets is necessary when assets fail in the field. This category of capital expenditure includes:

- Small scale (i.e. less than 20m in length) mains replacement as a result of failure. There are approximately 70 such failures per annum;
- One off service replacement, which occur at a rate of approximately 550 per annum; and
- Individual consumer meter failures which occur at a rate of approximately 2,100 per annum.

The reactive replacement of failed assets is required to maintain public safety, satisfy SP AusNet's compliance obligations and to enable SP AusNet to continue to provide the service levels expected by our customers.

Figure 5-18: Reactive asset replacement capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

As indicated in the figure above, reactive asset replacement expenditure grows at a relatively stable rate, reflecting relatively stable and predictable rates of asset failure and a growing asset base. In the case of mains replacement, significant unexpected replacements can be moved into the proactive program, providing flexibility to manage costs effectively.

The forecast capital expenditure for the forthcoming access arrangement period includes the effect of labour and materials escalators assessed by BIS Shrapnel and SKM respectively.

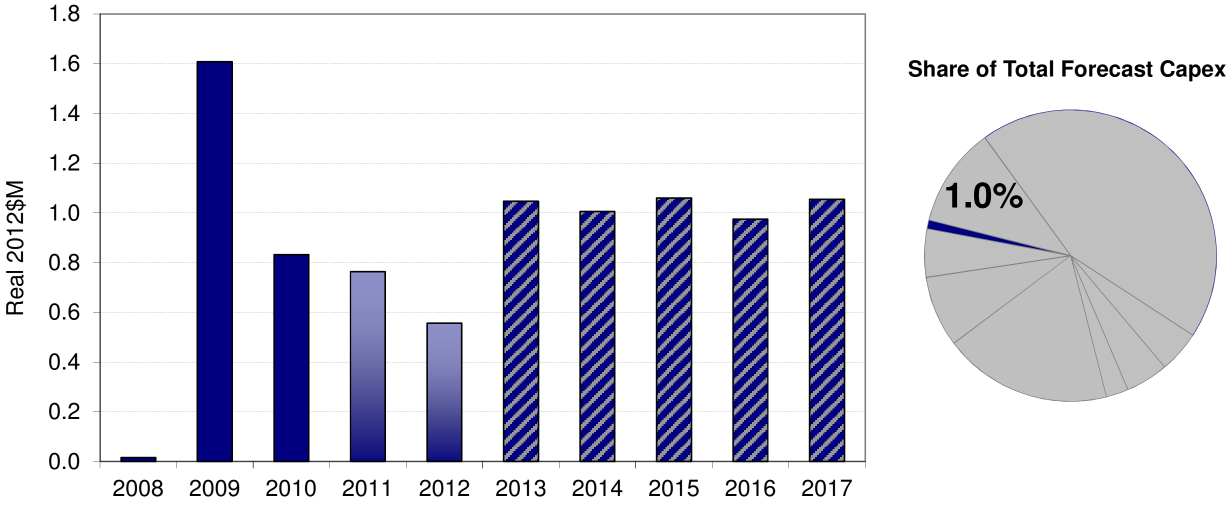
It should be noted that the expenditure on reactive meter replacements prior to 2011 is based on an allocation derived from an estimate of cost per reactive meter replacement. At that time the incidence of reactive meter replacement was captured but costs were not, rather they were included under the general proactive meter replacement program.

The step increase in expenditure from 2011 to 2012 is explained by this allocation assumption (estimate), the expected increase in service renewals aligning with long-term averages (note: service renewals have been stable in recent years due to favourable weather conditions) and the premium paid for reactive meter replacements (i.e. assuming a random fault of SP AusNet's metering fleet) for both I&C and domestic meters.

5.8.4 SCADA and Remote Control Capital Expenditure

Figure 5-19 shows SP AusNet's forecast SCADA (Supervisory Control and Data Acquisition) and remote control capital expenditure. The pie chart shows the SCADA capital expenditure as a proportion of total capital expenditure. The SCADA capital expenditure information shown below refers to in-field SCADA assets; the IT component of SCADA is described within the IT section.

Figure 5-19: SCADA and remote control capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

SP AusNet uses a SCADA system to monitor and control assets across the network from the transmission system to the network fringe. The SCADA system provides data on the real-time performance of the assets and data for long-term evaluation of gas demand and network performance to identify potential system deficiencies.

The SCADA system is made up of Remote Telemetry Units (RTUs), a radio and telephone communications system and host computer systems supporting the Network Operations Centre, which operates 24 hours a day, 365 days a year. Three classes of site are covered by the SCADA system.

- Controlled regulator sites where the SCADA system maintains a set fringe pressure by altering gas outlet pressures, either automatically or via remote manual control from the control room.
- Monitored regulator sites where outlet pressures are adjusted by field personnel and SCADA is used to alert the control room operators if pre-determined pressure alarm limits are breached.
- Fringe sites where SCADA is used to monitor the pressure at the lowest-pressure extremity of the system, again allowing control room operators to respond to pre-determined alarm limits.

Alarm limits and conditions have been set on the SCADA system which, when triggered, indicate abnormal conditions within the network. The limits, conditions and required responses are reviewed annually following each winter peak.

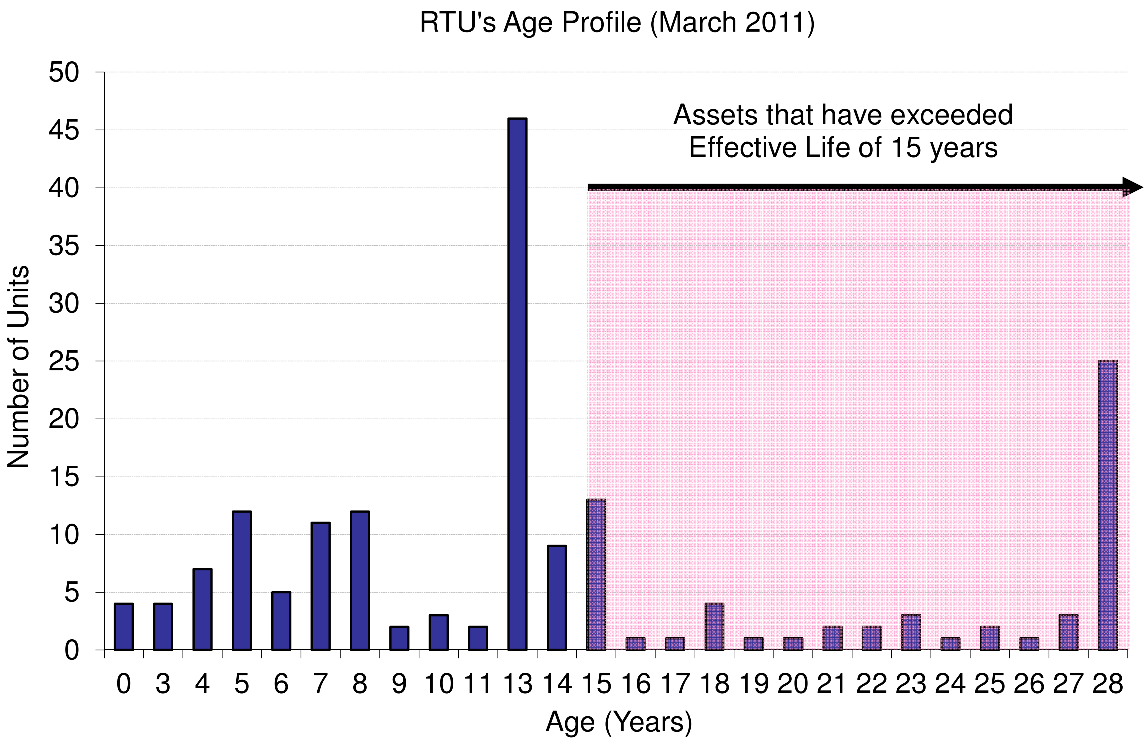
The key drivers of SCADA capital expenditure include network growth; improved consistency in network operation and fringe pressures; reduction in identified network risks; and improved operating costs through greater automation. SP AusNet's long-term objective is to have automated pressure control for all networks, governed by the fringe point. This will optimise the operation of the network; reduce asset deterioration and system leakage; and enhance control in emergency situations and operability in times of abnormal gas demand. SP AusNet regards these drivers as falling within the definition of rule 79(2)(c).

Currently, approximately 20% of all high-pressure networks are operating under automatic control, with the remaining networks only being monitored installations. There are also 12 low-pressure systems operating under solenoid control which vary the outlet pressure of district regulators via pre-determined time settings.

This dynamic control of pressure is used to minimize leaks and UAfG in accordance with SP AusNet's quality management document, Network Pressures Management.

SP AusNet has a plant strategy to expand the current SCADA coverage and implement further controlled installations to ensure that safety and service performance is maintained as the network grows. Asset replacements are also planned when existing equipment reliability or capability is presenting significant risks. The SCADA system has an effective life driven by factors such as functionality, environment, technological obsolescence and the initial quality of the hardware. Figure 5-20: shows the age profile of SP AusNet's RTUs.

Figure 5-20: Age profile of SP AusNet's RTUs



Source: SP AusNet

SP AusNet has developed the following initiatives in order to enhance the performance of the SCADA and network control systems, and so maintain the integrity of services:

- **SCADA control to High and Medium pressure networks:** This involves upgrading all high and medium pressure networks to SCADA control. Upgrades will provide enhanced and automated control of networks allowing the networks to be run at the minimum code compliant pressure providing asset longevity, safety and risk benefits.
- **Communications:** Examples include the installation of new communication radio base stations to service growth, and the replacement of existing RTUs utilising GPRS communications.
- **Asset Replacement:** Replacement of defective or obsolete equipment due to age and serviceability constraints.
- **Fringe RTU Relocation:** As the size and flow characteristics of networks change, the fringe points of existing networks also change. Existing fringe points need to be relocated and additional fringe points installed to correctly control and monitor network pressures.
- **Minor SCADA Replacement:** Replacement of small components (i.e. pressure transmitters, fringe pressure switches, motor/pilots, solar regulators, etc.) that are subject to failure each year.

- **Innovation:** Introduction of innovative solutions to improve the acquisition of data from the field.

The forecast capital expenditure for SCADA and network control reflects SP AusNet's best assessment of the cost of delivering the above initiatives. SP AusNet considers that the work program and the resulting capital expenditure represent the prudent level of required expenditure, noting in particular the benefits of extending SCADA coverage and improving network control. The forecast capital expenditure is consistent with rule 79(1) and 79(2)(c), which requires that it is prudent and efficient, and justified as necessary in order to:

(i) maintain and improve the safety of services; or

(ii) maintain the integrity of services; or

(iii) comply with a regulatory obligation or requirement; or

(iv) maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

5.9 Information and Communication Technology

5.9.1 Overview

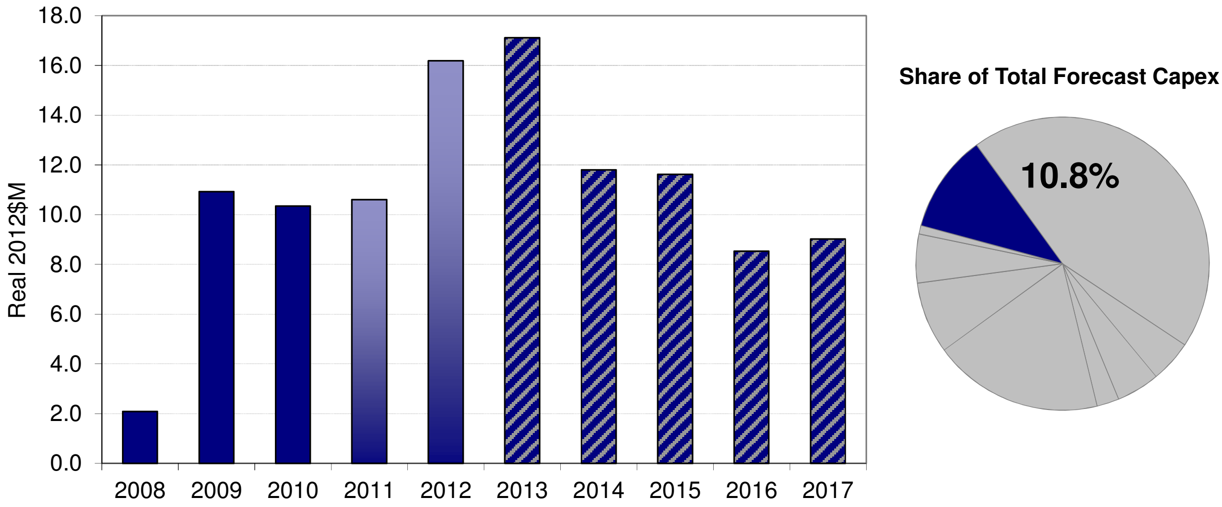
The focus of SP AusNet's Information and Communication Technology (ICT) strategy is to support the delivery of the Gas Network objectives of:

- Maintaining and improving safety in accordance with the Gas Safety Case;
- Maintaining integrity of the network;
- Maintaining the capacity of the network, and
- Maintaining customer Service Levels.

The ICT strategy and the resulting capital expenditure is therefore consistent with rule 79(2)(c).

Figure 5-21 shows SP AusNet's forecast Information and Communication Technology (ICT) capital expenditure. The pie chart shows the ICT capital expenditure as a proportion of total capital expenditure.

Figure 5-21: IT capital expenditure



Source: SP AusNet, actual 2008-10, estimate 2011-12, forecast 2013-17.

5.9.2 Explanation of Proposed Expenditure

As the owner of three network businesses, SP AusNet is in a position to deliver benefits to customers through the use of common systems and processes across its gas distribution and electricity transmission and distribution businesses. This approach ensures efficient application of capital and lower operating costs than would be the case if individual systems were developed for each network business.

The approach of utilising common systems and processes across our three network businesses was a key foundation of SP AusNet's 2011 Electricity Distribution Price Review (EDPR) submission for the 2011-2015 period and our 2009 AMI submission. In the AER's determinations for both AMI and the EDPR, ICT programs of work have been approved on the basis that the costs will be allocated to SP AusNet's three network businesses. The ICT projects approved in the AER's determination for AMI and the last EDPR form the basis of this submission for our gas network and constitute 78% of the required investment.

During the third regulatory period (2008-2012), the high standard of gas network performance achieved by SP AusNet was facilitated through the following ICT programs of work. Highlights include:

- **Asset Management:** Improved safety and maintained network integrity through the delivery of a drawing management system and an upgrade to the gas Geographic Information System (GIS).
- **Network Management:** Improved safety and customer service through the delivery of a new Supervisory Control and Data Acquisition (SCADA) system.
- **Metering Services:** Laid a foundation, shared with the AMI program, of a new customer management system that will be enhanced during the next regulatory period to support gas customers, ensuring customer service levels are maintained whilst the customer base continues to grow.
- **Corporate Services:** Introduced "Cloud Technology" for email to provide cost effective workforce collaboration and completed an upgrade of our enterprise financial system.
- **Enterprise Application Integration:** To maintain the integrity of our network a new Enterprise Application Integration (EAI) platform will be deployed.

In addition, to maintain capacity of our network, reporting has been upgraded and ICT infrastructure that has reached end of life has been replaced.

As at the end of 2011, $34M had been invested against a target of $37M. It is forecast that at the end of the current regulatory period $50M will be invested against a benchmark allowance of $42M. Variations to plan include:

- Lower network management investment ($6M) due to the lower cost of the SCADA projects and deferment of the outage management system to enable a lower cost delivery.
- Higher EAI investment ($3M) due the unforeseen decision of Oracle to retire SP AusNet's existing platform requiring SP AusNet to replace the platform.
- Higher corporate services investment ($1M) due to the commencement of our financial systems replacement and implementation of project and content management systems.
- Higher infrastructure investment ($9M) due to replacement of data centre infrastructure, server upgrades and Standard operating system.
- Higher Metering and Services automation investment ($1M) due to system changes related to National Energy Customer Framework (NECF) changes.
- Higher investment of ($1M) on other projects such as Field Mobility and office moves.

As noted above, the capital program of work for the 2013-2017 period builds on those programs that have been previously approved by the AER for electricity distribution and AMI on the basis of costs being shared by SP AusNet's three network businesses. The programs are focused on further improving safety and maintaining network capacity and integrity and maintaining customer service levels. The programs of work align with our corporate ICT strategy principles of reducing complexity, adopting best fit solutions and capturing data once. The 2013-2017 ICT capital investment program includes:

- Asset and Works Management: Improve safety and maintain network integrity and capacity through the delivery of a new consolidated and integrated enterprise asset and works management platform to drive efficiencies across end-to-end asset and works management processes.
- Network Management: Improve safety and maintain network integrity and customer service through the delivery of an improved outage management system and upgrades to the SCADA system, including improvements to pressure management.
- Customer and Meter Management: Maintain the level of customer service through the migration of customers to a new customer management system.
- Workforce Collaboration: Improve safety and maintain customer service through the provision of systems to support the effective scheduling, dispatching and execution of work.
- Analytics and Reporting: Maintain network capacity through the provision of improved analytics and reporting.
- Back Office Management: Maintain customer service by ensuring back office systems meet the increased volume of business transactions.
- ICT Infrastructure and Operations: Maintain network integrity by ensuring ICT infrastructure is up to date, robust, scalable, and agile to support the changing business needs and ongoing initiatives.
- An allocation of AMI Systems and Infrastructure capital expenditure reflecting SP AusNet's ability to more efficiently deliver the AMI program by leveraging IT systems across SP AusNet's regulated networks.

In addition to the benefits of improved safety, maintained network integrity and capacity, and maintained customer service, the proposed investment in ICT results in the planned customer growth and associated network growth being met without a commensurate increase in business operating costs. The investment required to achieve this outcome is $58M over the 2013-2017 period. This is a prudent approach to managing the costs associated with customer growth and network expansion.

5.9.3 ICT Capital Program Overview

This section outlines the identified ICT program of work proposed for the 2013-2017 regulatory period.

Table 5-5: ICT Forecast capital expenditure

	Real 2012 $M					
Initiatives	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
Asset & Works Management	1.7	0.2	0.2	0.1	3.2	5.4
Network Management	0.0	1.7	0.0	2.4	0.8	4.9
Customer & Meter Management	1.9	0.0	3.9	0.0	0.0	5.8
Workforce Collaboration	2.8	1.2	0.2	1.5	0.0	5.7
Back Office Management	2.9	0.3	1.2	0.0	0.0	4.4
Analytics & Reporting	0.9	0.7	0.0	0.5	0.5	2.7
IT Infrastructure & Operations	5.8	7.8	6.1	4.1	4.5	28.2
AMI Systems & Infrastructure	1.0	0.0	0.0	0.0	0.0	1.0
Totals	**17.1**	**11.8**	**11.6**	**8.5**	**9.0**	**58.1**

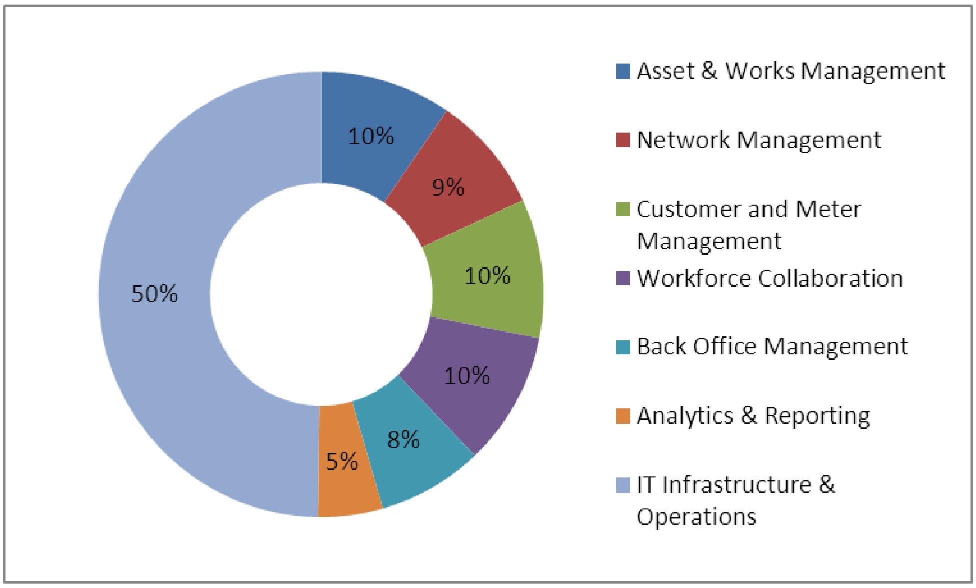
Source: SP AusNet

The ICT Program of Work has been categorised into seven inter-related programs as illustrated in the figure below. These programs are further divided into 51 projects. This structure has been adopted as it:

- Provides the best segregation of business capabilities, processes, ICT systems, and organisation context around sponsorship, ownership, accountability and change management, to maximise the effective governance of the overall ICT Program; and
- Correlates to the strategic requirements of ICT focus needed to support the delivery of the gas network asset management strategy and SP AusNet's corporate business.

The programs of work are consistent with the 2011 EDPR submission where project were proposed and approved on the basis that the work supports multiple networks. The forecast capital expenditure associated with the ICT program of work consists of seven inter-related programs. The figure below illustrates the breakdown of forecast capital expenditure to each program.

Figure 5-22: ICT Forecast capital expenditure breakdown



Source: SP AusNet IT Strategy. Excludes AMI IT & Infrastructure allocation.

The ICT program of capital work is summarised below.

Asset and Works Management

The Asset and Works Management Program is focused on delivering improved safety, maintaining network integrity and capacity and maintaining and improving customer service for the long term, by improving data quality, consolidating and modernising ICT systems, and assurance of compliance and regulatory obligations through repeatable, transparent and auditable processes. The projects within this program will:

- Consolidate and integrate the enterprise asset and works management platform to drive efficiencies across end-to-end asset and works management processes. In accordance with the ICT objective of “less is more” this will consolidate the disparate asset management systems to a strategic common platform and reduce the number of vendors.
- Enhance spatial capabilities that will enable geographical visualisation of assets and work activities, thus maintaining the safety of the asset.
- Deliver functional upgrades to the Enterprise Project management and drawings management systems to ensure vendor support.

Customer and Meter Management

The customer and meter management program will focus on providing facilities to maintain the level of customer service with an increasing number of customer interactions over the next five years. The projects within this program will:

- Enable a consolidated single view of customer data through migration and upgrades to the Customer Information System;
- Enable customer self-service to maintain efficiency with increasing customer interactions; and
- Enable system changes to comply with NECF related changes.

Workforce Collaboration

This program provides workforce mobility capabilities, including scheduling and vehicle location management that will enable SP AusNet to effectively manage an increased work load associated with our increasing customer base. The project will enable the effective scheduling, dispatching and execution of work, and enable the transfer of timelier, more accurate data to and from the field.

Back Office Management

The Back Office management program is focused on consolidation of core business systems including Billing, Financial, Payroll, HR, Corporate Learning, Risk Management, and Health and Safety. This will enable the organisation to effectively support the volume of activity anticipated in the next five years, driven by the level of asset replacement and maintenance works as set out in the Asset Management Strategy. The projects within this program will:

- Standardise and consolidate back office operations to enable the support functions to be delivered more efficiently;
- Increase capacity and capability to manage the corporate financials and activity-based costs in a more coordinated and efficient manner; and
- Support risk management for identified health, safety and environmental hazards, and enable a broader platform to more effectively manage human resources and workplace relations.

Analytics and Reporting

The key drivers for this program are poor data quality; lack of actionable intelligent analytical data; increasing data volumes through major business activities such as asset replacement, and obsolete reporting platforms and systems. In response to the above, SP AusNet has developed an Information Management strategy that revolves around management of information, data standards, reporting and information capture across all activities in the organisation. The projects within this program will:

- Upgrade existing reporting, integration and analytics infrastructure to a modern, integrated and consolidated platform;
- Enable more accurate, timely and relevant report generation for internal and external stakeholders;
- Provide flexible reporting capabilities to address specific organisational, regulatory and compliance reporting requirements;
- Implement an Enterprise Content Management platform that will manage content presentation and delivery from various sources in the organisation to all users including the field workforce; and
- Define and implement data standards and processes (i.e. common data model, authoritative data sources, and data governance) to improve data integrity, which will enable more effective and efficient reporting and analytics capabilities.

IT Infrastructure and Operations

SP AusNet has IT infrastructure and communications assets that are or near end of life, at a point where they are no longer supported by vendors, or they are operating beyond their economical asset life. The projects in this program aim to ensure that the IT infrastructure is up to date, robust, scalable, and agile to support ongoing initiatives and the changing needs of the business. The IT Infrastructure and Operations program will:

- Upgrade existing Richmond and Rowville data centres and storage infrastructure;

- Replace end of life server infrastructure and implement server virtualisation to drive efficiencies and lower costs;
- Replace end of life desktop equipment to maintain staff efficiency;
- Implement robust security and intrusion prevention and identity and access management capabilities;
- Replace and/or upgrade network and communications infrastructure to support both existing (legacy) and future requirements, including consolidation of Ethernet and synchronous services into the backhaul and radio (operational) networks, IPv6 protocol migration, a unified VoIP solution, and secure wireless access;
- Support existing and future remote field device communications through the Radio Access Network; and
- Maintain and enhance communications network operational support systems to support security and operational requirements.

Network Management

Network management systems are critical to maintaining network integrity and customer service. The projects in this program are focused on ensuring these critical systems continue to meet the business needs. They involve upgrading the SCADA system to minimise the risk of failure (one hardware and software upgrade) by ensuring the system and its components remain in vendor support.

AMI systems and infrastructure related IT capital expenditure

SP AusNet allocates an appropriate amount of AMI-related IT capital expenditure to each of its three regulated networks outside of the AMI program. This reflects the case that SP AusNet can more efficiently deliver the AMI program by leveraging IT and infrastructure across all of SP AusNet's regulated networks. This approach has been accepted by the AER in recent AMI and Electricity Distribution price determinations. Using the project allocations from SP AusNet's regulatory accounts (which reflect the allocations previously approved by the AER in the 2011-15 EDPR), and the forecast 2012-15 AMI IT capital expenditure approved by the AER in SP AusNet's 2012-15 AMI Budget and Charges Application, SP AusNet has derived the forecast allocation of AMI systems and infrastructure related IT capital expenditure which is presented above in Table 5-5.

Concluding comments

The information set out above and detailed in SP AusNet's ICT strategy demonstrates that the proposed ICT capital expenditure complies with the NGR definition of conforming capital expenditure because it has been prudently and efficiently scoped and is justified with reference to rule 79(2)(c). In addition, the expenditure will ensure that customers benefit over the longer term, providing modernised service that will lead to efficiencies over time.

5.10 General capital expenditure

SP AusNet incurs a minor amount of 'general' capital expenditure which does not fall into any of the above categories. This expenditure covers assets such as motor vehicles, telecommunications equipment and office furniture. SP AusNet has forecast general capital expenditure based on historical average expenditure, removing any large one off items. SP AusNet's forecast 2013-2017 general capital expenditure is presented in Table 5-6.

Table 5-6: Proposed allowance for general capital expenditure, 2013 to 2017

($M, real $2012)	2013	2014	2015	2016	2017
General capital expenditure	0.34	0.34	0.34	0.34	0.35

Source: SP AusNet

5.11 Capital Overheads

5.11.1 Approach to Overhead Capitalisation

SP AusNet incurs overhead costs in scoping and delivering capital projects that cannot be allocated to each specific project. For example, a design engineer can be involved in multiple project designs and it is not efficient to record the individual's time/costs expended on each individual project. However, it is appropriate that a portion of the design engineer's costs are capitalised to reflect the role played in ultimately commissioning the assets which were designed. Similarly, some of the costs associated with support staff (including Finance, Health and Safety, Risk and Assurance, etc.) are also capitalised to reflect the fact that these staff support both the operating and capital activities of the business.

SP AusNet's approach to capitalising overheads is set out in its Electricity Distribution Cost Allocation Method (CAM)[35] which was approved by the AER on 17 December 2010. SP AusNet's CAM is discussed further in Section 6.5.1.

As discussed in SP AusNet's CAM and internal accounting policy *'FIN 10-13 – Capitalisation of Overheads'*, a systematic approach is employed to calculate and capitalise reasonable overhead costs in the construction of new network assets. The overhead capitalisation process references Activity Based Costing (ABC) survey results, forecast cost information and a 'true-up' mechanism to ensure that appropriate overhead costs are reflected within reported capital expenditures at the end of each quarter.

The overhead capitalisation rate which is systematically applied to network capital projects through the year is based on the following formula:

$$\frac{\text{Forecast Overhead Costs (for each network)}}{\text{Forecast Direct Capital Expenditure (for each network)}}$$

This network-specific rate is then applied to all direct capital expenditure for that network (i.e. transmission, electricity or gas) automatically through the financial system at the end of each month. The application of capitalised overheads to gas network projects is, in the first instance, in direct proportion to the direct capital expenditure incurred against the project.

The overhead cost pool subject to capitalisation reflects the residual 'shared' costs remaining within each SP AusNet cost centre, after the direct attribution of all project-costed labour and non-labour expenditure. Where the ABC survey for the cost centre allocates a percentage of cost centre effort for the period to support capital work, then that percentage of the cost centre's residual overhead cost pool is transferred to 'capitalised overheads' and ultimately allocated to qualifying capital works projects within Work-In-Progress (WIP) (via the overhead capitalisation rate). The operating costs of the cost centre are subsequently reduced by the amounts capitalised. SPIMS costs are also included within the overhead cost pool.

35 The Electricity Distribution CAM is a requirement under the National Electricity Rules (NER), as is a Transmission CAM, which was approved in 2008. Under the NGR, SP AusNet is not required to prepare a CAM for the gas distribution network, however the manner in which costs are allocated to the gas distribution network is identical to the methodology described in the electricity distribution CAM.

Recognising that many of the overhead costs are fixed or semi-fixed in nature, the overheads systematically capitalised are reviewed quarterly and adjusted to take into account movements in actual overhead costs (compared to forecast) and the results of the most recent ABC survey. Adjusting 'true-up' entries are effected in the financial system if the quarterly overhead review process identifies that an under, or over, capitalisation of overhead costs has occurred during the period.

In addition to the overhead cost pool, some overhead costs relating to the Tenix contract servicing are more direct in nature. These costs are directly posted to the project as these costs can be more accurately allocated in this manner, rather than through the ABC Survey process. Total overheads therefore comprise overheads directly posted to particular projects, plus the allocation of the indirect overhead cost pool referred to above.

5.11.2 Forecasting Capitalised Overheads

SP AusNet methodology for forecasting capitalised overheads for its gas distribution business is similar to that approved by the AER in the 2011-15 Electricity Distribution Price Review (EDPR) decision. SP AusNet has also had regard to recent AER decisions in the South Australia and Queensland gas networks in determining its overhead forecasting methodology.

SP AusNet's approach to forecasting capitalised overheads for network capital expenditure is as follows:

- Adopt the estimated base year (2011) capitalised overhead figure, which has been prepared on the same basis as historical regulatory account submissions. The overhead methodology described in the preceding section, which is signed off annually by SP AusNet's auditors, should give the AER confidence that this base line is an accurate reflection of the gas network's actual overheads.
- Determine an appropriate split between labour and non-labour components of overheads.
- Escalate the labour component in line with expected wage growth (refer section 6.7.1 on labour escalation).
- Escalate the non-labour component by a factor which takes into account the growth in the capital program and the fixed/variable nature of the non-labour overheads.

In SP AusNet's capital expenditure forecast modelling, the resulting overhead dollar amount is converted to an annual percentage overhead allowance, which is then allocated to each asset category. The derived percentage overhead for network capital expenditure is an average 15.4% across the access arrangement period, although it varies year-to-year.

Overhead rates relating to IT assets are significantly less than those relating to network capital expenditure. For this reason, it is not reasonable to apply the network percentage to IT capital expenditure forecasts. For these assets, the average overhead rate (based overheads divided by direct capital expenditure) underlying the figures reported in the 2008 and 2010 regulatory accounts has been used as the basis for the 2011-17 period. For IT assets, the overhead rate is 5%. General capital expenditure attracts zero overhead allocation.

In accordance with the above methodology, SP AusNet's proposed allowance for capitalised overheads is set out below.

Table 5-7: Proposed allowance for capitalised overheads, 2013 to 2017

($M)	2013	2014	2015	2016	2017
Capitalised Overheads	12.9	13.0	13.3	13.6	13.9

Source: SP AusNet

SP AusNet notes that the above methodology results in capitalised overheads increasing by a compound annual growth rate (CAGR) of 2.1% (real) across the 2013-2017 access arrangement period, whilst SP AusNet's direct gross capital expenditure forecast for the same period has a CAGR of 2.4% (real). This variance in CAGR reflects the fact that the majority of SP AusNet's overheads are fixed in nature and, therefore, do not vary 100% with the capital program. However, it is important to note that the majority of SP AusNet's capitalised overheads are internal labour, so even though the underlying resources do not change, the costs associated with those resources will vary with labour market conditions. SP AusNet is confident that its proposed methodology for forecasting capitalised overheads meets the requirements of rule 79.

5.12 Labour and Materials Escalators

The escalators used in SP AusNet's forecast capex are set out in the table below in real terms. All rates refer to growth through the calendar year. Materials escalators include the impact of the Carbon Tax.

The same expenditure escalators have been used in developing the forecast operating expenditure.

Table 5-7: Real term escalators used in developing forecast capital expenditure

Escalator	2012	2013	2014	2015	2016	2017
Labour						
Internal – Electricity, Gas and Water AWOTE	1.5%	2.6%	2.8%	3.1%	3.0%	2.9%
External – Construction AWOTE	2.2%	3.0%	3.1%	2.4%	2.5%	3.3%
Materials						
High Density Polyethylene (HDPE) Pipe	2.7%	1.1%	4.1%	3.1%	2.4%	6.1%
Steel Pipe	-3.0%	1.3%	2.0%	-0.4%	-0.1%	6.7%
Steel Average	-6.2%	2.6%	3.8%	-1.0%	-0.4%	13.0%
Copper Fittings and Products	-5.0%	0.7%	-0.2%	-1.7%	-1.9%	4.6%
Plastic Fittings and Products	1.8%	0.8%	2.7%	2.1%	1.6%	4.0%
Meters	-1.7%	0.6%	0.7%	-0.3%	-0.2%	3.0%
Regulators	-1.7%	0.6%	0.7%	-0.3%	-0.2%	3.0%
Meter Upstands	-3.1%	1.3%	1.9%	-0.5%	-0.2%	6.5%

Sources: BIS Shrapnel and SKM

The impact on capital expenditure from labour and materials escalation is approximately 8.0% (or about $39.9 million in $2012) of the total over the forthcoming access arrangement period.

The above escalators are supported by reports from suitably qualified consultants in combination with information that specifically relates to SP AusNet. In particular:

- BIS Shrapnel[36] has estimated the labour escalators. The BIS Shrapnel report, which is provided as Appendix 5F to this proposal, describes its sources, data conversions; its assumptions, including lags.
- SKM's report[37], which is also provided as Appendix 5G, describes its sources, data conversions; and its assumptions.
- In applying these escalators to the capex forecast, an internal bottom up analysis was conducted on a program by program basis to determine the initial distribution of costs among the different categories of labour and materials.

36 BIS Shrapnel, *Real Cost Escalation Forecasts to 2017 – Victoria and New South Wales*, November 2011.

37 SKM, *Victorian Gas Distribution Network annual material cost escalators 2013-17*, February 2012.

- 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. However, SP AusNet cannot provide the models which calculate the projected escalators as these are the intellectual property of SKM and BIS Shrapnel.

5.13 Total Capital Expenditure Forecast

SP AusNet's total gross capital expenditure forecast for the forthcoming access arrangement period is set out in Table 5-8 below.

Table 5-8: SP AusNet's total forecast capital expenditure

Category of Expenditure	2008-12Avg	2013	2014	2015	2016	2017
Customer Initiated	47.5	45.3	46.6	47.4	49.0	50.5
Augmentation / Reinforcement	3.0	7.0	5.6	8.3	1.2	2.9
Network Integrity	2.4	2.9	7.2	6.4	5.1	4.1
Reactive Asset Replacement	1.6	2.4	2.5	2.6	2.8	3.0
Mains Replacement	14.0	26.1	26.6	28.3	28.9	33.6
Meter Replacement	3.2	5.8	6.3	5.6	5.6	5.6
SCADA & Innovation	0.8	1.0	1.0	1.1	1.0	1.1
IT	10.0	17.1	11.8	11.6	8.5	9.0
General	0.5	0.3	0.3	0.3	0.3	0.3
TOTAL	**83.0**	**108.0**	**107.9**	**111.6**	**102.4**	**110.1**

Source: SP AusNet

The information and analysis presented in this chapter demonstrates that the forecast capital expenditure complies with the NGR requirements relating to conforming capital expenditure. In particular, the forecasts have been developed to reflect the capital expenditure that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. In addition, each category of capital expenditure can be justified with reference to one or more elements in rule 79(2), and in a number of instances with reference to 79(2)(c).

Furthermore, SP AusNet has explained the basis of its forecasts or estimates in accordance with rules 74 and 75, which requires all forecasts to be reasonable and supported by a statement of explanation and for source data to be provided.

6 Operating Expenditure Forecast

6.1 Summary of Key Points

This chapter provides an overview of SP AusNet's operating expenditure forecast. The key points are set out in this section and explained in detail in the rest of the chapter.

SP AusNet's forecast total operating expenditure for the forthcoming access arrangement period is $272.6 million (expressed in $2012). The operating expenditure for each year (which includes debt raising costs) is shown in Table 6-1 below, as required by rule 72(1)(e).

Table 6-1: Operating expenditure forecasts

($2012M)	2013	2014	2015	2016	2017
O&M Expenditure	50.8	52.7	54.3	56.4	58.4

Table 6-2 below shows the components of the operating expenditure forecast. Labour costs are the primary driver of forecast increases in operating expenditure. Forecast productivity improvements reduce expenditure by $5.6 million over the next regulatory period.

Table 6-2: Operating expenditure drivers

Component	Total Contribution ($2012 m)	Total Contribution (%)
Recurrent Costs	223.6	82.1
Input Prices		
Labour	*16.9*	*6.2*
Materials	*0.1*	*0.0*
Network Growth	12.2	4.5
Productivity	-5.6	-2.1
Step Changes	12.3	4.5
Zero Based Costs	13.2	4.8

The forecast includes $12.3 million for step changes to operating expenditure that will occur in the 2013 to 2017 period. These increased operating costs are the result of the introduction of the National Energy Customer Framework (NECF), the Carbon Tax (the Clean Energy Act), as well as some planned changes in network operations. SP AusNet's forecast operating expenditure also includes $13.2 million for expenditures that are 'zero based' for the purposes of base year and 'rate of change' forecasting. These include debt raising costs, and a revision to capitalisation policy with some categories of refurbishment expenditure being treated, from 2012, as operating expenditure.

No operating cost allowance is proposed in regard to uninsured risks. It is expected that the level of deductible expenditure in 2011 will be broadly reflective of a typical year, therefore, no further adjustment has been made.

More information on SP AusNet's forecast expenditure is contained in the Regulatory Templates and SP AusNet's operations and maintenance forecast model.

6.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 6.3 cites the applicable regulatory requirements.
- Section 6.4 summarises the approach taken to forecasting.
- Section 6.5 provides the derivation of base year operating costs.
- Section 6.6 provides the rate of change formula that is applied to generate forecasts of operating expenditure.
- Section 6.7 to 6.9 summarise the forecasts for the components of the rate of change formula, and the basis for those forecasts.
- Section 6.10 summarises step changes to operating expenditure.
- Section 6.11 summarises costs, including debt and equity raising costs, that were not included in the base year and 'rate of change' forecasting and that need to be added in to total operating expenditure.
- Section 6.12 provides the total operating expenditure forecast.

6.3 Regulatory Requirements and SP AusNet's Compliance

Rule 72(1)(e) states that the access arrangement information for a full access arrangement proposal must include a forecast of operating expenditure over the access arrangement period and the basis on which the forecast has been derived.

Rule 91(1) requires that:

> *"Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services."*

It is noted that rule 91(2) states that the AER's discretion under rule 91 is limited in accordance with rule 40(2), which provides that:

> *"If the Law states that the AER's discretion under a particular provision of the Law is limited, then the AER may not withhold its approval to an element of an access arrangement proposal that is governed by the relevant provision if the AER is satisfied that it:*
>
> *(a) complies with applicable requirements of the Law; and*
>
> *(b) is consistent with applicable criteria (if any) prescribed by the Law."*

Rule 40(2) provides an example which explains that in relation to a matter (such as operating expenditure forecasts) where the AER's discretion is limited, the AER cannot, in its decision, insist on change to an aspect of that matter unless the AER considers change necessary to correct non-compliance with a provision of the Law or application provisions of the NGR. Even though the AER might consider change desirable to achieve more complete conformity between the service provider's proposal and the principles and objectives of the Law, it would not be entitled to give effect to that view in the decision making process.

As noted in section 4.2, rules 74 and 75 require SP AusNet to explain the basis of any forecasts or estimates adopted in its access arrangement proposal. In addition, any input data used in producing the forecasts or estimates must be provided. The NGR also require that the resulting forecasts or estimates must be the best possible in the circumstances.

As noted in section 5.2, rule 73 requires financial information to be provided on a recognised basis for dealing with the effects of inflation. The basis on which financial information is provided must be stated, and all financial information must be provided, and all calculations made, consistently on the same basis.

The forecast information set out in this chapter accords with all of the applicable requirements of the NGR.

In addition to the required information SP AusNet provides a number of Appendices that support the expenditure forecast, including:

- Appendix 6A – Report detailing the Rate of Change forecasting methodology applied to operating expenditure;
- Appendix 6B, Appendix 6C, and Appendix 6D – Detailed reports on SP AusNet's historical productivity and efficiency performance, and forecast productivity growth.
- Appendix 5F and Appendix 5G – Independent expert reports on labour and materials cost pressures, respectively;
- Appendix 6E, Appendix 6F, and Appendix 6G – Supporting information on step changes, and zero based costs included in the total operational expenditure build up;
- Appendix 6H - SP AusNet's electricity distribution cost allocation method; and
- Appendix 6I - Report of gas network faults.

6.4 Forecasting Methodology

This section explains SP AusNet's operating expenditure forecasting methodology. The key elements in SP AusNet's forecasting methodology for operating expenditure are set out below:

- Those recurrent costs, which are included in the base year (2011), are estimated to be $44.7M, expressed in 2012 prices. This recurrent cost base includes normalised maintenance contract expenditure and operating expenditure which includes an allocation of shared corporate costs in accordance with the approach outlined in section 6.5.1.
- The future trajectory of the bulk of operating expenditure is determined by the 'rate of change' relationship described in the formula below:

  $$\Delta\text{real opex} = \Delta\text{real opex price} - \Delta\text{opex partial productivity} + \Delta\text{output quantity.}$$

  The formula states that the change in operating expenditure in real terms is a function of: (1) the forecast real increase in input prices (labour and materials); minus (2) the expected productivity improvement; plus (3) the expected increase in output.

  The rate of change for 2012 is based on a $1.5 million real increase to operating expenditure that was allowed under the price review for the current regulatory period.

  The derivation of the 'rate of change' formula that is used by SP AusNet for forecasting 2013 to 2017 operating expenditure has been determined by Economic Insights, as have forecasts of SP AusNet's productivity and output growth over the next regulatory period.

  The output growth forecast incorporates the impact of demand growth and new customer connections on operating expenditure. While the forecast of future productivity improvements is based on an understanding of historical performance of Australian and New Zealand Gas Distribution Businesses (GDBs) and information specific to SP AusNet's circumstances as it enters the next regulatory period.

  Economic Insights' report is provided as Appendix 6A.
- Projected increases in materials and labour costs are based on advice from SKM and BIS Shrapnel respectively. BIS Shrapnel used publicly available indices and econometric modelling to project the likely outcome for labour costs over the next regulatory period, while SKM forecast material prices using a combination of privately held and publicly available data series. These projections are applied to SP AusNet's operating

expenditure, based on the 2011 allocation of resources between labour and materials, to forecast future input prices.

- Step changes in costs are expected to arise in the forthcoming access arrangement period, and also need to be accounted for in SP AusNet's operating expenditure forecasts. For example, as the National Energy Customer Framework will commence on 1 July 2012, the associated costs are not included in the base year costs. Increases are also expected in relation to SP AusNet's Gas Safety Case obligations and Carbon Tax compliance costs.
- Finally, costs not included in the 2011 base year and 'rate of change' forecast are added back to determine total operating expenditure. These costs include an allowance for debt and equity raising costs, some costs affected by a change in SP AusNet's capitalisation policy, and some SPIMS and overhead costs that will be reallocated during the next regulatory period.

The forecasting methodology described above provides a sound basis for ensuring that the resulting operating expenditure forecasts comply with the requirements of the NGR. Specifically:

- The recurrent cost base is derived from recent actual expenditure undertaken in a regulatory and commercial environment that provides strong incentives for cost reduction. This enables the AER to infer, pursuant to rule 71(1), that SP AusNet's actual operating expenditure in 2011 is efficient.
- The 'rate of change' applied to 2012 reflects the rate of change assumed within the final decision for the current access arrangement period, ensuring the appropriate implementation of the principles of the existing efficiency carryover mechanism and the intention of the existing access arrangement.
- The forecasting methodology is robust and the inputs are well substantiated in accordance with the requirements of rules 74 and 75.
- The forecasting methodology and inputs provide a basis for producing operating expenditure forecasts that have been arrived at on a reasonable basis and represent the best forecast possible in the circumstances, as required by rule 74(2).
- The detailed explanatory information provided in this chapter demonstrates that SP AusNet's application of the methodology produces forecasts of operating expenditure consistent with that which would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services, as required by rule 91(1).

6.5 Base Year Operating Expenditure

SP AusNet's approach to forecasting operating expenditure extrapolates from the latest estimate of actual costs incurred during 2011. In doing so, the forecasting methodology assumes implicitly that 2011 actual operating expenditure is efficient. SP AusNet notes that rule 71(1) explains that:

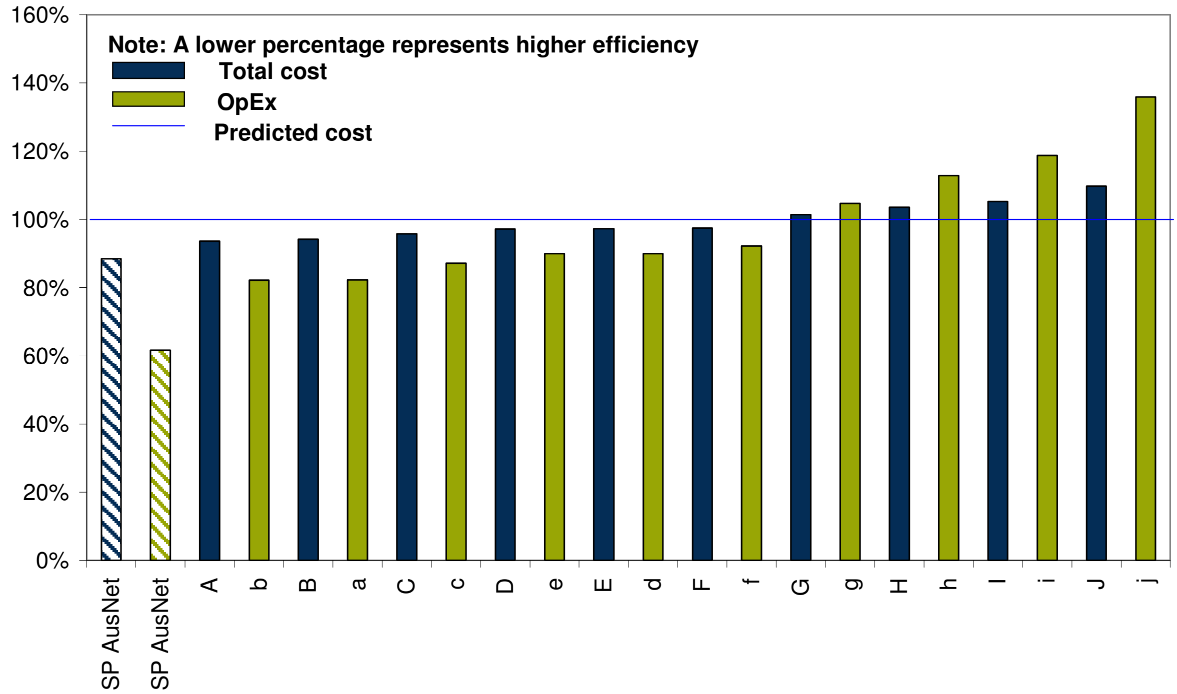
> *"In determining whether capital or operating expenditure is efficient and complies with other criteria prescribed by these rules, the AER may, without embarking on a detailed investigation, infer compliance from the operation of an incentive mechanism or on any other basis the AER considers appropriate."*

SP AusNet regards the incentive properties provided by the current regulatory regime to be such as to enable the AER to conclude that actual operating expenditure in 2011 is efficient. In addition, work undertaken by Economic Insights has established SP AusNet as one of the most efficient gas networks in Australia.

In their report 'Econometric Estimates of the Victorian Gas Distribution Businesses' Efficiency and Future Productivity Growth' (Appendix 6B), Economic Insights developed a cost function for gas businesses based on econometric analysis of historical industry data from nine Australian and two New Zealand GDBs. That is, they produced an equation that describes the relationship between the outputs of a network and the expenditure required to produce that output for the average gas business in their data base. The relative efficiency of an individual business can then be measured by comparing their actual expenditure with that predicted by the cost function.

The results of Economic Insight's analysis are shown in the figure below. The analysis shows that in 2010, SP AusNet was the most efficient gas distribution business in the study in terms of operating expenditure, with actual expenditure of around only 60% of that predicted by the industry based cost function.

Figure 6-1: Actual expenditure as a percentage of those predicted by Economic Insights cost function, 2010



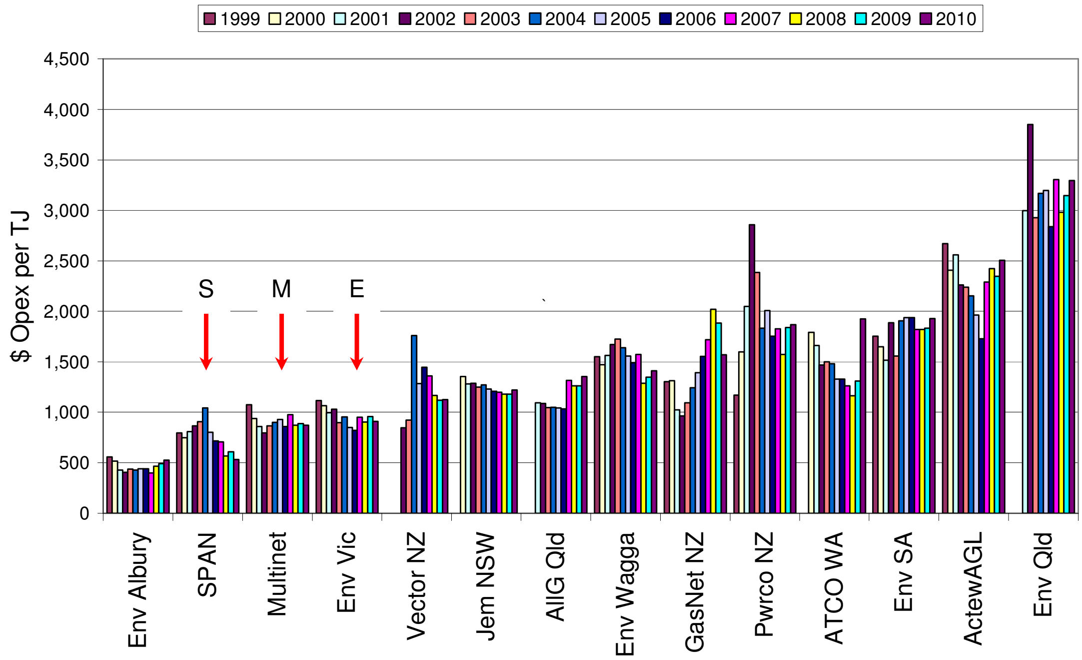
Source: Economic Insights, Appendix 6B

SP AusNet's operating expenditure efficiency was also borne out in another report by Economic Insights which benchmarked expenditure of gas distribution businesses based on network characteristics, 'Benchmarking the Victorian Gas Distribution Businesses' Operating and Capital Costs Using Partial Productivity Indicators Appendix 6C.

The figures below show the operating expenditure of 11 Australian and 3 New Zealand GDBs in relation to three measures of gas network output: terajoules (TJ) of gas delivered; total customers; and kilometres of pipelines.

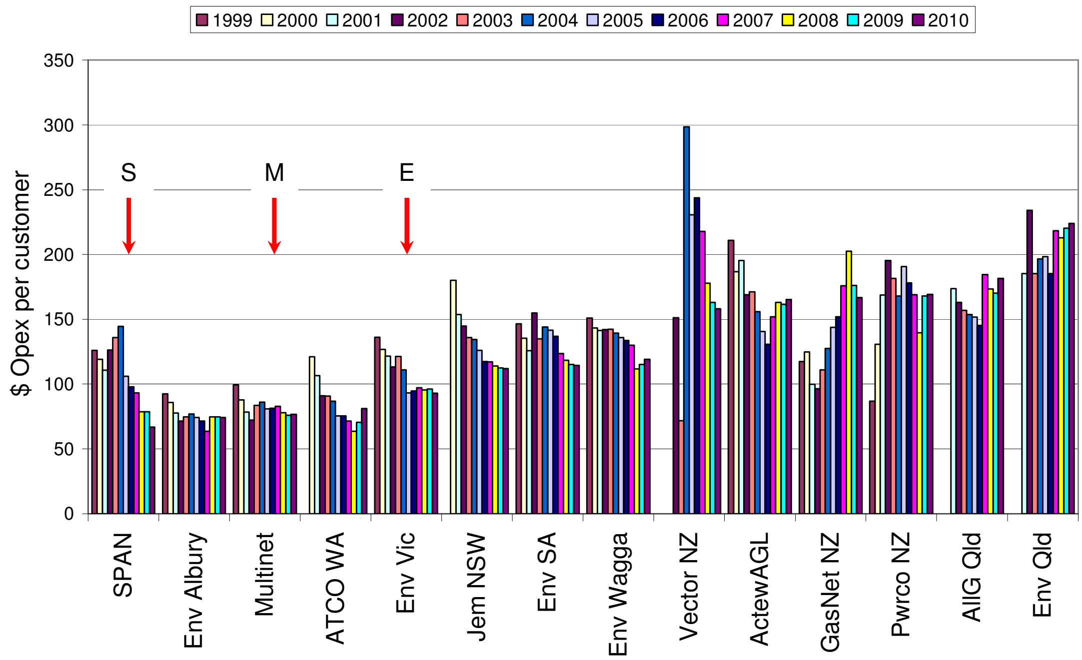
SP AusNet is among the top two performers in terms of expenditure per TJ and per customer as shown in Figure 6-2 and Figure 6-3.

Figure 6-2: Opex per TJ, 1999–2010



Source: Economic Insights, Appendix 6C

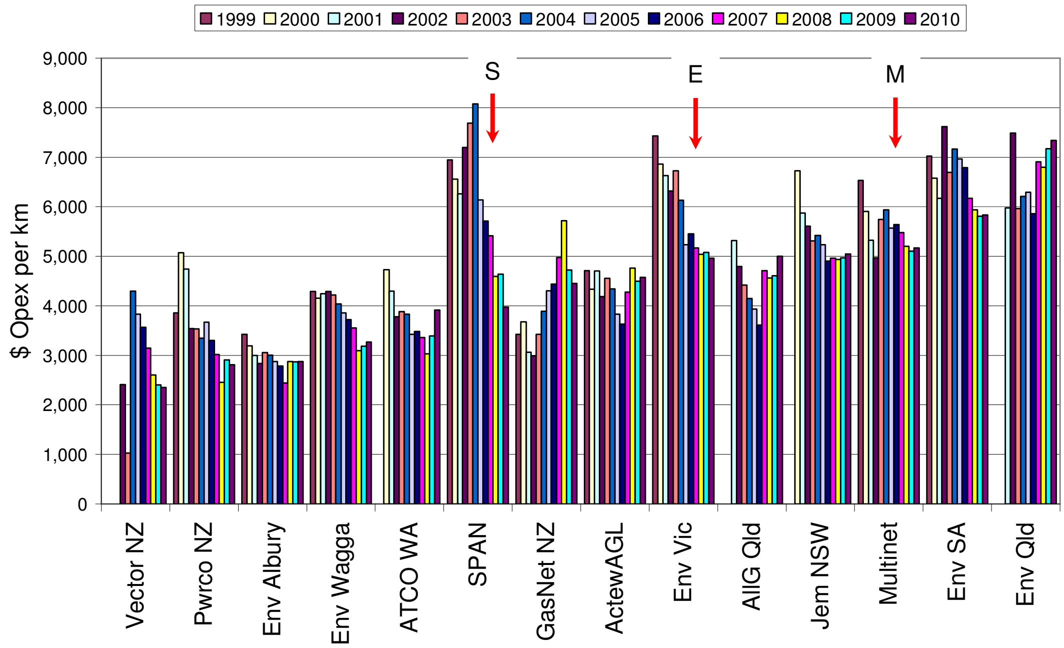
Figure 6-3: Opex per customer, 1999–2010



Source: Economic Insights, Appendix 6C

While SP AusNet is a mid-range performer on the measure of operating expenditure per kilometre of pipe, Figure 6-4 shows that SP AusNet has rapidly improved its efficiency in this area over the last decade.

Figure 6-4: Opex per kilometre, 1999–2010



Source: Economic Insights, Appendix 6C

The evidence presented above provides sound evidence that SP AusNet's actual costs during the current regulatory period provide an efficient base for developing cost forecasts for the next regulatory period.

The starting point for SP AusNet's operating expenditure forecasts is the 2011 'base year' reported operating expenditure. SP AusNet notes that rule 75 of the NGR requires that information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based. The 2011 regulatory accounts are required to be submitted to the AER by 30 April 2012, therefore, at the time of submitting this document, 2011 operating expenditure reflects the latest available estimate.

At the time of writing, forecast 2011 operating expenditure is estimated to be $44.8M (expressed in $2012). This amount is inclusive of the cost of providing Ancillary Reference Services, does not include debt or equity raising costs, and has not been adjusted to remove the costs of providing non-reference services, which are provided as required to a small part of the market on a cost recovery basis, or for any non-recurrent costs. Details of adjustments made prior to forecasting costs for the next regulatory period are provided in Section 6.5.2 and Section 6.5.4.

For reasons outlined in Section 6.5.3, 2011 was an atypical year for maintenance expenditure on SP AusNet's gas network. SP AusNet proposes not to use 2011 maintenance expenditure as its base year for the purpose of forecasting maintenance costs through the 2013-2017 regulatory period. Instead SP AusNet proposes to use a normalised maintenance expenditure based on the 2008 to 2010 average costs, which more accurately reflects the underlying costs of maintaining the gas network. This approach will provide the best forecast possible in the circumstances, as required by rule 74(2).

As with 2011 expenditures, SP AusNet regards the incentive properties provided by the current regulatory regime to be such as to enable the AER to conclude that actual operating expenditure in the years 2008 to 2010 to be efficient.

6.5.1 Cost allocation method

SP AusNet ring-fences direct and indirect costs attributable to its non-gas network activities (electricity distribution, electricity transmission and non-regulated activities) to ensure that gas customers only pay for the efficient costs of providing covered gas services.

As raised in section 5.11, unlike the NER, the NGR does not require SP AusNet to have a Cost Allocation Method (CAM) approved by the AER. However, whilst the CAMs for the electricity distribution and transmission networks focus on the allocation of costs between regulatory categories within those networks, they also contain information on how certain costs are attributed to or allocated between SP AusNet's electricity distribution and transmission networks.

In summary, costs fall into one of two categories:

- Directly attributable costs; or
- Shared/allocated costs.

Directly attributable costs include those costs which can be directly attributed to an asset class or service (for example, payment of an invoice for field services), labour costs recorded via timesheets, and manual project journals (for example, when an employee is seconded to a specific project on a temporary basis).

SP AusNet uses an 'Activity Based Costing' (ABC) process to allocate costs which cannot be directly attributed to a network and/or activity. Shared labour costs are allocated to the networks based on the results of quarterly surveys of individual staff members and cost centre managers. Significant non-labour expenses (e.g. insurance premiums) are allocated based on appropriate causal drivers, such as asset values or inventory transactions.

SP AusNet's electricity distribution and transmission CAMs are available on SP AusNet's website and contain further detail on the attribution of direct and shared costs. SP AusNet's electricity distribution CAM has also been included as Appendix 6H.

SP AusNet only recovers the costs of its reference services from its reference service prices. This is affected in the following way within the cost build up and pricing approach:

- The costs associated with non-reference services are identified and removed from the base year operating costs. In this way these costs are recovered from those customers who receive these services. SP AusNet has removed $1.6 million from the base year operating costs to ensure no non-reference costs are recovered through reference service prices.
- The costs associated with Ancillary Reference Services (ARS) are retained within the base year costs for the purpose of forecasting operational costs for the Fourth Access Arrangement Period. However the revenues from ARS are deducted from the revenue requirement prior to determining the reference service prices required to recover that revenue. In this way the costs associated with the ARS are not recovered through reference service tariffs.

6.5.2 Adjustment of base year for non-recurrent costs

In accordance with the requirements of rule 74(2) it is essential that the base year expenditure reflects a reasonable estimate of the ongoing costs of operating and maintaining the gas network. Therefore, any non-recurring movements in expenditure (either favourable or unfavourable) in the base year should be disregarded when determining SP AusNet's efficient 'base year' operating expenditure. On this basis, SP AusNet proposes to make the following adjustments to the estimated 2011 operating expenditure:

- Remove $338,000 ($2012) for the costs that SP AusNet has paid to SPIMS for the actuarial adjustment pertaining to its defined benefits superannuation contribution; and

- Remove $868,000 ($2012) expense relating to UAFG. In the forecast period (2012 to 2017), UAFG expenditure is assumed to be zero, because actual rates of UAFG are assumed to be equal to the UAFG benchmark, resulting in no financial windfall or penalty.

6.5.3 Normalisation of Base Year Maintenance Expenditure

In 2011, SP AusNet significantly under spent on maintenance costs compared to budget. This variance is attributable to unseasonal, higher than average, rainfall during the first quarter of calendar year 2011, and continued seasonal rainfall thereafter, and an existing contract structure that is favourable to SP AusNet for water related maintenance activities.

Waterlogged soil provides a reasonable barrier helping to contain fugitive gas emissions and minimise the volume of gas escaping from leaks, and thereby, reducing the numbers of publicly reported leaks and those detected by leakage survey. The wet soil also leads to less ground movement which means less pipe breakages of our older cast iron and PVC pipes. Evidence of this effect is found in SP AusNet's annual network leaks for 2011, which were 1.06 leaks/km in comparison to an annual target of 1.30, a 20% reduction. Reactive (planned and unplanned) maintenance, involving leak repairs was, therefore, significantly reduced over the year.

Conversely, waterlogged soils create water ingress into the low pressure system (where the pressure of gas within the system is insufficient to prevent water from entering through leaks). This created a rise in time spent syphoning water and restoring customer outages. Indeed, gas USAIDI was significantly above target at 1.03 minutes per customer against a target of 0.975.

Neither the worse USAIDI, nor the improved leaks/km outcome, indicate a deterioration or improvement in overall network health or performance. They simply reflect the implications of atypical meteorological conditions. In their annual climate summary for Victoria, the Bureau of Meteorology noted:

> *Preliminary rainfall totals indicate that Victoria recorded its 12th wettest year in 112 years of record [in 2011]. Most stations recorded above average rainfall with many falling into the top 10% of their wettest years on record. Exceptional rainfall at the start of the year made a large contribution to the positive annual anomaly.*[38]

Figure 6-5 and Figure 6-6 show rainfall deciles in the first quarter of 2011 and for the full year, showing the high levels of rainfall that occurred in the areas of SP AusNet's gas network.

[38] http://www.bom.gov.au/climate/current/annual/vic/summary.shtml, Accessed 1 March 2012.

Figure 6-5: Victorian Rainfall Deciles: 1 January to 31 March 2011

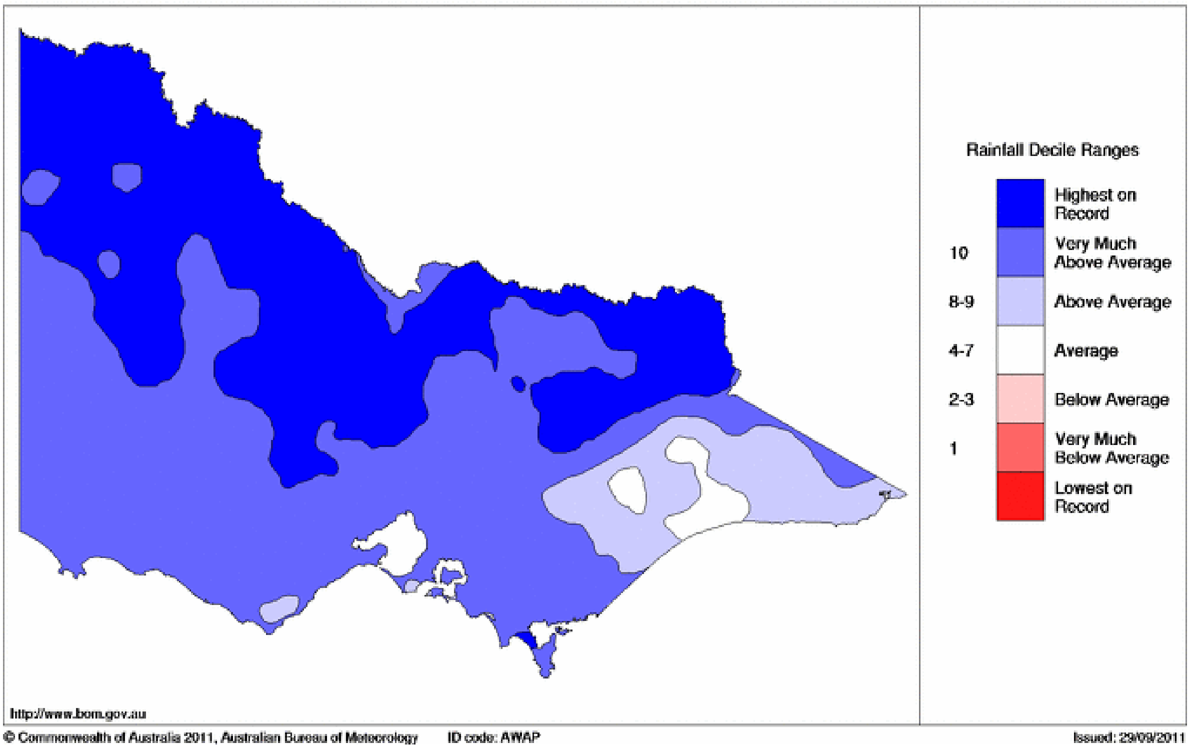


Figure 6-6: Victorian Rainfall Deciles: 1 January to 31 December 2011

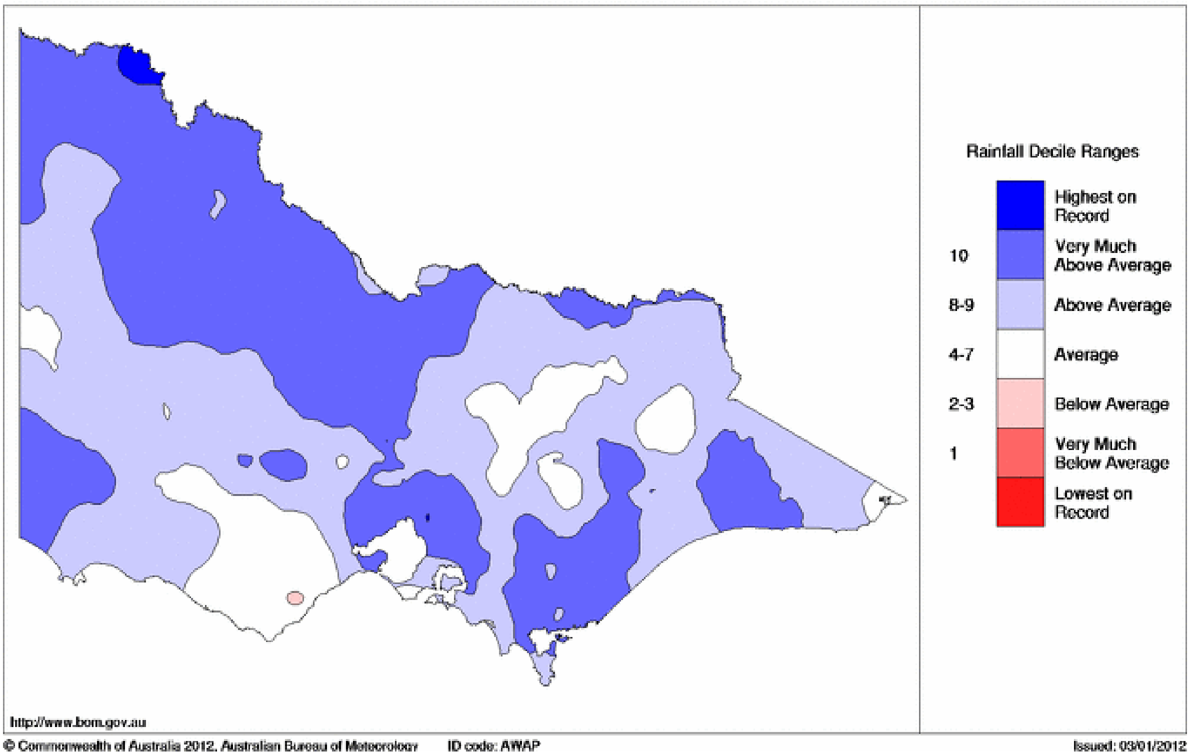
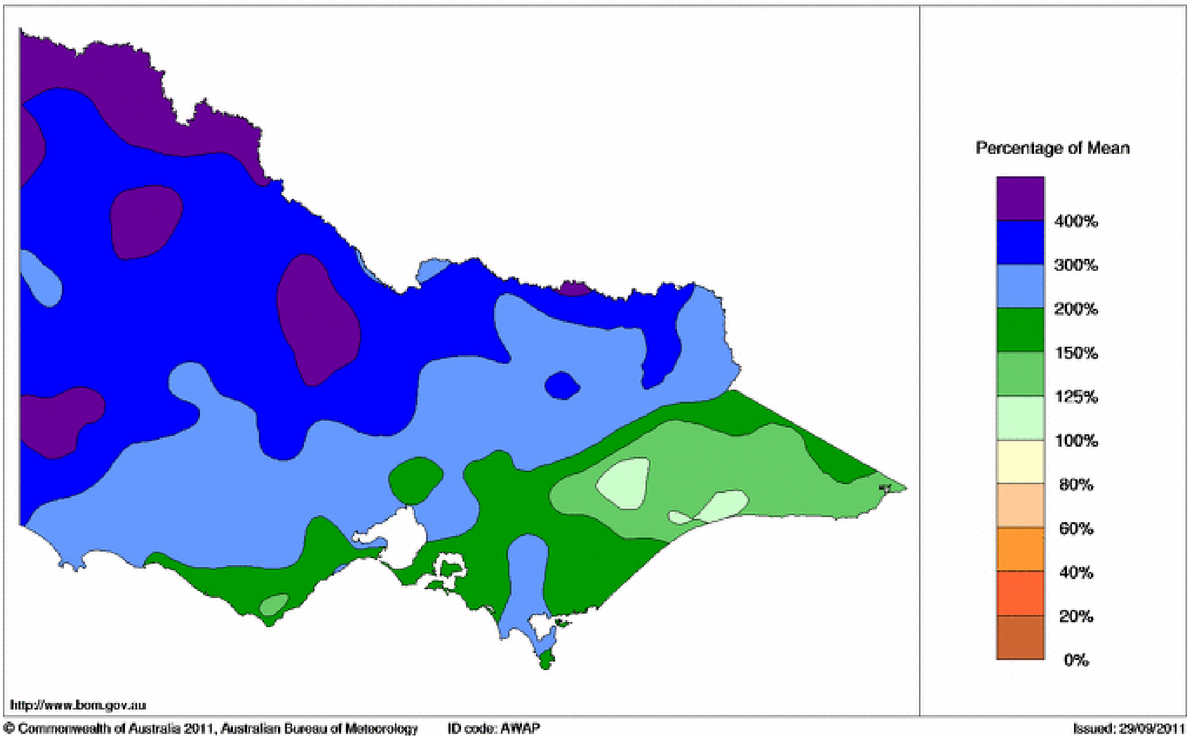


Figure 6-7 shows that in many parts of SP AusNet's gas network, rainfall in the first quarter of 2011 were between two and three times average rainfalls.

Figure 6-7: Victorian Rainfall Percentages: 1 January to 31 March 2011



The resultant waterlogged soil created circumstances where low cost elements within the contract structure increased and the higher cost elements were reduced. Under the contracting arrangements with Tenix, it is currently three times cheaper to pump water out of a main via a siphon than it is to repair a leak.

Tenix as a contractor had its workforce deployed at capacity for the entire year, but under the schedule of rates, replacing leak repairs with water syphoning and customer appliance relights, resulted in lower costs to SP AusNet. Even if these climatic conditions continued, a changed contract structure is likely to be sought by Tenix. This will seek to prevent a situation in the future where its resources are employed at full capacity during the period but the revenue earned from the contract was lower than other years in which the workload was similar. Evidence for the case that this was a high activity year, and that this reflects the current operation of the contract and not a change in the required workload, is provided by the fact that more faults were reported to the network operations centre (and therefore more unplanned activities undertaken) in 2011 than during any other year since 2004, this is shown in Appendix 6I.

SP AusNet proposes to use a normalised maintenance expenditure, based on the 2008 to 2010 average costs. The period from 2008 to 2010 saw rainfall patterns that, when taken together, were close to average (within a band of 80% to 125% of average in the western half of Victoria) and which more accurately reflect the underlying costs of maintaining the gas network. On this basis, normalised maintenance expenditure for 2011 is $14.8M[39]. This reflects a $0.93M, or 6.7% adjustment to maintenance costs.

6.5.4 Base year operating expenditure for forecasting

Table 6-3 shows the impact of the adjustments described in Sections 6.5.1 to 6.5.3 above, on base year operating expenditure.

[39] Excludes non-reference services.

For the purpose of forecasting operating expenditure for the next regulatory period, 2011 'base year' expenditure is estimated to be $43.2M in 2012 dollars, including $14.8M in maintenance expenditure, and $28.4M in expenditure on operations.

Table 6-3 Base year operating expenditure adjustments

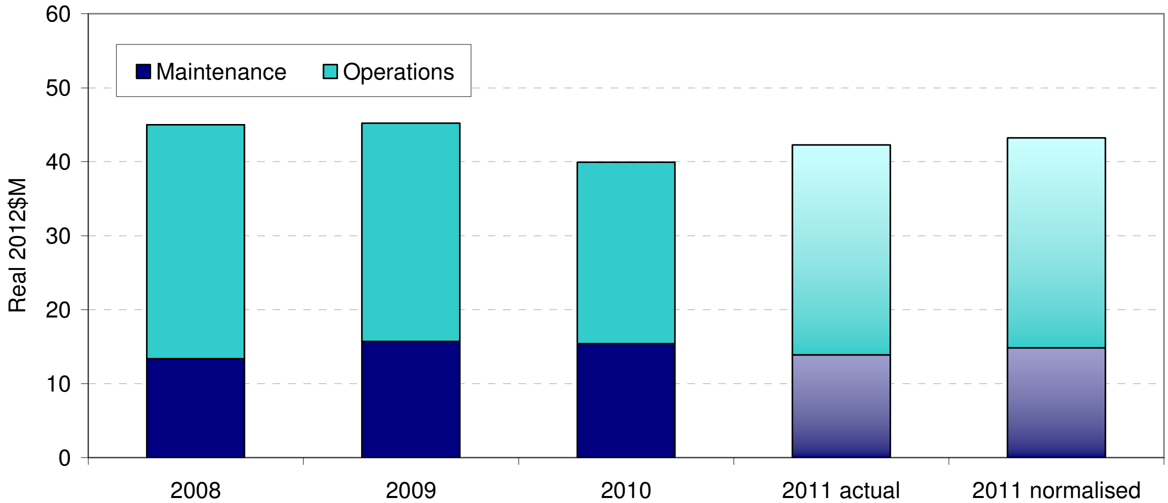
($2012 million)	Maintenance	Operations	Total	Normalised Maintenance[2]	Normalised Total[2]
2011 Regulatory Accounts[1]	15.2	29.6	**44.8**	16.4	**46.0**
Non-reference services	-1.3	-	**-1.3**	-1.6	**-1.6**
SPIMS actuarial adjustment	-	-0.3	**-0.3**	-	**-0.3**
UAFG	-	-0.9	**-0.9**	-	**-0.9**
Adjusted Opex	**13.9**	**28.4**	**42.3**	**14.8**	**43.2**

[1] *Estimate*

[2] *Normalised = 2008-2010 Average*

This is in line with previous years' operating and maintenance expenditure, as illustrated in Figure 6-8 below.

Figure 6-8: Actual and normalised (2011) operating and maintenance expenditure



Source: SP AusNet, excludes debt raising costs, historic data includes UAfG

The base year operating expenditure of $43.2M derived above is used as the basis of the 'business as usual' component of the operating expenditure forecast for the next regulatory period. This forecast is made using a 'rate of change' methodology as described in the next section. Costs that are not included in this base year figure (such as debt and equity raising costs), and step changes to costs that occur for the first time after 2011 are added back to this 'business as usual' or recurrent operating expenditure to determine the total expenditure forecast for the 2013 to 2017 period.

6.6 Rate of Change

SP AusNet has estimated a ‘rate of change’ escalator, with the assistance of economic consultant Economic Insights. The ‘rate of change’ formula defines the proportional change in operating expenditure as a function of the forecast change in input prices, the forecast growth in the network, and the forecast productivity improvements in operating expenditure.

$$\Delta\text{real opex} = \Delta\text{real opex price} - \Delta\text{opex partial productivity} + \Delta\text{output quantity}$$

Economic Insights set out the theory and precedent for this approach in their report “SP AusNet’s Gas Distribution Business Opex Rate of Change” (Appendix 6A).

This approach to forecasting future operating costs is based on established historical relationships between total opex and prices, growth and productivity. It is noted that this is distinct from a more granular bottom up forecasting methodology. The approach is consistent producing forecasts on a reasonable basis that represent the best forecast possible in the circumstances, as required by rule 74(2).

In applying a rate of change approach to forecasting opex, SP AusNet is assuming that its operations and expenditure will change in a manner that is consistent with historical industry and firm specific experience, accounting for reasonable forecasts of input prices, and SP AusNet’s productivity and network growth in the next regulatory period. The only specific changes in operations that are forecast for their impact on expenditure are those that are ‘zero based’ (i.e. not included in base year expenditure) or those that are new expenditure items, ‘step changes’. Details of step changes and zero based costs are detailed in Section 6.10 and 6.11 of this chapter.

Further details of the three key drivers of the rate of change formula are detailed in sections 6.8 to 6.10 below.

The rate of change formula is used to determine the operating expenditure forecast for each year of the forthcoming access arrangement period (2013 to 2017).

It should be noted that the rate of change for 2012 is based on a $1.5 million real increase to operating expenditure that was allowed under the price review for the current regulatory period[40]. This equates to a real rate of change of 3.5% in 2012 when applied to the normalised base year 2011 operating expenditure.

Table 6-4: SP AusNet’s rate of change forecast

Parameter	2013	2014	2015	2016	2017
Rate of Change	3.36%	3.45%	3.34%	3.08%	3.41%

Source: SP AusNet

6.7 Forecast Changes in Input Prices

The operating expenditure input prices that are used in the rate of change formula are the future movements in labour and material costs. SP AusNet’s assessment of labour and material cost escalators is provided below. In both instances, SP AusNet is proposing to use escalators that have been developed by expert consultants to ensure that the operating expenditure forecasts produced conform with the requirements of rules 74(2) and 91(1).

As not all price forecasts were available to Economic Insights when their report was developed, the price indices in their report (Appendix 6A) differ from those applied by SP AusNet in developing its rate of change and opex forecast. Specifically, SP AusNet has

[40] *The $1.5 million figure is determined after benchmarks have been adjusted for customer numbers and usage volumes as required by the Efficiency Carryover Mechanism for the current regulatory period.*

used SKM materials price forecasts (rather than BIS Shrapnel material price forecasts). SP AusNet has also used the final labour price forecasts of BIS Shrapnel[41] (Appendix 5F) and accounted for a reweighting of labour and materials over the forecast period. The table below shows SP AusNet's total real price escalation rates used in its rate of change modelling.

Table 6-5: SP AusNet's operating expenditure real price escalation rates

Parameter	2013	2014	2015	2016	2017
Real price escalation	2.3%	2.5%	2.4%	2.4%	2.6%

Source: SP AusNet

6.7.1 Labour

Labour accounts for a significant share (83 per cent in 2011) of SP AusNet's current operating expenditure.

Labour forecasts were developed by BIS Shrapnel as detailed in their report at Appendix 5F. It is noted that BIS Shrapnel is a widely quoted and respected authority on labour markets. Labour forecasts for Victoria were developed with reference to data on national enterprise bargaining agreement (EBA) results, the Victorian macroeconomic environment, and performance of competing industries for Electricity, Gas and Water (EGW) labour.

In recognition that economic data is constantly changing and that the best forecast of labour costs for the 2013 to 2017 regulatory period will be based on the most up to date data set available, SP AusNet will seek to update its labour forecasts in its revised access arrangement proposal.

BIS Shrapnel has identified (Section 4.2 of their report Appendix 5F) the Australian Bureau of Statistics' Average Weekly Ordinary Time Earnings (AWOTE) series as the most appropriate labour data series for developing escalators for the purpose forecasting future labour costs that SP AusNet will face during the 2013 to 2017 regulatory period. In their 'Rate of Change' report (Appendix 6A, Section 3.1), Economic Insights also argue that AWOTE is the correct labour input price measure for rate of change purposes.

As set out in rule 91 of the NGR:

> *"Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services."*

The alternative data series that can be used as the basis for wage forecasts is the Labour Price Index (LPI). The BIS Shrapnel report highlights that a prudent service provider as described by Rule 91 would be exposed to changes in the "quality or quantity of work performed" by its labour force over time, and to changes in "the skill levels of employees within an enterprise or industry" and not just the "pure price changes" that the LPI data series measures.

As the LPI only captures the change in the price of a set 'basket of labour' and does not reflect any additional costs or savings that may result from a change in the 'basket' that is required to operate a business in that sector. For example, if good industry practice leads to a switch to a workforce that is increasingly more skilled, then the LPI will not reflect costs associated with this. The LPI also does not include bonuses and allowances.

Because the LPI does not capture some of the drivers of change to an organisation's overall labour costs, it can deviate from the costs of a prudent operator. The AWOTE captures

[41] BIS Shrapnel identified a small number of corrections to their report, after it was provided to Economic Insights.

these other drivers of a business's labour costs as well as the 'pure price' effects, providing a better basis for labour cost forecasts, consistent with Rule 74(2) and Rule 91.

In summary, BIS Shrapnel have stated in their independent report that:

- forecast AWOTE for the Electricity, Gas and Water Supply sector should be used as the appropriate escalator for internal labour costs, while the escalator that should be used for contractor labour is forecast AWOTE for the Construction sector; and
- 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 six years to 2017, while real contractor wages (which is based on Construction) is forecast to average approximately 2.7 per cent per annum.

For further information, refer to the BIS Shrapnel report which is provided at Appendix 5F.

The following methodology has been applied to escalate labour costs for the five years of the forthcoming access arrangement period.

SP AusNet has split its labour cost escalators into two components, namely:

- an Electricity, Gas and Water (EGW) cost escalator for internal and related party labour; and
- an outsourced labour cost escalator ('Contractor' escalator based on Construction sector wage data).

The real rates of labour escalation applied in developing SP AusNet's operating expenditure forecast are shown in Table 6-6 below.

Table 6-6: SP AusNet's real labour cost escalation rates

Parameter	2012	2013	2014	2015	2016	2017
EGW Real Labour Growth Rates	1.5%	2.6%	2.8%	3.1%	3.0%	2.9%
Outsourced Real Labour Growth Rates	2.2%	3.0%	3.1%	2.4%	2.5%	3.3%

Source: BIS Shrapnel, 2011, Appendix 5F

Labour escalation contributes 6.2 per cent of total operating expenditure over the forthcoming access arrangement period.

6.7.2 Materials

Materials account for a relatively small share (17 per cent in 2011) of SP AusNet's operating expenditure.

Of the materials used in operations and maintenance, the majority fall under the description of general materials (including office supplies, etc.). SP AusNet has assumed these will follow the Consumer Price Index (CPI) for the purpose of its proposed forecast. The exception is polyethylene pipe (PE pipe) used in maintenance, the price of which is correlated to oil prices which is a major input to production.

PE pipe price forecasts were developed for SP AusNet by SKM, along with other materials price forecasts used in developing the capital expenditure forecast as discussed in Section 5.12. The SKM report, provided at Appendix 5G, details the basis for their PE pipe price forecast which uses analysis of historical price data on the correlation of PE pipe and oil prices.

The real rates of PE pipe escalation applied in developing SP AusNet's operating expenditure are shown in Table 6-7 below.

Table 6-7: SP AusNet's materials real cost escalation rates

Parameter	2012	2013	2014	2015	2016	2017
PE Pipe Escalator	2.7%	1.1%	4.1%	3.1%	2.4%	6.1%

Source: SKM, 2012, Appendix 5G

Materials escalation contributes 0.05 per cent of total operating expenditure over the forthcoming access arrangement period.

6.8 Effects of growth

As established in Economic Insights 'Rate of Change' report, the second key component of the rate of change calculation is network growth. Intuitively, an increase in the size of the gas network will be associated with some additional operational costs for the business.

Economic Insights quantified this relationship between network size and operating expenditure (and established it to be statistically significant), using their public domain database of Australian and New Zealand gas distribution businesses. The rigour applied by Economic Insights provides confidence that this aspect of SP AusNet's forecasts complies with the requirements of rule 74(2).

The formulation used by Economic Insights to measure network size was a composite of:

- Customer numbers; and
- Energy throughput.

The total network growth measure for SP AusNet was determined based on forecasts of customers and energy throughput developed by CIE.

Table 6-8: SP AusNet's output forecasts – Growth rates

Parameter	2013	2014	2015	2016	2017
Total Growth	1.71%	1.75%	1.69%	1.64%	1.62%

Source: Economic Insights, 2012, Appendix 6A

Network growth contributes 4.5 per cent of total operating expenditure over the forthcoming access arrangement period.

6.9 Forecast productivity improvements

The final element in the rate of change calculation is the forecast productivity improvements over the forthcoming access arrangement period.

Forecasts of productivity gains in SP AusNet's gas distribution business were developed by Economic Insights (Appendix 6B). Economic Insights' model used industry level data (from their public domain database) to establish a robust model of productivity growth in gas networks. The model was then applied to SP AusNet specific forecasts of inputs, outputs and environmental characteristics. This analysis indicates that SP AusNet can be expected to achieve productivity improvements averaging 0.8% per annum over the next regulatory period. The rigour of the data and analysis applied by Economic Insights provides confidence that this aspect of SP AusNet's forecasts conforms with rule 74(2).

As discussed in Section 3.6, SP AusNet has delivered significant productivity improvements over the last two regulatory periods. Further details of SP AusNet's historical productivity performance are provided in Appendix 6D. Economic Insights expects productivity gains to be significantly lower for SP AusNet in the coming regulatory period as many of the gains in productivity that have been achieved are one off in nature:

- Significant savings have been made in the Network operations category. These represent the continuation of the process of extracting synergies between the operation of the 3 networks owned and operated by SP AusNet. Many of these synergies are generated by the combined network operations centre operated by SP AusNet. Synergies have been fully extracted and this will be demonstrated by a 'flattening' of costs in the Network Operations area.
- Further, the ICT capital investment has paid dividends allowing the efficient operation of the network at lower operations costs, both of which are consistent with the provisions of the NGL and the attainment of the NGO. ICT investment does drive operational cost savings and has prevented operational cost rises during the current access arrangement period. However, much of the transformation has occurred and a great part of the forecast ICT capital expenditure will be replacement expenditure designed to perpetuate the savings achieved to-date.

Further, given the characteristics of gas networks (i.e. low levels of technical innovation), it is inevitable that the recent pace of productivity growth cannot be maintained.

Given the strong productivity achievement of SP AusNet of the last two regulatory periods, and the inherent characteristics of gas networks, the forecast of continued productivity gains within SP AusNet's operating expenses is a significant achievement.

Table 6-9: SP AusNet's opex partial factor productivity forecasts – Growth rates

Parameter	2013	2014	2015	2016	2017
Opex PFP	0.66%	0.78%	0.75%	0.94%	0.86%

Source: Economic Insights, 2012, Appendix 6B

Based on the above analysis, SP AusNet expects that productivity gains in the forthcoming access arrangement period will reduce total operating expenditure by 2.1 per cent.

6.10 Step Changes

New operating expenditures, or step changes, are expected to be incurred in the next regulatory period that did not occur in the 2011 base year. These result from a diverse range of causes, from new safety focussed maintenance programs, maintenance programs enabled by technological advancement, maintenance costs associated with new capital projects and costs associated with new government policy arrangements.

Table 6-10: Step changes

($2012M)	2013	2014	2015	2016	2017
Network Operations	0.50	0.49	0.63	0.72	0.78
NECF	1.59	1.52	1.56	1.60	1.65
Carbon Tax Administration	0.24	0.24	0.25	0.25	0.26
Total	**2.33**	**2.25**	**2.44**	**2.57**	**2.68**

Source: SP AusNet

SP AusNet is forecasting $12.3 million in operating expenditure in the next regulatory period as a result of step changes (new programs and policy changes). Step changes contribute 4.5% to SP AusNet's total forecast operating expenditure for the next regulatory period.

6.10.1 Network operations

Step changes to network operations are detailed in Appendix 6F. Five key programs have been identified that will result in significant additional expenditures and these are summarised below.

The step changes in network operations are compliant with Rule 91 as they are all costs incurred either in relation to prudent safety programs, or because they assist the business to deliver pipeline services at the lowest sustainable costs.

1. Survey of gas mains and services in drains

Prompted by a Worksafe Victoria industry wide alert regarding the dangers caused by gas pipelines when they run through storm water drains and sewers, and subsequent consultation to identify appropriate responses, SP AusNet will commence two survey programs to identify problem gas mains and services and relocate them.

2. Changes to Heater Maintenance

Prompted by a 2011 condition assessment of a sample of SP AusNet's water bath heaters that revealed high levels of Carbon Monoxide (CO) at some sites, SP AusNet is changing its maintenance policy (effective 1 January 2012) for water bath heaters to ensure CO levels are maintained below Australian Standard recommended caps. The modified maintenance approach aligns SP AusNet's maintenance practices with the Australian Standard for Combustion Conditions (AS-3814: Combustion conditions) and is consistent with industry best practice. The modified policy will result in increased expenditure on this program.

3. Operation fees for Custody Transfer Meters

Installation of three new City Gates as part of SP AusNet's Asset Management Plan for the next regulatory period, requires the installation of a Custody Transfer Meter (CTM) at each gate. The operation fees for these CTMs represent additional operating expenditure. CTMs are required under the Gas Distribution System Code, and this expenditure is incurred as part of the prudent operation of the network.

4. Magnetic Tomography Inspections of Unpiggable Gas Pipelines

SP AusNet has a legal requirement to maintain and operate its transmission pipelines to the latest version of Australian Standard AS 2885.3 (2008). This standard requires SP AusNet to maintain the integrity of each pipeline and to be able to periodically demonstrate this. Magnetic Tomography Method (MTM) is a relatively newly available inspection technology that, in contrast to existing technologies, is non-intrusive to the pipeline. This will enable SP AusNet to assess the integrity of pipelines that, due to their geometry (sharp bends, changing diameter), were not able to be inspected with existing technologies. MTM also enables calculation of pipeline wall thickness and early detection of corrosion or other pipeline defects. The adoption of new technology is a prudent response to ensure safety obligations are met in delivering pipeline services.

5. Pipe Saddle Support Repairs

A program to rectify and repair around 50 pipework saddle supports is needed, following the identification of issues with pipe deterioration at older city gate installations (dating back to before the Gas and Fuel Corporation). This problem has been identified through knowledge sharing among SP AusNet and other industry participants.

Although the pipe supports are currently inspected twice annually for any signs of corrosion, without the removal of the saddle, any pipe wall deterioration due to corrosion is not possible to ascertain.

This program will physically remove the saddle while the pipe remains supported via a mobile crane. The hidden pipe areas will then be sandblasted and visually and electronically inspected for corrosion and wall thickness metal loss. This program is required to eliminate the likelihood of any corrosion and to ensure both the safety and integrity of the city gate installations, which supply gas to many thousands of downstream gas consumers.

Table 6-11: Step changes to network operations

($2012M)	2013	2014	2015	2016	2017
Survey of gas mains and services in drains	0.21	0.22	0.22	0.23	0.24
Changes to heater maintenance	0.06	0.06	0.06	0.07	0.07
Operation fees on CTMs	0.04	0.09	0.19	0.29	0.29
Magnetic Tomography Inspections	0.08	0.08	0.08	0.08	0.09
Pipe Saddle Support Repairs	0.11	0.04	0.07	0.04	0.09
Total	**0.50**	**0.49**	**0.63**	**0.72**	**0.78**

Source: SP AusNet

New maintenance programs for network operations are forecast to add $3.1 million to operating expenditure in the next regulatory period.

6.10.2 National Energy Customer Framework

The National Energy Customer Framework (NECF) is a new regulatory framework that seeks to harmonise the ways customers interact with retailers and distributors across the gas and electricity sectors. The new framework alters some of the obligations of SP AusNet as a distributor of gas and will commence in 2013.

SP AusNet forecasts that this policy change will result in additional operating expenditures that are not currently incurred and therefore, have not been included in the base year for the rate of change forecast. These zero based forecasts require a detailed bottom up analysis of the likely costs of the NECF.

NECF expenditures can be broadly categorised as either compliance related, or related to new obligations in relation to customer connections and alterations.

The expenditures detailed below are consistent with Rule 91, in that any prudent and efficient business would act in a way to maintain compliance with regulatory obligations, such as those imposed through NECF. SP AusNet has developed an efficient costing based on its considered assessment of the resource requirements and knowledge of it costs.

1. NECF Compliance

NECF introduces the following legislation, rules, regulations and guidelines, some of which relate to the gas business and other shared across the entirety of the SP AusNet business.

<table>
<tr><th colspan="3">NECF INSTRUMENTS & AER GUIDELINES</th></tr>
<tr><th>ELECTRICITY</th><th>GAS</th><th>AER</th></tr>
<tr><td>No.185-02
National Electricity (S.A) (National Energy Retail Law) Variation Regulations 2010</td><td>No.185-03
National Gas (S.A) (National Energy Retail Law) Variation Regulations 2010</td><td>AER Retailer Authorisation Guidelines</td></tr>
<tr><td>No.185-05
National Electricity (Retail Support) Amendment Rules 2010</td><td>No.185-06
National Gas (Retail Support) Amendment Rules 2010</td><td>AER Exempt Selling Guidelines</td></tr>
<tr><td>No.185-07
National Electricity (Miscellaneous and Consequential) Amendment Rules 2010</td><td>No.185-08
National Gas (Miscellaneous and Consequential) Amendment 2010 Rules</td><td>AER Register of Authorised Retailers and Exempt Sellers</td></tr>
<tr><td></td><td>No.185-09
National Gas Retail Market Amendment Procedures 2010</td><td>AER Retail Pricing Guideline
AER (Retail Law) Performance Reporting Procedures & Guidelines</td></tr>
<tr><td>No.185-10
National Electricity (Retail Connection) Amendment Rules 2010</td><td>No.185-11
National Gas (Retail Connection)
Amendment Rules 2010</td><td>Note - Retail Market Procedures</td></tr>
<tr><td colspan="2">National Energy Retail Law (NERL)
(NERL (S.A) Act 2011)</td><td>AER - Statement of Approach – Compliance with National Energy Retail Law & Rules (Jul 11)
AER (Retail Law) Compliance Procedures & Guidelines (Jul 11)</td></tr>
<tr><td colspan="2">National Energy Retail Rules (NERR)
No.185-04
National Energy Retail Rules
Victorian Energy Rules</td><td>185-04 - NERR - Schedule 1 Model T&C's for Std Retail Contracts
185-04 - NERR - Schedule 2 Model T&C's for Deemed Std Retail Contracts</td></tr>
<tr><td colspan="2">National Energy Retail Regulations
No.185-01
National Energy Retail Regulations 2010</td><td>Guidance on AER Approval of Customer Hardship Policies (May 11)</td></tr>
<tr><td colspan="3">Retailer of Last Resort (RoLR)</td></tr>
<tr><td colspan="2">A.1 - Type 1 Regulatory Obligations
A.2 - Type 2 Regulatory Obligations
A.3 - Type 3 Regulatory Obligations
B.1 Pro-forma - Type 1 obligations
B.2 Pro-forma - Type 2 and Type 3 obligations
B.3 - AER Compliance Reporting Template</td><td>INFORMATION & TEMPLATES</td></tr>
</table>

Source: SP AusNet

SP AusNet's regulatory compliance function will need to complete a gap analysis and implement changes, including:

- Obligation assessment for each specific rule or legislation;
- Undertake an SP AusNet specific implementation assessment;
- Amend information, references and reports within the Compliance Database to ensure the obligation is included within the compliance system; and
- Identify the responsible person for each obligation and determine the appropriate controls to ensure ongoing compliance.

While many of the requirements may be similar to the current framework, there will be subtle differences, for example they may be referenced to a new instrument. Some elements, for example Terms and Conditions for Standard Retail Contracts, Deemed Retail Contracts and RORL requirements, are new. New template forms, for reporting, will need to be developed.

Maintenance of the Compliance Database is a labour intensive exercise. The compliance team is currently employed at full capacity and therefore these added obligations will require additional staff. However, the forecasts relating to the costs of ensuring compliance with the gas related obligations are only an allocation of the overall full time equivalent requirement resources required, as SP AusNet shares these costs across its three regulated networks.

Costs forecast for 2012 and 2013 include external consultancy and documentation costs, thereafter the additional costs are ongoing costs relating to less than one full time equivalent (including on-costs) with a small annual allowance for training.

Table 6-12: Step changes for NECF compliance

($2012M)	2012	2013	2014	2015	2016	2017
NECF Compliance Related costs	0.22	0.22	0.11	0.11	0.11	0.11

Source: SP AusNet

Total operating costs of NECF compliance during the next regulatory period are forecast to be $657,000. While costs for 2012 are not included in the next regulatory period, they will be incurred by SP AusNet, and they are documented here as discussions are ongoing with DPI in relation to the recovery of these costs.

2. Customer Connections

Clause 3.1 of the Gas Distribution System Code requires that a customer must have a contract for the haulage of gas (generally in place by virtue of having a contract with a retailer) before the distributor has an obligation to connect the customer's gas installation to its distribution system. Thus the benchmark practice is for a customer to approach a retailer for connection and the retailer then acts as the customer's interface to the distributor.

However in the NECF there are various provisions in the National Energy Retail Law (NERL), the National Energy Retail Rules (NERR), and the NGR new Part 12A "Retail Connections" where the distributor has a clear obligation to provide customer connection services including connection and there is no concept of this being dependant on the customer having a haulage contract in place. Conversely the NECF makes it clear that for energisation, which will enable the flow of gas to the premises, the customer must have a retailer relationship and hence, by virtue of the retailer's access to gas and haulage, a haulage contract.

NECF requires a distributor to make an offer for connection to a customer or a developer and NGR Part 12A defines a connection applicant as a retail customer; a retailer or other person acting on behalf of a retail customer; or a real estate developer. Although the specifics of how this applies to a builder or plumber making direct application when they are not themselves going to take supply of gas is somewhat unclear, it is very clear that the policy maker's expectation is that they will be able to do so. This matches somewhat the equivalent connection arrangements which currently exist for electricity connections.

> *3.1 Connection Entitlements*
>
> *(a) Subject to clauses 3.1(b) and 3.1(c), upon the request of a customer, a Distributor must connect to its distribution system that customer's gas installation, provided that:*
>
> > *(i) the gas installation at the supply address complies with regulatory requirements;*
> >
> > *(ii) the customer:*
> >
> > > *A. has a contract with the Distributor for the haulage of gas; or*
> > >
> > > *B. has a contract for the purchase of gas with a Retailer which has a contract with the Distributor for the haulage of gas; and ….*

SP AusNet estimates that the changes within NECF, imposed by the above changes, result in the requirement for SP AusNet to engage directly with customers, which is forecast to cost approximately $1.5 million p.a. Currently, the implementation of customer requests is, almost exclusively, handled through Business to Business (B2B) system communications. The direct customer interface is a central part of the retailer / customer relationship. Distribution businesses are service providers to the users of the network (the Retailers) with the key stakeholder in the provision of those services being the end customer, one step removed from the distributor by the retailer.

However, the implementation of NECF creates a triangular relationship between retailer, customer and distributor, providing the customer the opportunity to communicate with the distributor through its retailer as is currently the case or alternatively directly with the distributor. As a result of this mandated change:

- SP AusNet is now required to communicate with its own implementation systems as if it were a retailer and implement a system to directly bill customers rather than billing via a retailer. The 2012 ICT capital costs ($1.8m) associated with these changes are outlined in the Section 7.4.1 to be included in the opening RAB for 2013, as these capital costs will be incurred in preparation for the changes during 2012);
- SP AusNet has considered the implications of billing customers directly. As SP AusNet is not remunerated for credit risk with retail customers, its credit risk currently lies exclusively with retailers. SP AusNet has determined that to avoid this credit risk it will only provide customers with services on an up-front payment basis; and
- SP AusNet will require a dedicated gas customer services group to perform the functions currently undertaken by the retailers (these costs will be operational and capital in nature).

This last point will drive the most significant operational costs, through requiring SP AusNet to develop a significant gas customer liaison function which was previously undertaken by the retailers. This function will take customer calls to discuss and arrange implementation of the connections and Ancillary Reference Services as detailed below:

- Connections, this may involve agreeing a simple connection or referring the customer to the existing connections group. This referral would occur for more complex or costly connections (typically the connections group would liaise with retailers, in future they will be required to liaise both with retailers and the end customer) where a customer contribution may be required. In the case that a customer contribution is required SP AusNet will undertake the works once full payment has been received.

- Ancillary Reference Services – SP AusNet will inevitably receive some enquiries direct from customers in regard to reconnection, disconnection and special meter reads, however SP AusNet expects these calls to be very limited in number. Disconnection is most often sought resulting from a customer not paying their bill, this is therefore a request which will always come from the retailer. Special meter reads are likely to be in response to a customer questioning their bill or a 'final read', we expect that in these situations the retailer will seek to maintain their relationship with the customer and maintain the status quo in terms of seeking the service through the normal B2B process.

SP AusNet is forecasting the following costs will be the minimum efficient cost of addressing these changed regulatory obligations.

Table 6-13: Step changes for services delivered under NECF

($2012M)	2013	2014	2015	2016	2017
Connections	0.84	0.87	0.89	0.92	0.95
Complex request customer officers	0.43	0.44	0.46	0.47	0.48
Accommodation	0.10	0.10	0.10	0.10	0.10
Total	**1.37**	**1.41**	**1.45**	**1.49**	**1.53**

Source: SP AusNet

In total, SP AusNet forecasts $7.3 million will be required over the next regulatory period to establish and operate a call centre to provide a direct contact point for customers.

The NECF customer business case attached as Appendix 6F provides the full cost breakdown in regard to the forecast.

6.10.3 Carbon Tax Administration

Pursuant to the passing on 18 November 2011 of the Clean Energy Act 2011 SP AusNet is now liable to purchase carbon credits to cover the fugitive emissions, calculated under the National Greenhouse Emissions Reporting Scheme (NGERS) framework, associated with the operation of the SP AusNet gas distribution network. SP AusNet's gas distribution network is deemed 'a facility' under the Clean Energy Act. SP AusNet proposes to collect the cost of purchasing the carbon credit units through an adjustment to its annual tariffs. This adjustment mechanism is set out in section 14.4.3 of this document.

However, the cost of administering the scheme is not included in this tariff adjustment.

These administration costs include:

- additional tariff modelling;
- collation and audit of the submissions to Government;
- collation and audit of the submissions to the AER in regard to the annual adjustment and 'true up' for the carbon tariff;
- the purchase of the carbon credits; and
- internal reporting.

The total annual cost is forecast to be $1.3 million over the next regulatory period as set out below. These costs are consistent with Rule 91, in that all companies that are subject to the Clean Energy Act will face regulatory compliance costs, and it is a prudent response to develop systems for best meeting regulatory obligations and understanding the impact on business including revenues and input costs. The cost forecast is efficient and has been developed based on by SP AusNet's understanding of existing resources and requirements, and the costs of delivering similar functions.

Table 6-14: Step changes for carbon tax administration

($2012M)	2013	2014	2015	2016	2017
Carbon Tax Administration	0.24	0.24	0.25	0.25	0.26

Source: SP AusNet

6.11 Other changes included in the Operating Expenditure forecast

SP AusNet forecasts additional operating expenses in the next regulatory period that are not included in our 'rate of change' forecast of operating expenditure, which forecasts the pattern of 'business as usual' operating expenditure. That is, some expenditure items were set to zero in the base year for the purposes of forecasting, and need to be added back to operating expenditure to determine total operating expenditure forecast for the next regulatory period.

Such 'zero-based' expenditure includes costs affected by a change in capitalisation policy, some resources currently allocated to SP AusNet's Advanced Metering Infrastructure (AMI) project, and debt and equity raising costs.

Table 6-15: Other opex changes in the next regulatory period

($2012M)	2013	2014	2015	2016	2017
Reallocation of SPIMS and overhead costs	0.86	1.00	1.03	1.30	1.33
Change to capitalisation policy	0.68	0.90	0.63	0.77	0.93
Debt and equity raising costs	0.70	0.72	0.75	0.77	0.79
Total	**2.24**	**2.62**	**2.41**	**2.84**	**3.05**

Source: SP AusNet

6.11.1 Reallocation of SPIMS and overhead costs

In the 2011 base year, SP AusNet's gas network customers benefitted from the ability of the company to generate efficiencies by operating multiple networks. This is particularly the case for overheads, where some relatively fixed corporate functions are allocated across the networks SP AusNet operates.

However, in the next regulatory period, with the completion of the Advanced Metering Infrastructure (AMI) project at the end of 2013 and the decrease in corporate time dedicated to the project in 2013, there will be a reversal of the 'efficiencies of scale' benefits that have been associated with the delivery of that program, and gas network operating costs will increase.

Expenses within SP AusNet, including SPIMS and overhead costs, are allocated across SP AusNet's networks according to Activity Based Costing surveys. The AMI program is currently allocated with a number of these roles and overhead costs. This will continue until the end of the current AMI budget period in 2015[42], however this allocation will reduce as SP AusNet's AMI project moves into delivery phase and is completed at the end of 2013.

At the completion of the AMI project a number of AMI specific costs will no longer be incurred, however time from a number of ongoing activities and roles (for example, Executive Managers) will be freed up to return to other areas of SP AusNet's business, including to SPI Gas. This time will be reallocated back to the electricity distribution, electricity transmission, and gas distribution businesses in the same proportion as time is currently spent on these.

The forecast of operating expenditure to return to SP AusNet's gas network is based on the 2011 actual expenses, less AMI specific expenses (as these will never be reallocated to the Gas business) and costs previously approved through the 2012-15 AMI budget process, adjusted for real price escalation in line with other operations expenses.

It is forecast that a total of $5.5 million in operating expenses will occur in SP AusNet's gas business in the next regulatory period as a result of the completion of the AMI program.

Table 6-16: Impact of reallocation of SPIMS and overhead costs

($2012M)	2013	2014	2015	2016	2017
Reallocation of SPIMS and overhead costs	0.86	1.00	1.03	1.30	1.33

Source: SP AusNet

6.11.2 Change to Capitalisation Policy

SP AusNet has recently undertaken a wholesale review of its approach to capitalisation of expenditure. The decision as to whether a specific expenditure can be capitalised is often subjective and therefore, open to interpretation. Recent changes in personnel and change of Audit Partner prompted this review.

In regard to gas it has been determined that some costs, which until 2011 (inclusive) were capitalised, should now be treated as maintenance expenditure. These costs include:

- Supply regulator and associated equipment periodic maintenance;
- Industrial and Commercial (I & C) regulator and associated equipment periodic maintenance; and
- SCADA miscellaneous works.

It was determined that these works should no longer be capitalised since, although the works included the replacement of significant parts, the result of such activities did not necessarily result in an extension of the asset's life beyond its original asset life expectation. Without these activities being undertaken the asset's life would be shortened, pursuant to these activities the asset's life may be extended, but with insufficient certainty to warrant continued capitalisation.

The below cost forecasts have been taken directly from the capital expenditure forecasts developed for the submission prior to the decision regarding the changed accounting approach being taken.

42 SPI Electricity AMI Subsequent Budget and Charges Application 28 February 2011.

Table 6-17: Impact of change in capitalisation policy to gas opex

($2012M)	2013	2014	2015	2016	2017
Supply regulator refurbishment	0.29	0.31	0.09	0.23	0.38
Industrial and commercial regulator refurbishment	0.29	0.48	0.43	0.42	0.43
Miscellaneous SCADA	0.11	0.11	0.11	0.12	0.12
Total	**0.68**	**0.90**	**0.63**	**0.77**	**0.93**

Source: SP AusNet

As a result of the policy change, a forecast $3.9 million of expenditure that would have previously been treated as capital, is expected to be spent as operating expenditure.

Attached as Appendix 6G are the internal decision documents relating to this changed interpretation under the SP AusNet policy.

6.11.3 Debt and Equity Raising Costs

1. Debt Raising Costs

To raise debt, a company must incur various transaction costs over and above the debt margin allowed in the cost of capital. Such costs are dependent on the market conditions prevailing at the time of debt issuance.

Debt raising costs are not expensed through the Profit and Loss Statement[43], so these costs are not present in SP AusNet's base year reported operating expenditure. Therefore, a separate benchmark debt raising cost forecast needs to be included for the forthcoming access arrangement period.

The AER has established a methodology to calculate benchmark debt raising costs in previous regulatory decisions. This methodology is based on a 2004 Report from the Allen Consulting Group (ACG).[44] SP AusNet has calculated its proposed debt raising costs using this methodology. Figure 6-9 below reproduces the AER's analysis in the recent Victorian electricity distribution review.

43 They are reported in financing charges in SP AusNet's Regulatory Accounts.

44 ACG, *Debt and equity raising transaction costs, Report to the ACCC*, December 2004.

Figure 6-9: AER analysis of direct debt raising costs (WACC 9.40-9.95%)

Fee	Explanation	1 Issue	2 Issues	4 Issues	6 Issues	10 Issues
Amount raised ($'m, nominal)	Multiples of median term notes ($250m)	250	500	1000	1500	2500
Gross underwriting	Median gross underwriting spread, upfront per issue	7.14–7.31	7.14–7.31	7.14–7.31	7.14–7.31	7.14–7.31
Legal and roadshow	$1115K upfront per issue	0.73–0.75	0.73–0.75	0.73–0.75	0.73–0.75	0.73–0.75
Company credit rating	$50K per annum	2.00	1.00	0.50	0.33	0.20
Issue Credit rating	4 basis point up front per issue	0.63–0.65	0.63–0.65	0.63–0.65	0.63–0.65	0.63–0.65
Registry fees	$3.5k up front per issue	0.14	0.14	0.14	0.14	0.14
Paying fees	$4/$1 million per annum	0.04	0.04	0.04	0.04	0.04
Total	**Basis points per annum**	**10.7–10.9**	**9.7–9.9**	**9.2–9.4**	**9.0–9.2**	**8.9–9.1**

Source: AER Analysis, Victorian Electricity DNSP Determination 2001-2015.

SP AusNet's gas distribution business has an opening capital base of $1.3 billion (nominal). On the basis of the assumed benchmark gearing ratio of 60:40, the notional debt component of the opening capital base is approximately $778 million (nominal). Based on the ACG method (adjusted for SP AusNet's proposed WACC), SP AusNet will require around 3 to 4 bond issues over the forthcoming regulatory control period.

Therefore, the appropriate benchmark for SP AusNet's direct debt raising costs is 9.2 basis points per year. Table 6-18 below shows SP AusNet's debt raising cost forecasts.

Table 6-18: Debt raising costs

($2012M)	2013	2014	2015	2016	2017
Debt Raising Costs	0.70	0.72	0.75	0.77	0.79

Source: SP AusNet PTRM

In September 2011, Standard & Poor released its updated criteria for assessing liquidity risk and how it directly impacts an issuer's credit rating. According to Standard & Poor's criteria, in order for a benchmark regulated network service provider to maintain the BBB+ credit rating it must achieve "adequate" levels of liquidity throughout the Access Arrangement period. This may impact on the amount of debt required to be held by SP AusNet as the main source of excess liquidity for a utility is undrawn available committed bank debt. For the purpose of this AAI, SP AusNet has not modelled its liquidity requirements in the context of Standard & Poor's criteria. However, SP AusNet will examine this issue in the coming months and will provide further information to the AER if there is any impact on SP AusNet's revenue requirements.

2. Equity Raising Costs

A business must also secure sufficient equity funding from both internal and external sources to support the proposed capital investment for the forthcoming regulatory control period.

Using the AER's methodology embedded in the PTRM, it has been determined that recourse to external equity funding will not be required in the forthcoming access arrangement period. SP AusNet may revisit this conclusion during the AER's review and consultation process.

6.12 Total operating expenditure forecast

Table 6-19The table below shows the total forecast operating expenditure. Expenditure is reported in its component parts: the rate of change forecast that is extrapolated from base year costs; forecast step changes, which are new expenditures that will occur in the next regulatory period; and, zero based costs, which were not included in the base year and are added back to the total operating expenditure forecast.

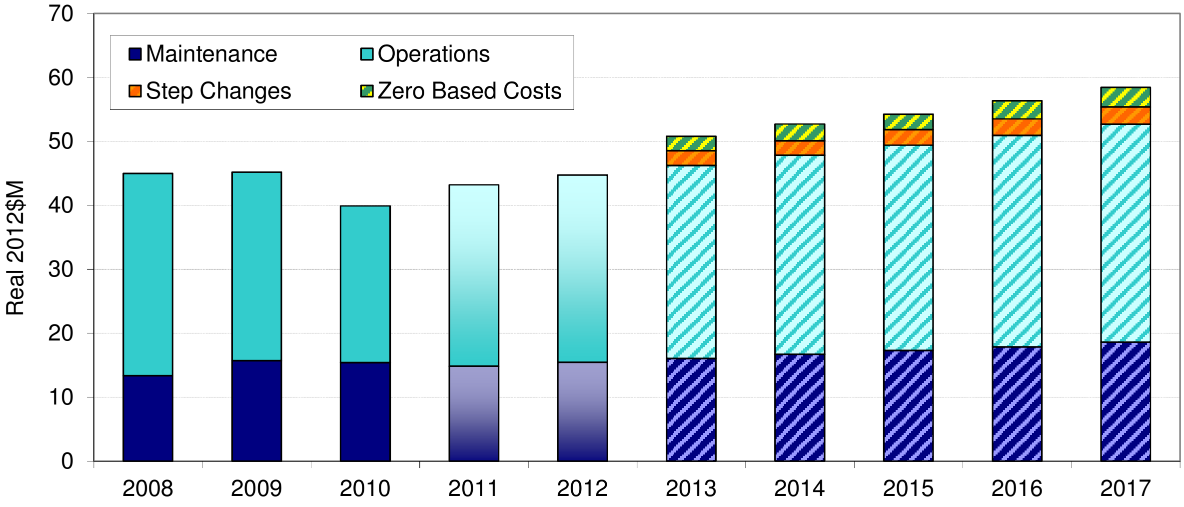
Table 6-19: Total operating expenditure forecast

($2012M)	2012	2013	2014	2015	2016	2017
Rate of change	44.7	46.2	47.8	49.4	50.9	52.7
Operations	*29.3*	*30.2*	*31.1*	*32.1*	*33.1*	*34.1*
Maintenance	*15.5*	*16.1*	*16.7*	*17.3*	*17.9*	*18.6*
Step changes		2.3	2.2	2.4	2.6	2.7
Zero based costs		2.2	2.6	2.4	2.8	3.1
Opex	**44.7**	**50.8**	**52.7**	**54.3**	**56.4**	**58.4**

Source: SP AusNet forecast

The figure below shows the expenditure forecast, broken into its component parts, and in comparison to historical operating expenditure.

Figure 6-10: Actual and forecast operating and maintenance expenditure



Source: SP AusNet, forecasts includes debt raising costs, historic data includes UAfG

The information and analysis presented in this chapter demonstrates that:

- SP AusNet's operating expenditure forecast has been arrived at on a reasonable basis and represents the best forecast possible forecast in the circumstances, in accordance with the requirements of rule 74(2).
- SP AusNet's forecast of operating expenditure is consistent with that which would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice to achieve the lowest sustainable cost of delivering pipeline services, in accordance with the requirements of rule 91(1).
- SP AusNet has explained the basis of its forecasts or estimates in accordance with rules 74 and 75, which require all forecasts to be reasonable and supported by a statement of explanation and for source data to be provided.
- All other rules requirements relating to the preparation and presentation of operating expenditure forecasts have been met.

7 Capital base and depreciation

7.1 Summary of key points

This chapter provides an overview of SP AusNet's capital base and depreciation. The key points are:

- SP AusNet has adopted the approach set out in the last GAAR decision in establishing the opening capital base for the forthcoming access arrangement period, which fully complies with the requirements of the NGR and the reference tariff policy within current access arrangement.
- SP AusNet's capital base projections for the forthcoming access arrangement period reflect its forecasts of conforming capital expenditure; depreciation based on a regulatory life for each asset class that equates to the expected economic of that asset class; and a reasonable forecast of customer contributions.
- SP AusNet's opening capital base is expected to be $1,292.6 million on 1 January 2013 and is projected to increase to $1,722.4 million by the end of the forthcoming access arrangement period.

7.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 7.3 cites the applicable regulatory requirements and SP AusNet's compliance.
- Section 7.4 explains opening capital base.
- Section 7.5 presents the projected forecast depreciation and asset disposals.
- Section 7.6 explains projected capital base.

7.3 Regulatory requirements and SP AusNet's compliance

As noted in section 4.2, rules 74 and 75 require SP AusNet to explain the basis of any forecasts or estimates adopted in its access arrangement proposal. In addition, any input data used in producing the forecasts or estimates must be provided. The NGR also require that the resulting forecasts or estimates must be the best possible in the circumstances.

As noted in section 5.2, rule 73 requires financial information to be provided on a recognised basis for dealing with the effects of inflation. The basis on which financial information is provided must be stated, and all financial information must be provided, and all calculations made, consistently on the same basis.

Rule 72(1) states that the access arrangement information for a full access arrangement proposal must include the following information:

> *"(b) how the capital base is arrived at and, if the access arrangement period commences at the end of an earlier access arrangement period, a demonstration of how the capital base increased or diminished over the previous access arrangement period;*
>
> *(c) the projected capital base over the access arrangement period, including:*
>
> *(i) a forecast of conforming capital expenditure for the period and the basis for the forecast; and*
>
> *(ii) a forecast of depreciation for the period including a demonstration of how the forecast is derived on the basis of the proposed depreciation method."*

Rule 79 sets out "new capital expenditure criteria".

Rule 79(1) defines conforming capital expenditure as follow:

"Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(c) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(d) the capital expenditure must be justifiable on a ground stated in subrule (2)."

Rule 79(2) states that:

"Capital expenditure is justifiable if:

(e) the overall economic value of the expenditure is positive; or

(f) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(g) the capital expenditure is necessary:

(v) to maintain and improve the safety of services; or

(vi) to maintain the integrity of services; or

(vii) to comply with a regulatory obligation or requirement; or

(viii) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(h) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c)."

Rule 77(2) sets out provisions relating to the opening capital base as follows:

"If an access arrangement period follows immediately on the conclusion of a preceding access arrangement period, the opening capital base for the later access arrangement period is to be:

(a) the opening capital base as at the commencement of the earlier access arrangement period (adjusted for any difference between estimated and actual capital expenditure included in that opening capital base);

plus:

(b) conforming capital expenditure made, or to be made, during the earlier access arrangement period;

plus:

(c) any amounts to be added to the capital base under rule 82, 84 or 86;

less:

(d) depreciation over the earlier access arrangement period (to be calculated in accordance with any relevant provisions of the access arrangement governing the calculation of depreciation for the purpose of establishing the opening capital base); and

Note: See rule 90.

(e) redundant assets identified during the course of the earlier access arrangement period; and

(f) the value of pipeline assets disposed of during the earlier access arrangement period."

Rule 78 sets out provisions relating to the projected capital base for the forthcoming access arrangement period, as follows:

"The projected capital base for a particular period is:

(a) the opening capital base;

plus:

(b) forecast conforming capital expenditure for the period;

less:

(c) forecast depreciation for the period; and

(d) the forecast value of pipeline assets to be disposed of in the course of the period."

Rule 82 sets out provisions relating to capital contributions as follows:

"(1) A user may make a capital contribution towards a service provider's capital expenditure.

(2) Capital expenditure to which a user has contributed may, with the AER's approval, be rolled into the capital base for a pipeline but, subject to subrule (3), not to the extent of any such capital contribution.

(3) The AER may approve the rolling of capital expenditure (including a capital contribution made by a user, or part of such a capital contribution) into the capital base for a pipeline on condition that the access arrangement contain a mechanism to prevent the service provider from benefiting, through increased revenue, from the user's contribution to the capital base."

Division 6 of the NGR sets out provisions relating to depreciation, as follows:

- Rule 88 contains provisions relating to the depreciation schedule. The depreciation schedule sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining a reference tariff. The schedule may consist of a number of separate schedules, each relating to a particular asset or class of assets.
- Rule 89 specifies five criteria governing the design of the depreciation schedule. The criteria specify, among other things, that: an asset or class of assets can be depreciated only once over its economic life; depreciation should reflect changes in the expected economic life of assets; and depreciation may allow for the service provider's reasonable cash flow needs.
- Rule 90 sets out provisions regarding the calculation of depreciation for rolling forward the capital base from one access arrangement period to the next. Rule 90(1) requires a full access arrangement to contain provisions governing the calculation of depreciation for establishing the opening capital base for the next access arrangement period after the one to which the access arrangement currently relates. Rule 90(2) requires the access arrangement to state whether depreciation of the capital base is to be based on forecast or actual capital expenditure.

The information set out in this chapter accords with all of the applicable requirements of the NGR.

7.4 Opening capital base

7.4.1 Overview

SP AusNet's calculation of the opening capital base for the commencement of the forthcoming access arrangement period involves the following steps:

- Establish the opening capital base for the commencement of the current access arrangement period, 1 January 2008 through adjusting for differences between assumed and actual conforming capital expenditure in 2007;
- Roll forward the capital base as at 1 January 2013 by:

- including actual 2007 – 2010 and estimated 2011 capital expenditure, with estimated capital expenditure being replaced by actual expenditure at such time as the regulatory accounts for 2011 have been approved;
- adding benchmark 2012 capital expenditure, as determined by the ESC in the final determination for the third access arrangement period. This has been adjusted, consistent with clause 6.4(b) of Part B of SP AusNet's current access arrangement, to reflect differences in scope and growth;
- deducting actual 2007 – 2010, estimated 2011 and benchmark 2012 customer contributions; and
- and deducting benchmark allowance depreciation for the period 2008 to 2012 as determined within the last GAAR decision.

Each of these elements is presented below.

7.4.2 Opening capital base as at 1 January 2008

The ESC's 2008 GAAR final determination established an unadjusted opening capital base of $966.5 million, in July 2006 dollars, as at 1 January 2008. SP AusNet has made the following adjustments to this value to express the capital base in 2012 prices.

- SP AusNet has escalated the capital base of $966.5 million by the ratio of the ABS published September Quarter All Groups CPI for 2011 divided by the September Quarter All Groups CPI for 2005. This approach is consistent with the ESC's 2008 GAAR and results in capital base of $1,157.5 million as at 1 January 2008, expressed in July 2012 prices.
- In accordance with rule 77, the capital base has been adjusted downwards by $3.6 million, which reflects the difference between the ESC's net capital expenditure allowance and SP AusNet's actual net capital expenditure for calendar year 2007. This results in an opening capital base as at 1 January 2008 of $1,153.9 million, expressed in July 2012 prices.

7.4.3 Capital additions to 31 December 2012

To roll forward from the opening capital base as at 1 January 2008, SP AusNet has used actual asset additions (net of disposals) for the period 2008 to 2011. Appendix 3A and Appendix 3B to this submission provide independent reports and which demonstrate that SP AusNet's actual capital expenditure is conforming capital expenditure as defined in rule 79. Further, under rule 71, the operation of the capital efficiency carryover mechanism allows the AER to infer that actual capital expenditure is conforming.

SP AusNet has employed a hybrid approach to calculating capital additions (net of disposals) for 2012, which is consistent with rule 77(2)(b) and the intentions of clause 6.4 of Part B of SP AusNet's current access arrangement.

In regard to the major Mains Replacement and Meter Replacement programs and customer connection activities, SP AusNet has adjusted the benchmark allowance for updated forecast activity levels in 2012 consistent with the ESC's final determination for the third access arrangement period and the provisions of clause 6.4 of its current access arrangement. Under this approach capital additions are equal to the ESC's 2008 Final Determination benchmark unit rates multiplied by updated forecast activity levels, these calculations are included within SP AusNet's PTRM attached to this submission.

In regard to augmentation capital expenditure additions for 2012 benchmarks are have been replaced with forecast expenditures; this is due to the fact that these augmentation activities are above benchmark because of higher than forecast customer growth. The use of updated forecast augmentation expenditure is equivalent to adjusting the benchmark customer connections capital for differences in benchmark assumptions for growth. Augmentation and reinforcement capital expenditure is driven by mandated minimum pressure limits, and therefore is non-discretionary. This additional expenditure is driven by the increased growth; if this growth justifies an amendment to the benchmark customer connections expenditure then it is logically consistent that the augmentation expenditure is also determined to be a scope change. The 2012 augmentation capital expenditure is therefore justified with reference to rule 79(2)(c)(iii).

ICT capital expenditure additions are also based on an updated forecast of activity. It is inevitable that scope changes in ICT expenditure will have occurred in the intervening period since the 2008 Final Determination; given the pace of technological developments in this field. Furthermore, approximately $1.8 million of ICT expenditure in 2012 is required to implement the systems necessary for SP AusNet to comply with the requirements of the NECF legislation, which were not foreseen at the time of the ESC's 2008 GAAR Final Decision. The 2012 ICT forecast capital expenditure is therefore justified with reference to rule 79(2)(c)(iii).

Actual and estimated (adjusted) gross capex for the current regulatory control period are shown in Table 7-1 below.

Table 7-1: SP AusNet's gross capital expenditure and disposals

(Real 2012 $M)	2008	2009	2010	2011	2012
Gross Capex	75.4	75.5	76.7	85.8	90.9
Disposals	0.4	0.2	0.1	-	-

Source: SP AusNet

7.4.4 Customer contributions and depreciation to 31 December 2012

To roll forward from the opening capital base as at 1 January 2008, SP AusNet has deducted actual capital contributions for the period 2008 to 2011 and forecast of capital contributions for 2012, in accordance with rule 77(2)(c) and rule 82 of the NGR, as shown in Table 7-2 below.

Table 7-2: Customer contributions

(Real 2012 $M)	2008	2009	2010	2011	2012
Capital Contributions	4.1	3.4	3.6	3.6	4.0

Source: SP AusNet

Rule 77(2) requires that the roll forward of capital base be reduced by the amount of the depreciation of the capital base during the previous regulatory control period, calculated in accordance with the relevant provisions of the access arrangements. Therefore, in accordance with the current access arrangement, the capital base is reduced by the depreciation allowance contained in that access arrangement, as shown in Table 7-3 below.

Table 7-3: Depreciation allowance to 2012

(Real 2012 $M)	2008	2009	2010	2011	2012
Depreciation	47.4	51.3	54.0	54.1	55.2

Source: SP AusNet

SP AusNet proposes to retain this approach for the fourth regulatory period this is set out in section 6 of Part B of the access arrangement, the Reference Tariff Policy. SP AusNet's rationale for retaining this approach is that it operates consistently with the principles of the efficiency carryover mechanism, where the incentive to efficiently minimise capital expenditure is maintained constant during the entirety of the period.

7.4.5 Indexation to 1 January 2013

Fixed Principles 7.2(3) requires that the established opening asset base be adjusted for changes in CPI over Third Access Arrangement Period. In order to cover six months difference for the period from 1 July 2012 to 1 January 2013 for the opening capital base, the following formula has been applied:

(Proposed inflation rate of (2.51%+1)^0.5)-1)

This adjustment is required to ensure the RAB is in dollars consistent with the requirements of the PTRM framework as set out in the AER's, *Distribution Handbook*, 2008.

7.4.6 Summary of opening capital base as at 1 January 2013

In accordance with the calculations described above, the written-down value of the rolled forward capital base as at 1 January 2013 is $1,292.61 million as shown in Table 7-4 below.

Table 7-4: Opening capital base as at 1 January 2013

(1/07/2012 $M)	2008	2009	2010	2011	2012
Opening capital base	1,153.9	1,177.4	1,197.9	1,216.8	1,245.0
Gross Capex	75.4	75.5	76.7	85.8	90.9
Customer Contributions	4.1	3.4	3.6	3.6	4.0
Disposals	0.4	0.2	0.1	-	-
Depreciation	47.4	51.3	54.0	54.1	55.2
Closing capital base	1,177.4	1,197.9	1,216.8	1,245.0	1,276.7
Six months CPI adjustment					15.9
Capital Base as at 1 Jan 2013					1,292.6

Source: SP AusNet, the RFM performs the roll forward in July 2012 dollars.

The information presented in this table, together with the preceding information, explains how the opening capital base is arrived at and provides a demonstration of how the capital base increased or diminished over the previous access arrangement period, in accordance with rule 72(1)(b) of the NGR.

7.5 Forecast depreciation and asset disposals

7.5.1 Asset lives and depreciation methodology

For the next access arrangement period, SP AusNet proposes that each asset category will be depreciated on a straight-line basis over the economic lives set out in Table 7-5 below.

The original asset base (or Opening Asset value (OAV)) determined at the time of commencement of the regulatory regime and the original privatisation of the gas distribution businesses is depreciated in line with the average asset lives determined at that time. This is a continuation of the approach used in previous access arrangement reviews. All subsequent capital additions are depreciated in line with standard industry practice by their standard asset lives.

Table 7-5: Asset categories and lives for depreciation purposes

Asset Class Name	OAV Life 01/01/1998 (years)	Standard Life (years)
Transmission Pipelines	39	60
Low Pressure Pipelines	39	60
Distribution Pipelines	27	60
Service Pipes	39	60
Cathodic Protection	39	60
Supply Regulators / Valve Stations	39	50
Meters	17	20
SCADA & Remote Control	5	15
Land & Building	40	40
Other – IT	0	5
Other – Non IT	5	5

Source: SP AusNet

In accordance with standard practice, a regulatory life will be assigned to each asset class that equates to the expected economic life of that asset class. Under SP AusNet's approach:

- assets are depreciated only once (in accordance with rule 89(1)(d));
- assets are depreciated over their economic life (as required by rule 89(1)(b)); and
- the cost of depreciation is allocated appropriately between present and future customers who benefit from the services provided by those assets.

The annual depreciation charges relating to the opening asset base will be calculated and added to the annual depreciation charges relating to the new capital expenditure which is forecast to occur over the next period. This ensures that the profile of depreciation charges over time reflects the expected growth in the market for reference services, consistent with the requirements of rule 90(1)(a).

As noted in Chapter 5 and the accompanying Asset Management Strategy, low pressure mains have been identified for replacement with high pressure pipes over the forthcoming regulatory period. The remaining lives of low pressure mains that are scheduled to be replaced have been limited to the period within which it is expected the replacement program will be undertaken. This approach is consistent with the requirements of rule 89(1)(c).

SP AusNet's analysis indicates that previous regulatory decisions included depreciation allowances that were lower than would be obtained through the application of appropriate economic asset life assumptions. These decisions reflect the priority given (at the time) to limiting price increases and delivering price stability. Applying the economic life assumptions as set out above, SP AusNet has calculated that $8.9 million of depreciation has been unrecovered over the course of the 2013-2017 regulatory period. The relevant calculations are set out in SP AusNet's PTRM. Accordingly, SP AusNet proposes to adjust the depreciation profiles of the relevant assets, to ensure recovery during the forthcoming period of the unrecovered depreciation. SP AusNet considers that its proposed approach in relation to this matter accords with the provisions set out in rule 89(1)(e).

SP AusNet has forecast zero asset disposals over the 2013 to 2017 access arrangement period.

7.5.2 Forecast depreciation

Table 7-6 below sets out SP AusNet's forecast depreciation for the forthcoming access arrangement period.

Table 7-6: Forecast depreciation

(Nominal $M)	2013	2014	2015	2016	2017
Nominal Straight-line Depreciation	59.9	65.8	64.7	69.0	71.9
Inflation on Opening RAB	-32.5	-34.6	-36.6	-38.9	-40.9
Nominal Regulatory Depreciation	27.5	31.2	28.1	30.1	31.0

Source: SP AusNet

As demonstrated above, SP AusNet's forecast depreciation complies with the requirements of rules 88 and 89.

7.6 Projected capital base

The projected capital base for the forthcoming access arrangement period is set out in the table below. The table reflects the calculation of the opening asset base and forecast depreciation as described in this chapter. In addition, it also includes forecast capital expenditure and customer contributions over the forthcoming access arrangement period as described in Chapter 5.

Table 7-7: Projected capital base

(Nominal $M)	2013	2014	2015	2016	2017
Opening capital base	1292.6	1375.2	1456.7	1548.1	1629.8
Net capex	110.1	112.7	119.5	111.8	123.5
Economic Depreciation	-27.5	-31.2	-28.1	-30.1	-31.0
Closing capital base	1375.2	1456.7	1548.1	1629.8	1722.4

Source: SP AusNet

The information presented in the above table and the explanations provided in sections 7.5 and 7.6 satisfy the requirements of rule 72(1)(c), which requires SP AusNet to present the projected capital base over the access arrangement period, including:

- a forecast of conforming capital expenditure for the period and the basis for the forecast; and
- a forecast of depreciation for the period including a demonstration of how the forecast is derived on the basis of the proposed depreciation method.

8 Rate of return and corporate tax allowance

8.1 Summary of key points

- The NGL recognises the importance of ensuring that regulation allows service providers a reasonable opportunity to recover at least their efficient costs, which includes the rate of return (weighted average cost of capital, or WACC).
- SP AusNet's WACC proposal:
  - employs the capital asset pricing model (CAPM) to estimate the cost of equity, using appropriate measures of the risk free rate; the market risk premium (MRP); and the equity beta;
  - uses a debt risk premium that reflects the best available market data for a benchmark firm with a BBB+ credit rating; and
  - adopts a value of 0.25 for gamma, which is consistent with the findings of the Australian Competition Tribunal.
- In relation to the cost of equity, SP AusNet has demonstrated that the AER's most recent estimate in its draft decision for Aurora Energy is not consistent with the NGR and NGL requirements. A significant problem arises because the AER's standard practice is to combine:
  - an estimate of the MRP based predominantly on annual historic data over various periods from 1883 to the present day; and
  - a current-day estimate of the risk free rate, which is currently at its lowest level for 50 years as a result of the on-going turmoil in global financial markets.

  Independent expert opinion confirms that this approach does not provide a reasonable estimate of the cost of equity in the prevailing capital market conditions.
- SP AusNet employs two alternative approaches for deriving an estimate of the cost of equity that is consistent with the NGR and NGL. These involve:
  - combining measures of the risk free rate and MRP that are both historic averages; and
  - combining a current measure of the risk free rate with a genuinely forward-looking measure of the MRP.

  Both approaches produce similar estimates of the cost of equity. In the circumstances, SP AusNet proposes a cost of equity of 10.79%. If accepted by the AER, SP AusNet does not envisage updating this estimate in response to the AER's Draft Decision.
- SP AusNet's estimated cost of debt is 7.91%. SP AusNet proposes to update this estimate in response to the AER's Draft Decision to reflect the latest available market information.
- SP AusNet's nominal vanilla WACC, which assumes a benchmark gearing of 60%, is 9.06%.

8.2 Chapter Structure

This remainder of this chapter is structured as follows:

- Section 8.3 cites the applicable regulatory requirements.
- Section 8.4 outlines the rate of return methodology applied by SP AusNet to estimate the WACC.
- Section 8.5 examines issues relating to the cost of equity, and sets out SP AusNet's approach to estimating the cost of equity using the CAPM.

- Section 8.6 sets out SP AusNet's estimate of the cost of debt.
- Section 8.7 sets out the capital structure adopted for the purpose of estimating the WACC.
- Section 8.8 presents SP AusNet's forecast of inflation.
- Section 8.9 sets out the methodology used to derive SP AusNet's corporate tax allowance, the value of imputation credits (gamma) and the resulting corporate tax allowance.
- Section 8.10 presents a summary of SP AusNet's proposed WACC parameter values.

8.3 Regulatory requirements and SP AusNet's compliance

Rule 72(1) requires the access arrangement information to include the following:

> *"(g) the proposed rate of return, the assumptions on which the rate of return is calculated and a demonstration of how it is calculated;*
>
> *(h) the proposed method for dealing with taxation, and a demonstration of how the allowance for taxation is calculated."*

Rule 87 sets out provisions relating to the rate of return. It states:

"(1) The rate of return on capital is to be commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services.

(2) In determining a rate of return on capital:

> *(a) it will be assumed that the service provider:*
>
> > *(i) meets benchmark levels of efficiency; and*
> >
> > *(ii) uses a financing structure that meets benchmark standards as to gearing and other financial parameters for a going concern and reflects in other respects best practice; and*
>
> *(b) a well-accepted approach that incorporates the cost of equity and debt, such as the Weighted Average Cost of Capital, is to be used; and a well-accepted financial model, such as the Capital Asset Pricing Model, is to be used."*

Section 24 of the NGL specifies the revenue and pricing principles which the AER must take into account in exercising its discretion. Sections 24(2), 24(5) and 28(2) require the AER to exercise its discretion to ensure that:

> *"A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—*
>
> *(a) providing reference services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment."*
>
> *"A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates."*

In May 2009, the AER issued a Statement of Regulatory Intent setting out the WACC parameters and methodologies applying to electricity distribution and transmission networks regulated under the National Electricity Rules (NER). In its most recent Final Decision made under the NGR, the AER stated:

"Although the SORI has no status under the NGR, it was intended to provide guidance to the gas sector."[45]

Section 7 of Part B of SP AusNet's current access arrangement describes a range of Fixed Principles that apply. SP AusNet's current access arrangement also enables SP AusNet to elect not to apply a fixed principle. Section 7.2(a)(4) set out the following Fixed Principle:

"To the extent that the Rate of Return is relevant to the determination of Reference Tariffs, the Rate of Return on the Capital Base shall be calculated on a real, post-tax basis. If applicable, this Fixed Principle applies for 30 years."

In its most recent final decisions under the NGR, the AER has adopted a revenue modelling approach that employs a nominal vanilla WACC. In the interests of consistency, SP AusNet proposes to adopt the nominal vanilla WACC in the forthcoming access arrangement period.

The information set out in this chapter accords with all of the applicable requirements of the NGL and the NGR.

8.4 Rate of return methodology

The nominal vanilla WACC is formulated as follows:

$$WACC = k_e \frac{E}{V} + k_d \frac{D}{V}$$

Where:

k_e = the expected rate of return on equity, or cost of equity

k_d = the expected rate of return on debt, or cost of debt

E/V = the market value of equity as a proportion of the market value of equity and debt

D/V = the market value of debt as a proportion of the market value of equity and debt.

In all of its decisions under the NGR, the AER has applied the capital asset pricing model (CAPM) to estimate the cost of equity. The CAPM is formulated as follows:

$$k_e = r_f + \beta_e \times MRP$$

Where:

r_f = the nominal risk-free rate of return

β_e = the equity beta

MRP = the market risk premium

The CAPM is prescribed for application to electricity distribution and transmission networks under the NER, however it is not prescribed by the NGR. Nonetheless, in the interests of consistency, SP AusNet proposes to apply the CAPM to estimate the cost of equity.

8.5 Estimating the cost of equity

8.5.1 Introduction

This section sets out SP AusNet's approach to estimating the cost of equity. It is structured as follows:

[45] AER, Final Decision: *Envestra Ltd Access Arrangement Proposal for the Queensland Gas Network, 1 July 2011 – 30 June 2016*, June 2011, p. 190.

- Section 8.5.2 examines the AER's standard approach to applying the CAPM, and demonstrates that in the prevailing capital market conditions, the AER's approach fails to deliver an estimate of the cost of equity that meets the requirements of the NGR.
- Section 8.5.3 provides an estimate of the cost of equity using a long term average risk free rate combined with a long term average market risk premium (MRP).
- Section 8.5.4 provides an estimate of the cost of equity using a forward-looking MRP combined with the current risk free rate.
- Section 8.5.5 sets out SP AusNet's proposed equity beta.
- Section 8.5.6 concludes by applying further cross-checks to the cost of equity estimates, and sets out the cost of equity that SP AusNet proposes to adopt.

8.5.2 AER's approach fails to meet the NGR requirements

In estimating the cost of equity using the CAPM, it has become standard practice in the AER's regulatory decisions to combine:

- an estimate of the MRP which is substantially based on historic data averaged over various periods from 1883 to the present day; and
- a current-day estimate of the risk free rate, typically based on observed yields on 10 year Government bonds over 15 or 20 trading days immediately prior to the decision.

Under conditions of normally functioning capital markets, the AER's standard regulatory approach to estimating the cost of equity would generally result in reasonable estimates of the cost of equity. Ordinarily, therefore, the standard regulatory approach would produce an estimate of the cost of equity that is consistent with Rule 87(1). However, current market conditions are far from normal, and this has led to problems with the AER's approach.

The AER's most recent decision for Aurora Energy in November 2011 adopted an MRP of 6% and a risk free rate of 4.28%. Combined with an equity beta of 0.8, the AER estimated a cost of equity for Aurora Energy of 9.08%. This contrasts with the AER's decisions just 5 months earlier in June 2011 that determined a cost of equity of 10.36% for Envestra's gas networks in South Australia and Queensland, using the same values for the MRP and equity beta. To understand the reasons for the dramatic reduction in the AER's estimate of the cost of equity, it is necessary to review the regulatory estimates of the MRP and risk free rate which have been applied over the past decade.

An MRP of 6% has been adopted across a range of regulatory decisions in Australia as illustrated in the following Table 8-1, which is reproduced from a 2008 paper by Professor Bob Officer and Dr Steven Bishop[46].

46 Professor Bob Officer and Dr Steven Bishop, *Market Risk Premium – A Review - Prepared for Energy Networks Association, Australian Pipeline Industry Association and Grid Australia,* August 2008, Table 2, page 16.

Table 8-1: Earlier MRP decisions by Australian Regulators

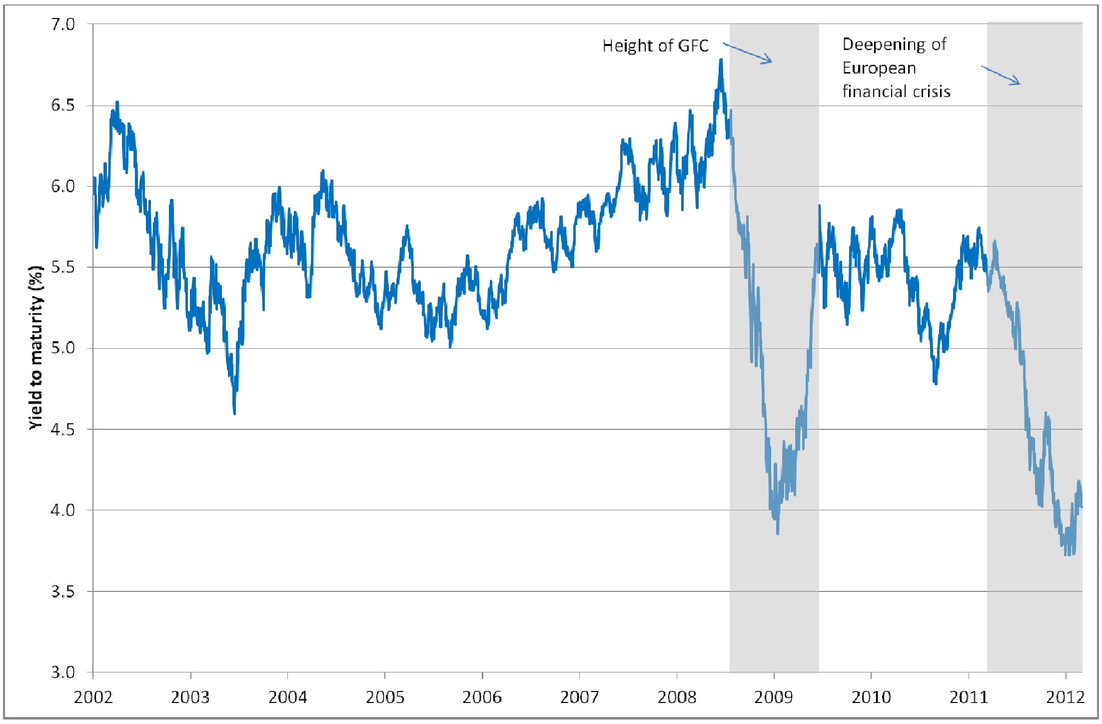
Year	Hearing	Rate
2000	ESC Electricity Distribution Price Review	6.00
2000	IPART AGL Gas Distribution Final Decision	5.00 — 6.00
2000	OFFGAR Alinta Gas Distribution Final Decision	6.00
2001	ACCC Moomba to Adelaide Gas Transmission Final Decision	6.00
2001	ACCC Powerlink Electricity Transmission Final Decision	6.00
2001	QCA Envestra and Allgas Gas Distribution Final Decision	6.00
2002	ACCC ElectraNet Electricity Transmission Final Decision	6.00
2002	ACCC GasNet Gas Transmission Final Decision	6.00
2002	ACCC SPI PowerNet Electricity Transmission Final Decision	6.00
2002	ESC Gas Distribution Final Decision	6.00
2003	ACCC Moomba to Sydney Pipeline Gas Transmission Final Decision	6.00
2003	ACCC Murraylink Electricity Transmission Final Decision	6.00
2003	ACCC Transend Electricity Transmission Final Decision	6.00
2003	OTTER Aurora Electricity Distribution Final Decision	6.00
2004	ICRC Actew AGL Electricity Distribution Final Decision	6.00
2004	IPART Electricity Distribution Final Decision	5.00 — 6.00
2005	ESCOSA Electricity Price Review Final Decision	6.00
2005	QCA Electricity Distribution Final Decision	6.00
2005	IPART Revised Access Arrangement for AGL Gas Networks Final Decision	5.50 — 6.50
2005	ERA Final Decision on the Proposed Access Arrangement for the Goldfields Gas Pipeline	5.00 – 6.00
2005	ESC Electricity Distribution Price Review	6.00
2006	QCA Gas	6.00
2006	OTTER Electricity Price Review	6.00
2007	ESC Gas Distribution Price Review	6.00

Following its Statement of Regulatory Intent in May 2009, the AER's regulatory decisions adopted an MRP value of 6.5% to reflect the AER's assessment of the impact of the GFC. However, in its most recent determinations under the NGR (in June 2011) the AER has reverted to an MRP of 6%, arguing that the effects of the GFC have dissipated. As already noted, the AER's reversion to this lower MRP was confirmed in its November 2011 Draft Decision for Aurora Energy, which was conducted under the National Electricity Rules.

The stability of the AER's 6% MRP estimate reflects the fact that it is derived from a long historic data series, which dates back to the 1880s. To understand why the AER's standard regulatory approach is likely to produce substantial changes in the cost of equity estimates over time, it is instructive to compare the stability of the regulator's MRP estimate with the movement in the risk free rate over a similar time period. The figure below is reproduced from an independent expert report by Dr Hird of CEG[47], which is provided as Appendix 8A.

47 CEG, *Internal consistency of risk free rate and MRP in the CAPM, Prepared for Envestra, SP AusNet, and Multinet, March 2012*, page 4.

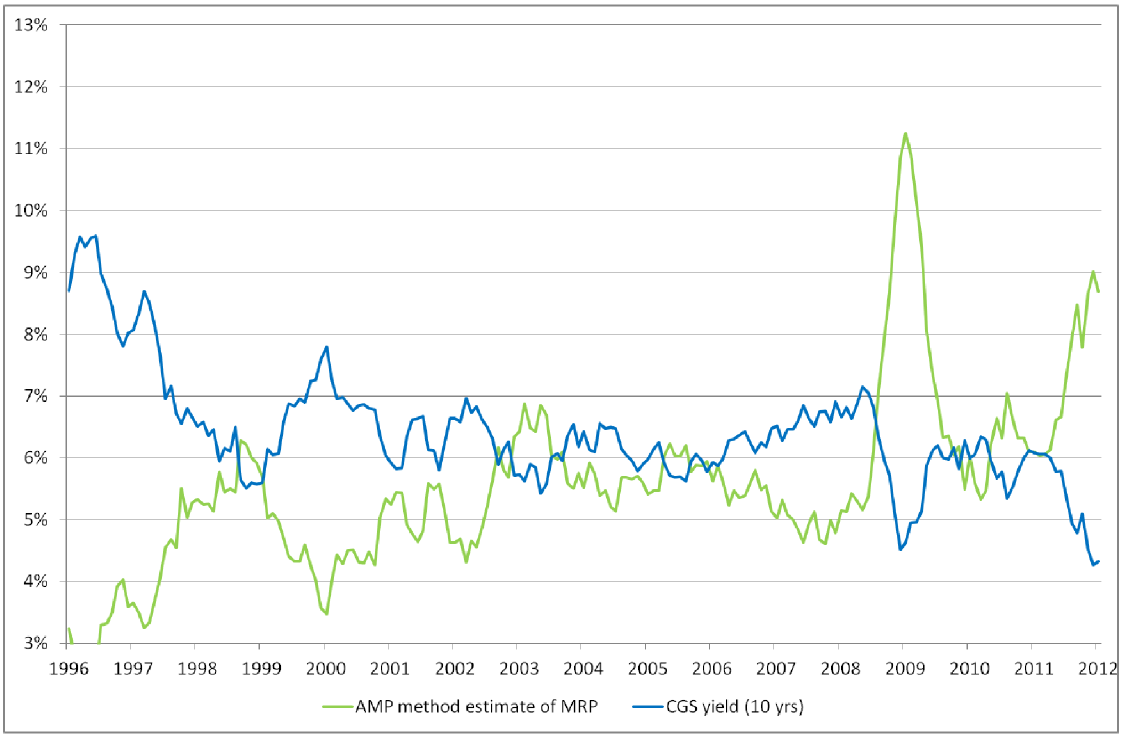
Figure 8-1: Time series for yields on ten year CGS



Source: CEG

The AER's approach produces estimates of the cost of equity that move in line with changes in the risk free rate. For example, the AER's estimation method would produce a cost of equity in January 2009 that is 300 basis points lower than June 2008. Such an outcome is not credible. Contrary to the AER's method, CEG explains (and illustrates in the figure below) that risk premiums tend to move in the opposite direction to movements in the risk free rate, which means that the cost of equity is more stable over time.

Figure 8-2: Risk premiums on listed equities (AMP method) vs. 10 year yield on CGS



Source: CEG

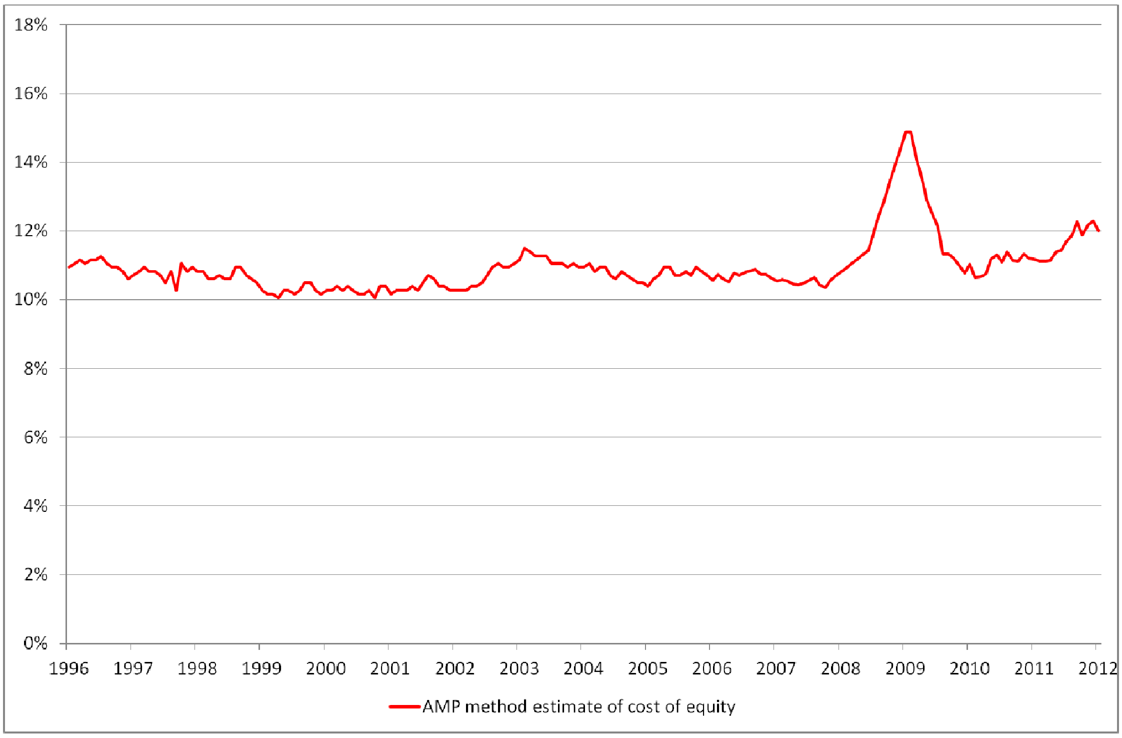
CEG notes that the negative relationship between risk premiums and yields on CGS illustrated in the figure above is intuitively easy to understand. In periods of high investor risk aversion there is a flight from risky assets to safe assets. This tends to push up the price, and push down the yields on safe assets. For this reason, falling risk free rates tend to be associated with rising investor risk premiums (and vice versa).

The UK regulators have recognised this relationship, and as a group, they commissioned Smithers and Co to address the problems associated with using a volatile estimate of the prevailing risk free rate alongside a stable estimate of the market risk premium. The advice from Smithers and Co was that the MRP would tend to move to offset any change in the risk free rate:

> *Given our preferred strategy of fixing on an estimate of the equity return, any higher (or lower) desired figure for the safe rate would be precisely offset by a lower (or higher) equity premium, thus leaving the central estimate of the cost of equity capital unaffected.*[48]

As noted above, the cost of equity is much more stable than its constituent parts. This is illustrated in the following measure of the cost of equity using a method developed by AMP Capital Investors and previously adopted by the AER.[49]

Figure 8-3: Total cost of equity (AMP method)



Source: RBA, CEG analysis

CEG also refers to a report from Lancaster and Dowling (2011) which explains that during periods of heightened risk aversion, CGS yields tend to be pushed down due to a flight to the safest and most liquid securities. However, this does not translate into a lower required rate of return on other assets, even relatively safe state government debt.

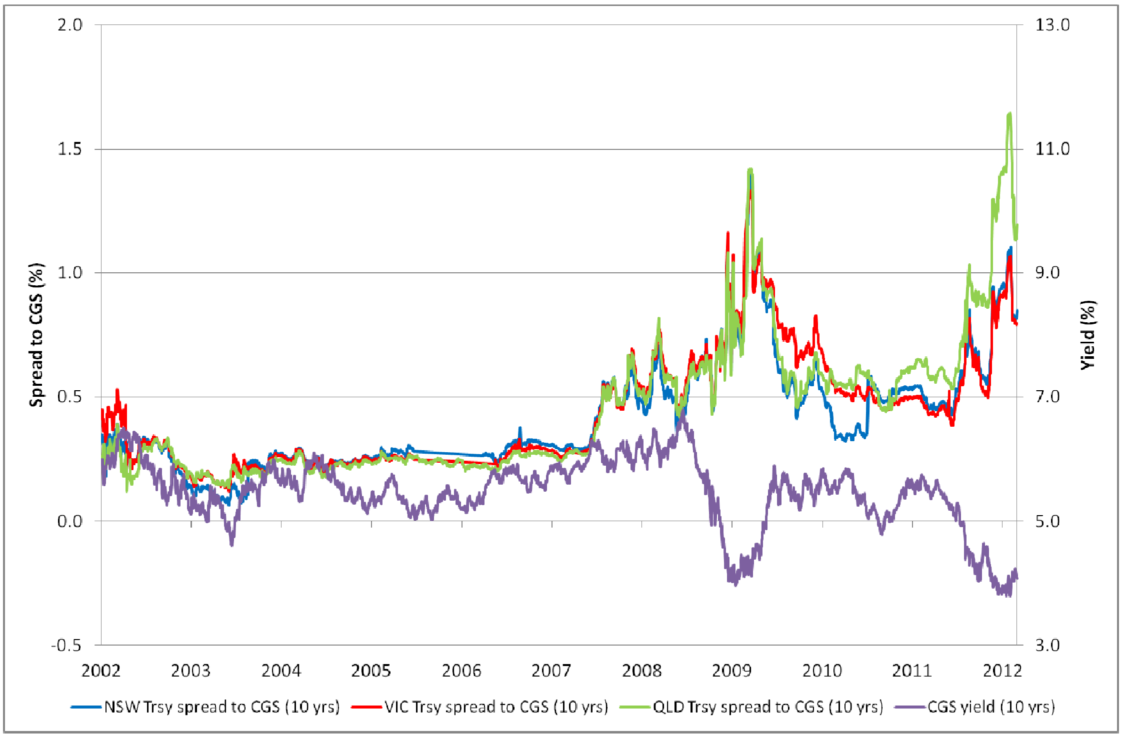
48 Smithers and Co, *A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K: A report commissioned by the U.K. economic regulators and the Office of Fair Trading*, 2003, p. 49.

49 AER, *Electricity transmission and distribution network service providers Review of the weighted average cost of capital (WACC) parameters*, December 2008, page 173.

A powerful demonstration of this evidence is provided by examining the movements in risk premiums on state government debt and the movements in CGS yields on the same graph.

Figure 8-4 below shows the yield difference between state government debt and 10 year CGS on the left hand axis. Because this is measured as a *difference in yields* the scale used for this time series is different to the scale used for the CGS yields – which is shown on the right hand axis.

Figure 8-4: 10 year risk premiums on state government debt against 10 year yields on CGS



Source: Bloomberg, CEG analysis

In contrast to the above evidence, the AER's method for estimating the cost of equity assumes a one-to-one relationship between changes in the cost of equity and changes in the risk free rate. In SP AusNet's view, this implicit assumption is inconsistent with the evidence set out above and explained in the CEG report.

Dr Hird's independent expert report states:

> *"Based on the evidence summarised above, I conclude that the AER's methodology is not valid in current market conditions. Specifically, the assumption, implicit in the AER methodology, that the cost of equity has moved one-for-one with CGS yields and is currently at historically low levels is invalid. Moreover, it is likely to be invalid in the medium term due to supply and demand dynamics in the market for CGS."*[50]

Dr Hird's report proceeds to propose three alternatives to the AER's methodology that implement the CAPM using prevailing estimates for parameters other than just the risk free rate. Dr Hird notes that he considers that each of these methodologies would comply with Rule 87(1) of the NGR if applied in the current market circumstances. The three alternatives are:

i. Directly estimating the prevailing cost of equity for regulated utilities using the dividend growth model (involving a simultaneous estimate of all parameters of the CAPM).

[50] CEG, *Internal consistency of risk free rate and MRP in the CAPM, Prepared for Envestra, SP AusNet, and Multinet, March 2012*, paragraph 19.

ii. Directly estimating the prevailing MRP relative to the prevailing CGS yield being used as the risk free rate. This eliminates potential for error from the AER's methodology where there is no attempt to estimate the MRP relative to the prevailing risk free rate.

iii. Estimating a 'normal' cost of equity for regulated businesses by, for example, estimating each of the CAPM parameters using a suitable historical time period or using a historical average of DGM estimates for regulated utilities.

These alternatives are variants of two possible methods for correcting the problems with the AER's method for estimating the cost of equity:

- Combine measures of the risk free rate and MRP that are both historic averages; or
- Combine a current measure of the risk free rate with a genuinely forward-looking measure of the MRP.

Each of these two methods is discussed in further detail below.

8.5.3 Cost of equity estimates using a long term average risk free rate

The purpose of this methodology is to combine a measure of the MRP derived essentially from historic data with an estimate of the nominal risk free rate which is broadly consistent.

Dr Hird found that the use of historical measures of the risk free rate and MRP provides a proxy for the prevailing cost of equity if the prevailing cost of equity is relatively stable over time. Dr Hird noted that this proposition is supported by the evidence presented in his report.

Dr Hird commented on this methodology as follows:

> *"In my view there are two possible sources of an estimate of the historical average risk free rate that can be used in conjunction with a historical average MRP estimate (such as the AER's 6% estimate). My preference is to adopt the historical average yield on inflation indexed CGS. This yield is, by definition, the required return on these CGS bonds after inflation (which is separately compensated based on actual inflation over the life of the bond). Based on a time series from 1993 the average yield on indexed CGS was 3.40%. I note that this is a conservative estimate because, from late 2008, the AER ceased using indexed CGS as the risk free rate proxy because of evidence that scarcity of supply was biasing down the required yield on these CGS*
>
> *Combining my best estimate of the historical average real required return on 10 year CGS with a beta of 0.8 and an MRP of 6% gives a real cost of equity of 8.2%. If expected inflation going forward is 2.5% then a 5.99% nominal yield is required to deliver the same 3.40% real yield. Using this nominal CGS yield with a beta of 0.8 and an MRP of 6% gives a nominal cost of equity of 10.8%."*[51]

In relation to the selection of a 6% MRP estimate, Dr Hird also commented:

> *"The 6% MRP estimate used above is the estimate most commonly used by Australian regulators over the period in relation to which the yields on CGS have been averaged. If the use of a 6% MRP over this period was, on average, correct then it is consistent and appropriate that an average CGS yields over this period be added to it.*
>
> *While the genesis of the 6% MRP estimate may be based on the average of a longer time series of historical ex post returns on equity relative to CGS, I do not consider that this makes it problematic to use a shorter time series for historical average ex ante real returns on CGS.*
>
> *There are two reasons why I hold this view:*
>
> - *We are interested in estimating the ex ante real risk free rate (i.e. the expected return for investors after accounting for inflation). This can be estimated with much greater accuracy post 1993 compared with pre 1993 due to the introduction of*

51 CEG, *Internal consistency of risk free rate and MRP in the CAPM, Prepared for Envestra, SP AusNet, and Multinet, March 2012*, paragraphs 169 and 170.

inflation indexed bonds which allow us to directly estimate the real CGS yield actually required by investors over that period;

- *Secondly, historical average estimates of MRP must be based on very long time periods because the volatility in the observed ex post excess return on equities is so large that a long period is required in order to have any confidence in the average reflecting ex ante investor expectations. This is not the case with indexed CGS where the promised real yield is the real yield actually delivered. Nor is it the case with nominal CGS in a low and stable inflation environment such as has existed post 1993."* [52]

SP AusNet has given careful consideration to the opinions expressed by Dr Hird in relation to the selection of a measurement period for averaging the nominal risk free rate. It is noted, in particular, that the overall objective is to derive a reasonable estimate of the cost of equity for the forthcoming regulatory period, given the NGL and NGR requirements. The task is not to develop a forward-looking estimate of the risk free rate per se. Such a task is not required by the NGR, and in any case would be fraught with difficulty because forward rates derived from the yield curve cannot predict the substantial changes in interest rates that may result from macro-economic factors and external shocks such as, for instance, the GFC and the European sovereign debt crisis.

SP AusNet has also been mindful that an MRP of 6% has been adopted by Australian regulators almost universally throughout the period from 2000 to 2012. As noted in section 8.5.2, the only exception relates to a brief period immediately following the GFC when the AER concluded that an increase to 6.5% was warranted. While the cost of equity is likely to have changed over this period, it is unlikely to have declined. As already explained, the available evidence suggests that investors are more risk averse and therefore the required rates of return will tend to be higher.

SP AusNet examined the daily averages of the nominal risk free rate over the past 5, 10, 15 and 20 years. The averages fall within a narrow range between 5.36% (5 year average) and 5.99% (20 years average), which is remarkably stable. SP AusNet is mindful that whilst the 5 year averaging period gives greatest weight to the most recent data, it is also affected by the volatility resulting from the GFC. SP AusNet concurs with Dr Hird that a 20 year averaging period is appropriate. In particular, SP AusNet notes that this measurement period is appropriate because:

- it offers a relatively long time series, which is consistent with the measurement approach for the MRP;
- it is a period of relatively stable inflation and inflationary expectations; and
- it coincides with the Reserve Bank of Australia's independent role in relation to monetary policy and the adoption of an inflation target between 2% and 3%.

In these circumstances SP AusNet considers that the 20 year average is an appropriate proxy for the risk free rate, when combined with an MRP estimate of 6%.

Applying an equity beta value of 0.8 (in accordance with the reasoning set out in section 8.5.5 below), the resulting cost of equity is estimated as follows:

$$k_e = r_f + \beta_e \times MRP$$

$$= 5.99\% + (0.8 \times 6)$$

$$= 10.79\%$$

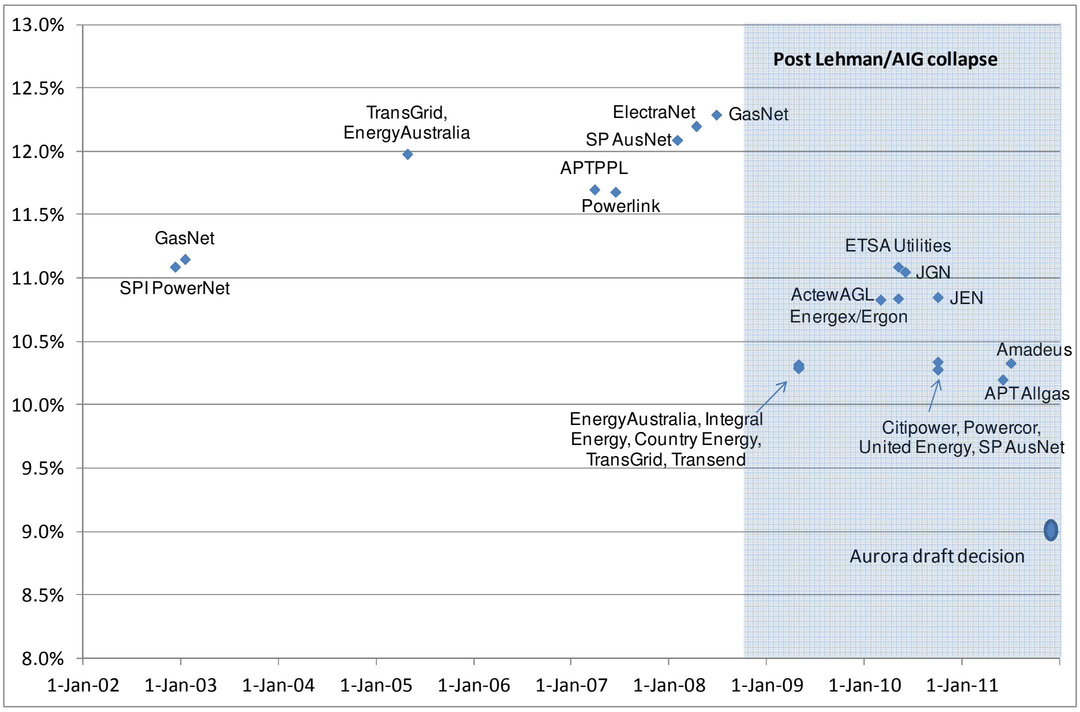
A nominal cost of equity estimate of 10.79% falls between:

52 Ibid, paragraphs 171 to 173.

- the AER's nominal cost of equity of 11.05% for Jemena Gas Network in June 2010; and
- the AER's nominal cost of equity of 10.36% for Envestra and 10.2% for Allgas in June 2011.

SP AusNet's estimated cost of equity is also lower than any AER or ACCC decision prior to the commencement of the GFC, as illustrated in the figure below.

Figure 8-5: AER cost of equity decisions for regulated energy networks



Source: CEG

These recent AER decisions provide a cross-check for SP AusNet's cost of equity estimate. Further cross-checks are applied to SP AusNet's estimate of the cost of equity, as explained in sections 8.5.4 and 8.5.6 below.

8.5.4 Forward looking methodologies for estimating the cost of equity

Dr Hird explains that forward looking methodologies for estimating the cost of equity are also capable of addressing the shortcomings with the AER's standard method. Dr Hird proposes two methods:

- Directly estimating the prevailing cost of equity for regulated utilities using the dividend growth model (involving a simultaneous estimate of all parameters of the CAPM); and
- Directly estimating the prevailing MRP relative to the prevailing CGS yield being used as the risk free rate. This eliminates the potential for error arising from the AER's methodology where there is no attempt to estimate the MRP relative to the prevailing risk free rate. In this methodology the AER's proposed value of 0.8 for beta is adopted.

In relation to the first methodology, Dr Hird comments:

> *"The first methodology is entirely forward looking. Assuming that the CAPM model describes how investors determine prevailing conditions in the market for funds, this methodology estimates all components of the CAPM formula jointly. Such an estimate reflects the forward looking assessment of both market risk (MRP) and relative risk of the reference services (beta). This approach also implicitly captures the actual risk free*

rate that investors use when applying the CAPM (rather than needing to adopt a potentially biased proxy such as CGS)."[53]

Dr Hird's application of the above methodology produces a forward looking cost of equity for Australian regulated utilities of between approximately 10.9% and approximately 14.6%. This outcome is based on analyst dividend forecasts sourced from Bloomberg on 24 February 2012 and 9 March 2012 and the average price of equities for these firms over the period from 24 February 2012 to 9 March 2012. The range for the cost of equity reflects a range for the assumed rate of long term dividend growth from zero in real terms (2.5% nominal) to growth in line with long term average GDP growth (6.6% nominal).

In relation to the second methodology, Dr Hird comments:

"As with the first methodology, the second methodology relies on a DGM estimate of prevailing returns but instead of being only for comparable firms the DGM is applied to the market as a whole. However, one still needs to separately analyse comparable firms in order to arrive at an estimate of the risk of the reference service relative to the market (beta)."[54]

In applying the second methodology, Dr Hird estimates the prevailing market cost of equity (for a beta of 1) to be 12.3%, while the MRP is estimated to be 8.5%. This is based on the AMP method, noted earlier, using end December 2011 dividend yields from the RBA; long run dividend growth of 6.6% nominal; and an assumed value for franking credits. Applying a beta of 0.8 and a risk free rate of 3.8% as at 31 December 2012 this methodology produces an estimated cost of equity of approximately 10.6%.

In addition to the two methods proposed by Dr Hird, NERA has developed an alternative approach to estimate the forward looking MRP, known as a regime switching model. NERA's analysis is set out in their independent expert report[55], which in attached as Appendix 8B.

In a regime switching model there are two (or more) regimes or "states of the world" and the variable in question is modelled differently in each. In NERA's model, the MRP is modelled in each of the two regimes – one regime is characterised by low volatility and a correspondingly low MRP, and the other regime is characterised as high volatility with a high MRP. Forward-looking estimates of the MRP are produced by modelling the process by which the market transitions from one regime to the other.

When interpreting regime-switching models, it is important to note that the regime that governs the transition process is not observable and must be inferred from the available data. That is, it is not possible to observe which regime currently governs the process and to then adopt the estimate of MRP for that regime as being the one that is commensurate with the prevailing conditions in the market. Rather, the identity of the regime in question must be inferred from the observable data.

NERA's modelling indicates a high probability (approximately 80%) that the market is currently in a high volatility regime. The mean length of a stay in the high volatility state is more than 15 years. NERA's modelling concludes that if the 10-year bond yield were 3.99% per annum, an estimate of the MRP for the next five years derived from the regime-switching model, relative to the 10-year bond yield, would be 8.44% per annum. NERA's work has been reviewed in a separate independent expert report[56] (attached as Appendix 8C) prepared by Professor Stephen Gray of SFG, an expert in regime switching models. Professor Gray states:

---

53 Ibid, paragraph 152.

54 Ibid, paragraph 159.

55 NERA, *Prevailing Conditions and the Market Risk Premium: A report for APA Group, Envestra, Multinet & SP AusNet*

56 SFG, *Review of NERA regime-switching framework: Report for APA Group, Envestra, Multinet Gas and SP AusNet*

"In my view, the regime-switching approach, which produces a present estimate of 8.44%, is an appropriate method for obtaining an estimate of the market risk premium that is commensurate with the prevailing conditions in the market for funds. Such an estimate of MRP would be used in an asset pricing model that has the purpose of producing an estimate of the required return on equity."[57]

Applying an equity beta value of 0.8 (in accordance with the reasoning set out in section 8.5.5) below, the resulting cost of equity using the regime switching model is calculated as follows:

$$k_e = r_f + \beta_e \times MRP$$

= 3.99% +(0.8 x 8.44)

= 10.74%

This estimate of the cost of equity accords with the 10.79% derived by SP AusNet using longer term average measures of the risk free rate and MRP, described in section 8.5.3 above. These estimates are also consistent with the forward looking estimates of the cost of equity derived by Dr Hird using the dividend growth model (DGM), as noted above, and summarised in the table below.

Table 8-2: Estimates of the forward-looking cost of equity by Dr Hird

Basis of estimate	Time period	Cost of equity	Comments
DGM for regulated businesses DGM model applied to utility stocks in Australia.	Dividend forecasts averaged over 24 Feb and 9 March. Price and CGS averaged over period 24 Feb to 9 March 2012	10.87% to 14.59%	Range based on long run real dividend growth of between zero and in-line with GDP.
DGM for the market Application of the AMP methodology to estimate prevailing MRP by applying a beta of 0.80 and the prevailing risk free rate	End-December 2011	10.58%	

Source: CEG

To provide further cross-checks of its estimate of the cost of equity, SP AusNet also obtained an independent expert report from Dr Neville Hathaway of Capital Research[58]. The report is provided as Appendix 8D. Dr Hathaway used a Price Earnings Model (a form of the DGM) to derive forward looking estimates of the MRP. These were then used as inputs to the Sharpe Lintner CAPM (SL CAPM) to derive estimates of the cost of equity, as summarised in the table below.

57 Ibid, paragraph 30.

58 Capital Research, *Forward Estimate of the Market Risk Premium: Update, A report prepared for APA Group, Envestra, Multinet Gas and SP AusNet*, March 2012

Table 8-3: Estimates of the forward-looking cost of equity by Dr Hathaway

Timing of estimate	Forecast, grossed-up dividend yield	Projection for growth in DPS	Risk-free rate	*Ex ante* MRP	Cost of equity using SL-CAPM
Estimate as at 31 Dec 2011	6.29%	7.00%	3.73%	9.56%	**11.38%** (for equity beta of 0.8)
Arithmetic mean of monthly values, Oct 2009 to Jan 2012	5.23%	7.00%	5.08%	7.15%	**10.80%** (for equity beta of 0.8)

Source: Capital Research

The estimates of the forward looking cost of equity made by Dr Hird and Dr Hathaway provide cross-checks which demonstrate that an estimate of the nominal cost of equity for the forthcoming access arrangement period of 10.79%, using the long term averaging approach for the risk free rate, accords with the requirements of rule 87 of the NGR.

8.5.5 Equity beta

In its most recent final decision under the NGR, the AER stated:

> *"Consistent with the 2009 WACC review, the AER's draft decision considered that an equity beta of 0.8 would ensure that the service provider has the opportunity to recover at least its efficient costs incurred in providing reference services…*
>
> *The AER maintains its position in the draft decision and considers that an equity beta of 0.8 provides the best estimate commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services, as required under r. 74(2) and r. 87(1) of the NGR."*[59]

SP AusNet notes that an equity beta of 0.8 (in the context of a benchmark capital structure of 60% debt to total assets) is consistent with the SORI.

SP AusNet has adopted an equity beta of 0.8 for the purpose of this proposal.

8.5.6 Further cross-checks and conclusion: Cost of equity estimate

SP AusNet SP AusNet has demonstrated that in unusual capital market conditions – such as those prevailing – the AER's standard regulatory approach to estimating the cost of equity fails to produce an outcome that meets the requirements of the NGR.

SP AusNet has used the CAPM to estimate the cost of equity, and it has employed two alternative approaches for deriving an estimate that is consistent with the NGR and NGL. These methods involve:

- combining measures of the risk free rate and MRP that are both historic averages; and
- combining a current measure of the risk free rate with a genuinely forward-looking measure of the MRP.

Both methods produce similar estimates of the cost of equity, of approximately 10.8% nominal. SP AusNet has demonstrated that this estimate is consistent with that contained in the most recent decisions made by the AER (in June 2011) under the NGR.

59 AER, Final Decision: Envestra Ltd Access arrangement proposal for the Queensland gas network 1 July 2011 – 30 June 2016, June 2011, p. 42.

SP AusNet has obtained an independent expert opinion from NERA[60] (applying the Black CAPM), and this report provides a further cross-check to verify SP AusNet's estimate of the cost of equity. The key findings and conclusions of this report are as follows:

> *"To summarise, in our opinion:*
>
> - *an empirical version of the Black CAPM is better able than an empirical version of the SL [Sharpe Lintner] CAPM to produce an estimate of the cost of equity that meets the requirements of Rule 87 (1) that the rate of return on capital be commensurate with prevailing conditions in the market for funds;*
> - *the Black CAPM is a well accepted financial model, as required by rule 87(2)(b); and*
> - *an estimate of the cost of equity that uses an empirical version of the Black CAPM is 12.14 per cent per annum."* [61]

NERA's report is provided as Appendix 8E to this AAI.

In the circumstances, SP AusNet proposes a cost of equity of 10.79%.

8.6 Cost of debt

Standard regulatory practice is to estimate the cost of debt by summing the current risk free rate (being the yield on 10 year Government bonds) and a forward looking debt risk premium. It is noted, therefore, that the risk free rates adopted for the purposes of estimating the costs of equity and debt may differ, however, when those costs of debt and equity are combined using the nominal vanilla WACC formulation set out in section 8.4 they produce an estimate of the WACC that meets the requirements of rule 87(1).

In relation to the measurement period to be adopted for the purpose of determining the cost of debt risk free rate and the debt risk premium, the AER's recent decisions under the NGR set out the following criteria:

- The averaging period should be nominated in advance of the commencement of the period and should not include a date in the past.
- The averaging period should be between 10 and 40 business days in length.

SP AusNet proposes to apply these criteria.

For the purpose of this access arrangement revision proposal, SP AusNet has adopted a 20 business day averaging period for the cost of debt risk free rate and debt risk premium commencing on 21 November 2011 and ending on 16 December 2011.

SP AusNet has obtained independent expert opinions from PWC[62] and CEG[63] in relation to the cost of debt, which are provided as Appendices 8F and 8G, respectively to this AAI. Both PWC and CEG noted that the Australian Competition Tribunal has continued to endorse the extrapolated Bloomberg fair value curve as an appropriate method for estimating the DRP. PWC commented that the Bloomberg fair value curve is the most comprehensive published embodiment of market opinion about the debt risk premium. In a similar vein, CEG noted that:

> *"The Bloomberg fair value curve is built for and commercially provided to debt market participants who pay to use it for commercial purposes. In deriving its fair value curves Bloomberg has a great deal of information available to it – including, but not limited to,*

---

60 NERA, *The Black CAPM: A report for APA Group, Envestra, Multinet & SP AusNet.*

61 Ibid, page iv.

62 PWC, *Estimating the Debt Risk Premium*, March 2012.

63 CEG, *Estimating the regulatory debt risk premium for Victorian gas businesses,* March 2012.

estimates of market prices of many hundreds of bonds across a range of credit ratings and maturities.'[64]

Based on a benchmark BBB+, 10 year Australian corporate bond, PWC and CEG conclude that a debt risk premium of 3.92% should be adopted for the measurement period from 21 November 2011 to 16 December 2011. Combined with the risk free rate of 3.99% over the same measurement period, the cost of debt is estimated to be 7.91%.

SP AusNet will lodge a separate and confidential request with the AER to agree, prior to the final decision, the averaging period for setting the cost of debt allowance for the purpose of the final decision. SP AusNet will request that the agreed averaging period remains confidential until the AER delivers its final decision.

8.7 Capital structure

The June 2010 final decisions for Envestra SA and Queensland, and Allgas Queensland stated:

> *"The AER considers that a gearing ratio of 60 per cent for the benchmark efficient electricity business is supported by the most recent available empirical evidence [see AER, WACC review final decision, May 2009, pp. 124–125]. In the WACC review, the AER included gas businesses as close comparators to the benchmark electricity business. The AER considers that this reasoning also holds in reverse - that is, electricity businesses are close comparators for the benchmark efficient gas business [see AER, WACC review final decision, May 2009, pp. 104–110]. Further, the majority of businesses in the WACC review sample were involved in gas networks. [see AER, WACC review final decision, 1 May 2009, pp. 121–127]. The AER considers that the best estimate arrived at on a reasonable basis in accordance with rule 74(2) of the gearing level for the benchmark efficient gas business is 60 per cent. This is consistent with the requirement of rule 87 of the NGR that the rate of return on capital is to be commensurate with prevailing conditions in the market for funds."*

On the basis of the reasoning provided in the AER decisions cited above, SP AusNet proposes to adopt a benchmark capital structure of 60% debt to total assets for AA3.

8.8 Expected inflation

The expected inflation rate is not an explicit parameter within the WACC calculation. However, it is used in the revenue model to forecast nominal allowed revenues and to index the capital base. It is an implicit component of the nominal risk-free rate. In previous decisions made under the NGR:

- The AER has stated that the inflation forecast must be consistent with the ten year investment horizon of the risk free rate.
- The AER has accepted a 10 year inflation forecast derived from the geometric mean of the near-term CPI forecasts published by the Reserve Bank of Australia in its most recent Statement on Monetary Policy (being the February 2012 Statement), and for the remaining years of the 10 year period for which explicit forecasts are not provided, the midpoint (being 2.5%) of the RBA's inflation target of 2% to 3%.

SP AusNet has derived a forecast of expected inflation in accordance with this methodology. The annual forecast data used for this purpose are set out in Table 8-4 below.

---

64 Ibid, paragraph 11.

Table 8-4: Annual CPI forecasts

Year ending December	2013	2014	2015-2022
CPI Forecast	2.75%	2.5%	2.5%

Source: RBA Statements on Monetary Policy, SP AusNet analysis

The geometric mean of this series of annual CPI forecasts is 2.51%. Accordingly, SP AusNet proposes to adopt a 10-year CPI forecast of 2.51%.

8.9 Corporate tax allowance

8.9.1 Methodology

The estimated cost of corporate income tax (ETC_t) for each regulatory year (t) has been calculated by SP AusNet in accordance with the following formula:

$ETC_t = (ETI_t \times r_t)(1 - \gamma)$

where:

ETI_t 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 services if such an entity, rather than SP AusNet, operated the business of SP AusNet,

r_t is the statutory income tax rate for that regulatory year; and

γ is the assumed utilisation of imputation credits.

SP AusNet's calculation of the annual allowance for corporate tax is consistent with the approach adopted in all previous AER gas and electricity distribution decisions.

8.9.2 Value of imputation credits (gamma)

The value of gamma is the value of franking credits distributed to shareholders. Gamma is the product of two components, the distribution ratio (F) and utilisation rate or 'theta' (θ). The distribution rate represents the proportion of franking credits that are distributed to shareholders by attaching them to dividends and theta is the value of each franking credit.

This is represented by the following formula:

$$\gamma = F \times \theta$$

The AER's 2009 WACC review increased gamma from 0.5 (the value previously adopted by Australian regulators) to 0.65[65]. However, in October 2010 the Australian Competition Tribunal found there was substantial evidence to suggest that the AER had made a material error of fact and exercised its discretion incorrectly in the calculation of both the distribution ratio and utilisation rate[66].

Subsequently, both of the components of gamma were reviewed by experts, the AER and the Tribunal. These findings have resulted in revisions to the calculation of the distribution ratio and theta, which now provide for a gamma of 0.25.[67]

Following the Tribunal's decision on gamma, the AER delivered its June 2011 Final Decision for Envestra and APT Allgas, in which it stated:

65 AER, *Electricity transmission and distribution network service providers Review of the weighted average cost of capital (WACC) parameters, Final Decision*, 2009, p. v.

66 Application by Energex Limited (Gamma) (no 2) [2010] ACompT 7 (13 October 2010).

67 Application by Energex Limited (Gamma) (no 5) [2011] ACompT 9 (12 May 2011).

"There is no new evidence currently before the AER that would cause it to depart from the findings of the Tribunal in respect of gamma." [68]

In arriving at its decision on the distribution ratio the Tribunal considered a submission filed by the AER. The Tribunal found that there is no empirical data capable of supporting a distribution ratio higher than 70%[69], and concluded that the appropriate estimate for the distribution ratio is 70%. Consistent with the Tribunal's decision[70], SP AusNet has adopted a distribution ratio value of 70%.

In its decision on the utilisation rate[71], the Tribunal considered evidence from a range of submissions including a "state of the art" dividend drop-off study[72]. The Tribunal ultimately concluded that the dividend drop-off estimate of 35% for theta should be accepted as the best estimate available.

The Tribunal also noted that it was unable to reach any conclusion on the use of tax statistics for the estimation of an upper limit of the utilisation rate.[73] In accordance with the Tribunal's reasoning and conclusions[74], SP AusNet has adopted a value of 35%for the utilisation rate.

SP AusNet therefore proposes a value for gamma of 0.25 (being the product of the distribution ratio of 70% and the utilisation rate of 35%).

8.9.3 Corporate tax allowance

In accordance with the methodology described in Section 8.12, and adopting a value for gamma of 0.25, SP AusNet's taxation allowance is shown below.

Table 8-5: Allowance for the estimated cost of corporate tax, 2013 to 2017

($M Nominal)	2013	2014	2015	2016	2017
Tax Allowance	8.8	10.9	10.5	11.5	12.1

Source: SP AusNet

68 AER, *Final Decision Envestra, Access arrangement proposals*, June 2011, p.57.

69 Application by Energex Limited (Gamma) (no 3) [2010] ACompT 9 (24 December 2010).

70 Application by Energex Limited (Gamma) (no 5) [2011] ACompT 9 (12 May 2011).

71 Application by Energex Limited (Gamma) (no 5) [2011] ACompT 9 (12 May 2011).

72 SFG Consulting, Dividend drop-off estimate of theta, 21 March 2011.

73 Application by Energex Limited (Gamma) (no 5) [2011] ACompT 9 (12 May 2011).

74 Application by Energex Limited (Gamma) (no 5) [2011] ACompT 9 (12 May 2011).

8.10 Summary of proposed parameter values

SP AusNet proposes a nominal cost of equity of 10.79%, as shown in the table below.

Table 8-6: Derivation of cost of equity estimate

CAPM Parameter	Historic average risk free rate and historic average MRP
Risk free rate	5.99%
Market risk premium	6%
Equity beta	0.8
Cost of equity	**10.79%**

SP AusNet proposes a nominal vanilla WACC of 9.14%, which reflects the adoption of the parameter values set out in the following table.

Table 8-7: WACC and other parameter values

Parameter	Basis of estimate	Value
Cost of equity	CAPM; see Table 8-6	10.79%
Cost of debt *	Risk free rate of 3.99% plus debt risk premium of 3.92% over the measurement period from 21 Nov to 16 Dec 2011.	7.91%
Capital structure (debt to total value)	This value is consistent with the AER's previous decisions. Prevailing market evidence does not provide a compelling case to justify a departure from this benchmark.	60%
Corporate tax rate	The proposed value is the statutory corporate tax rate, consistent with the AER's previous decisions.	30%
Value of imputation credits	This value is consistent with the decision of the Australian Competition Tribunal made in May 2011, and the subsequent decisions of the AER.	0.25
Inflation forecast *	This is a 10 year forecast estimated from the inflation forecasts published by the RBA and the long term inflation target of the RBA. The approach is consistent with that applied by the AER.	2.51%
Vanilla WACC		**9.06% nominal**
** NOTE: Estimates of the nominal risk free rate for the purpose of deriving the cost of debt, expected inflation and the debt risk premium will be subject to change to reflect prevailing interest rates and the corresponding 10-year inflation outlook over a sampling period to be agreed (on a confidential basis) between the AER and SP AusNet prior to the final decision.*		

Source: SP AusNet

SP AusNet submits that the preceding discussion in this chapter satisfies the requirements of rule 72(1)(g), which requires SP AusNet to propose a rate of return, explain the assumptions on which the rate of return is calculated and demonstrate how it is calculated.

Moreover, SP AusNet is confident that the information set out above and in the accompanying independent expert reports demonstrates that:

- SP AusNet's approach to deriving the WACC accords with the requirements of rule 87(2); and;
- SP AusNet's WACC estimate meets the requirements of rule 87(1).

Applying the WACC to SP AusNet's projected capital base produces the forecast return on capital set out in the table below.

Table 8-8: Forecast return on capital

($M Nominal)	2013	2014	2015	2016	2017
Return on capital	117.1	124.6	132.0	140.3	147.7

Source: SP AusNet

9 Total revenue requirement

9.1 Summary of key points

This chapter provides an overview of SP AusNet's total revenue requirement, proposed price paths and the allocation of revenue between Ancillary Reference Services and Haulage Reference Services. The key points are:

- SP AusNet has applied the efficiency carry over mechanisms in accordance with the NGR and the ESC's 2008 GAAR final determination. The application of these incentive mechanisms produces an additional revenue allowance of $23.7 million over the forthcoming access arrangement period.
- SP AusNet proposes a smoothed revenue requirement that produces an initial price increase of 3.88 percent, followed by an X factor of zero percent for the remaining four years of the forthcoming period.
- SP AusNet has allocated the smoothed revenue requirement to Ancillary Reference Services and Haulage Reference Services in accordance with the NGR.

9.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 9.3 cites the applicable regulatory requirements.
- Section 9.4 presents information regarding the application of the incentive mechanisms in the current access arrangement.
- Section 9.5 presents the total revenue requirements and SP AusNet's proposed smoothed revenue for each year of the forthcoming access arrangement period.
- Section 9.6 shows the proposed allocation of SP AusNet's smoothed revenue requirements between Ancillary Reference Services and Haulage Reference Services.
- Section 9.7 shows the proposed allocation of SP AusNet's smoothed revenue requirements to Haulage Reference Services.

9.3 Regulatory requirements and SP AusNet compliance

Rule 76 defines total revenue as follows:

> *"Total revenue is to be determined for each regulatory year of the access arrangement period using the building block approach in which the building blocks are:*
>
> *(a) a return on the projected capital base for the year; and*
>
> *(b) depreciation on the projected capital base for the year; and*
>
> *(c) if applicable – the estimated cost of corporate income tax for the year; and*
>
> *(d) increments or decrements for the year resulting from the operation of an incentive mechanism to encourage gains in efficiency; and*
>
> *(e) a forecast of operating expenditure for the year."*

Rule 72(1)(m) states that the access arrangement information for a full access arrangement proposal must include the following:

> *"the total revenue to be derived from pipeline services for each regulatory year of the access arrangement period."*

Rule 93(1) states:

> *"Total revenue is to be allocated between reference and other services in the ratio in which costs are allocated between reference and other services."*

Clause 5(1)(a) of Schedule 1 (Transitional Provisions) of the NGR states:

"In deciding whether to approve an access arrangement revision proposal for a transitional access arrangement[75], or in making its own proposal for revision of a transitional access arrangement under rule 63 or 64, the AER must take into account the operation of an incentive mechanism approved for the transitional access arrangement under section 8.44 of the Gas Code and ensure, in particular, that revenue calculations made for the next access arrangement period properly reflect increments or decrements resulting from the operation of the incentive mechanism."

Rule 72(1)(i) states that the access arrangement information must include the following:

"if an incentive mechanism operated for the previous access arrangement period - the proposed carry-over of increments for efficiency gains or decrements for efficiency losses in the previous access arrangement period and a demonstration of how allowance is to be made for any such increments or decrements."

The information set out in this chapter accords with all of the applicable requirements of the NGR.

9.4 Application of current incentive mechanisms

The efficiency carryover mechanism is set out in Part B of the current access arrangement. The mechanism rewards efficiency improvements in relation to operating and capital expenditure by allowing the service provider to retain the saving for 5 years, irrespective of the year in which the saving is achieved. The formulation of the efficiency carryover mechanisms is summarised below.

For capital expenditure, efficiency gains (or losses) in any year would reflect the difference between the actual expenditure and the original forecast (or benchmark) expenditure level, as follows:

Efficiency Gain = WACC * $(\text{Capex}_i^{\text{Forecast}} - \text{Capex}_i^{\text{Actual}})$

where:

WACC is the pre-tax WACC applying to SP AusNet.

For operating expenditure the annual efficiency gain (or loss) in calendar year *i* would be calculated as:

Efficiency Gain = $\text{Underspending}_i - \text{Underspending}_{i-1}$

where:

$\text{Underspending}_i = \text{Opex}_i^{\text{Forecast}} - \text{Opex}_i^{\text{Actual}}$

In accordance with rule 72(1)(i), the following sections explain the proposed carry-over of increments for efficiency gains or decrements for efficiency losses in the current access arrangement period and a demonstration of how an allowance is to be made for any such increments or decrements. The calculations presented are consistent with Part B of the current access arrangement and the ESC's 2008 Final Decision.

9.4.1 Operating Expenditure

SP AusNet has undertaken modeling of its actual operating expenditure against the original expenditure benchmarks set during the review process for the third Regulatory Period, to calculate the operational efficiency reward to be carried forward.

The benchmark, against which the actual expenditure has been assessed, has been adjusted for the effects of growth in accordance with the approach set out in the ESC's Final Decision approach. The calculation reflects a PFP approach to establishing the operating expenditure benchmarks where the output adjustment comprises a weighted average of

75 Under Schedule 1 (Transitional Provisions) of the NGR, SP AusNet's current access arrangement is defined as a "transitional access arrangement".

projected growth in customers (75 per cent) plus projected growth in volumes (25 per cent). The Final Decision's expenditure benchmark number was adjusted to reflect actual outcomes of the current period. The results of calculations are set out below.

Table 9-1: Operating and maintenance expenditure

Description	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
O&M Benchmark $m (1/7/06)	43.0	43.2	43.9	44.7	45.8					
O&M Benchmark $m (2012)	52.1	52.4	53.3	54.2	55.5					
Adjustments to O&M $m (2012)	0.1	0.3	0.5	0.6	0.8					
Adjustments to O&M Benchmark $m (2012)	52.3	52.6	53.7	54.8	56.3					
O&M Actual $m (MOD)	40.7	42.8	38.5	41.2						
O&M Actual $m (2012)	46.7	46.7	41.5	43.2	44.7					
O&M Underspend $m (2012)	5.6	5.9	12.2	11.6	11.6					
O&M Incremental Gain $m (2012)	5.6	0.3	6.2	-0.6	-					
Carry-Over – Year 2008		5.6	5.6	5.6	5.6	5.6				
Carry-Over – Year 2009			0.3	0.3	0.3	0.3	0.3			
Carry-Over – Year 2010				6.2	6.2	6.2	6.2	6.2		
Carry-Over – Year 2011					-0.6	-0.6	-0.6	-0.6	-0.6	
Carry-Over – Year 2012						-	-	-	-	-
O&M Efficiency Carry-Over $m (2012)						**11.6**	**6.0**	**5.6**	**-0.6**	**-**

Source: SP AusNet - Note: $m MOD = Money of the Day

The level of operating expenditure efficiencies achieved in the current access arrangement Period demonstrates that the regulatory framework presided over by the Regulator has been successful in delivering incentives for reducing the costs associated with providing network services. In this light, it is important that the incentive structures are strengthened to ensure organic efficiencies can still be delivered by businesses. This will also help to ensure that the incentives envisaged by the NGO and the revenue and pricing principles, under the NGL, are achieved.

9.4.2 Capital Expenditure

The capital efficiencies to be carried forward have been calculated within the Post Tax Revenue Model (PTRM) which is appended to this proposal. The calculations are set out below.

Table 9-2: Capital expenditure

Description	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capex Benchmark $m (1/7/06)	66.0	73.3	62.7	59.8	58.4					
Capex Benchmark $m (2012)	80.0	88.9	76.0	72.6	70.8					
Adjustments to Capex $m (2012)	2.9	-1.5	3.9	0.2	1.6					
Adjusted Capex Benchmark $m (2012)	82.9	87.4	79.9	72.8	72.5					
CapexActual $m (MOD)	63.0	67.0	68.7	79.4						
Capex Actual $m (2012)	72.2	73.1	74.0	83.2	72.5					
CapexUnderspend $m (2012)	10.7	14.3	5.9	-10.4	-					
Capex Incremental Gain $m (2012)	0.8	1.0	0.4	-0.8	-					
Carry-Over – Year 2008		0.8	0.8	0.8	0.8	0.8				
Carry-Over – Year 2009			1.0	1.0	1.0	1.0	1.0			
Carry-Over – Year 2010				0.4	0.4	0.4	0.4	0.4		
Carry-Over – Year 2011					-0.8	-0.8	-0.8	-0.8	-0.8	
Carry-Over – Year 2012						-	-	-		
Capex Efficiency Carry-Over $m (2012)						**1.5**	**0.7**	**-0.3**	**-0.8**	
Total Efficiency Carry-Over $m (2012)						**13.1**	**6.7**	**5.3**	**-1.4**	

Note: $m MOD = Money of the Day. Denotes (underspend * WACC of 0.066)

Source: SP AusNet

Consistent with the provisions of section 6.4 of the Reference Tariff Policy within SP AusNet's current access arrangement the capital expenditure benchmarks forecast at the previous review have been adjusted to reflect changes in scope. These changes are set out in brief below with the detailed calculations set out within the PTRM.

Customer Connections

For connections, the benchmarks against which the capital expenditure is compared to calculate the level of efficiencies achieved, has been adjusted to reflect the benchmark that would have been determined assuming the actual level of customer growth which has occurred within the period.

This is affected by adjusting the benchmark by the difference between actual connections and forecast connections multiplied by the unit rate per connection determined by the ESC for the current access arrangement. This calculation is performed for both domestic and commercial customer numbers.

Low Pressure Mains Replacement

The benchmark allowance for low pressure mains replacement has been adjusted in a similar way. The benchmark allowance has been adjusted by the difference between actual length of mains decommissioned and forecast length of mains decommissioned multiplied by the unit rate per km of mains decommissioned determined by the ESC for the current access arrangement.

Meter Replacement

The benchmark allowance for meter replacement has also been adjusted in a similar way. The original benchmark capital expenditure allowance has been adjusted by the difference between actual meters replaced and forecast meters replaced multiplied by the unit rate per meter replaced determined by the ESC for the current access arrangement.

9.4.3 Total Revenue Increment Carried Forward

SP AusNet has calculated that the following amounts should be added to the revenue requirement, in accordance with the framework set in place for the Fourth Access Arrangement Period.

Table 9-3: Total efficiencies carried forward

Efficiency Carry-over (Real 2012$m)	2013	2014	2015	2016	2017
Opex efficiency carry-over	11.6	6.0	5.6	-0.6	-
Capex efficiency carry-over	1.5	0.7	-0.3	-0.8	-
Total efficiency carry-over	**13.1**	**6.7**	**5.3**	**-1.4**	**-**

Source: SP AusNet

9.5 Total revenue requirement and smoothed revenue

SP AusNet's total revenue requirement, based on the analysis and expenditure forecasts set out in this document, is presented in Table 9-4 below.

Table 9-4: SP AusNet's total revenue requirement (unsmoothed)

(Nominal $M)	2013	2014	2015	2016	2017
Return on Capital	117.1	124.6	132.0	140.3	147.7
Return of Capital	27.5	31.2	28.1	30.1	31.0
Operating and Maintenance Expenditure	52.1	55.4	58.5	62.2	66.1
Carry-over amounts	13.4	7.0	5.7	-1.5	-
Benchmark Tax Liability	8.8	10.9	10.5	11.5	12.1
Unsmoothed Revenue Requirement	218.9	229.1	234.7	242.6	256.9

Source: SP AusNet

SP AusNet has smoothed this revenue requirement to deliver acceptable price changes to customers over the forthcoming access arrangement period and ensure cash flow timing allows SP AusNet to meet its financial commitments. In accordance with the requirements of rule 92(2), the revenues defined by this price path returns the same net present value in cash flows as the sum of those set out Table 9-4 above.

Table 9-5: Total Smoothed revenue requirement

(Nominal $M)	2013	2014	2015	2016	2017
Total Revenue Required	221.6	228.8	236.1	243.3	250.9

Source: SP AusNet

9.6 Revenue Allocation to Ancillary Reference Services

In accordance with the requirements of rule 93, SP AusNet proposes the following allocation of total revenue to Ancillary Reference Services.

Table 9-6: Ancillary reference services – Revenue requirements

(Nominal $M)	2013	2014	2015	2016	2017
Ancillary Service Revenue	2.2	2.2	2.3	2.4	2.5

Source: SP AusNet

9.7 Revenue Allocation to Haulage Reference Services

In accordance with the requirements of rule 93, SP AusNet proposes the following allocation of total revenue to Haulage Reference Services.

Table 9-7: SP AusNet's reference service smoothed revenue

(Nominal $M)	2013	2014	2015	2016	2017
Total Revenue Required – DUoS	219.5	226.6	233.7	240.9	248.4

Source: SP AusNet

SP AusNet's smoothed revenue requirement produces a 3.88 percent initial price rise (in real terms) by an annual X factor of zero percent. This proposed price path will apply to the 2012 prices as set out in *Part B* of SP AusNet's proposed access arrangement revisions.

SP AusNet considers the proposed price changes to be consistent with customer interests, as the P_0 is of a magnitude unlikely to cause price shock and subsequent price changes (x-factors) represent no real price change.

SP AusNet's proposed price path is consistent with the requirements of rules 92(1) and 92(2).

10 Unaccounted for Gas

10.1 Summary of key points

This chapter provides an overview of SP AusNet's proposed approach to the treatment of unaccounted for gas (UAfG). The key points are:

- The existing incentive mechanism has merit, but has not delivered symmetrical outcomes;
- The low pressure mains replacement program has not affected UAfG contrary to the ESC's position in the 2008 GAAR;
- External advice demonstrates that the level of losses associated with the low pressure system is limited and that the majority of UAfG is not attributable to any specific source;
- SP AusNet proposes to reset the UAfG benchmark to align with historical performance; and
- No forecast reduction of UAfG has been assumed, given the evidence that there is no clear link between capital works and UAfG outcomes.

10.2 Chapter Structure

This remainder of this chapter is structured as follows:

- Section 10.3 cites the applicable regulatory requirements.
- Section 10.4 provides an overview and critique of the current arrangements for treatment of UAfG.
- Section 10.5 explains and sets out the reasoning underpinning SP AusNet's proposed approach to the treatment of UAfG in its revised access arrangement.

10.3 Regulatory requirements and SP AusNet's compliance

Rule 98(1) states a full access arrangement may include (and the AER may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider. In addition, section 24 of the NGL requires there to be appropriate incentives available to service providers, so that there is an opportunity for efficient costs of providing network services to be recovered.

SP AusNet's current access arrangement includes an incentive mechanism in relation to UAfG. As explained in further detail in section 10.4 below, this incentive mechanism encourages SP AusNet to reduce UAfG below a pre-determined benchmark. AEMO is responsible for the operational procedures that implement the UAFG benchmark in accordance with Rule 317 of the NGR.

The current UAfG benchmark is contained in Schedule 1 of the Victorian Gas Distribution System Code. Any change to the UAFG benchmark remains the responsibility of the ESC in accordance with the change procedures in Schedule 4 of the Victorian Gas Distribution System Code. Section 32 of the National Gas (Victoria) Act 2008 provides that the AER may request amendment to the Gas Distribution System Code.

In light of the above provisions, SP AusNet expects that the AER and the ESC would work together to ensure that any change to the UAfG benchmark in the incentive mechanism for the forthcoming access arrangement period would be given effect through an appropriate amendment to Schedule 1 of the Victorian Gas Distribution System Code.

10.4 Overview of current arrangements

UAfG refers to the difference between the measured quantity of gas entering the gas distribution system and the measured quantity of gas withdrawn by customers. UAfG can arise because of metering errors; theft; inaccuracy in the conversion from quantity of gas measured to energy (reflecting discrepancies in temperature, pressure, heating value, altitude or the gas compressibility factor); leakage and a number of other minor factors.

SP AusNet's Gas Distribution Network is subject to a UAfG incentive mechanism. This mechanism is designed to ensure that capital and operating expenditure decisions take UAfG into account. As such, it is consistent with the Revenue and Pricing Principles in section 24(3) of the NGL, which states that:

> *"A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—*
>
> *(a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and*
>
> *(b) the efficient provision of pipeline services; and*
>
> *(c) the efficient use of the pipeline."*

Retailers are exposed to a set percentage of losses for each customer class:

- If actual UAfG exceeds the benchmark, SP AusNet rebates retailers for the expenditure incurred in sourcing the additional gas for their customers; and
- If actual UAfG is less that the benchmark, the retailer will pay SP AusNet the value of gas that SP AusNet has saved.

The settlement process between retailers and distributors is performed in July/August after the calendar year for which reconciliation is to occur, although the process is liable to delay due to a number of factors.

The existing delays with the current wash-up process are related to the need for both SP AusNet and multiple retailers to agree on the recorded consumption, the tracking and use of multiple AEMO issued measurement data sets, filtering of duplicate data, the reconciliation of measurement data that straddles the end of the calendar year, and simply the volume of data requiring processing. Compounding the above issues is the fact that SP AusNet's UAfG reconciliation procedure remains a largely manual task.

Reconciliation is conducted in accordance with the 'Annual UAfG Reconciliation Procedure'. Allocation of consumption is performed such that Tariff D is categorised into either Class A or Class B, depending on annual consumption. All Tariff V consumption is categorized as Class B. Standard rules apply for the settlement of non-interval meter where a bill cycle is involved.

In the 2008 GAAR, the ESC set a declining UAfG benchmark to reflect an assumed 200GJ reduction in lost gas resulting from each km of low pressure mains replaced. The ESC assumed that if the Low Pressure Mains Replacement (LPMR) program was completed as funded, then the expected financial outcome of the incentive mechanism would be zero. However, as explained below, the ESC's assumptions have not proved to be correct.

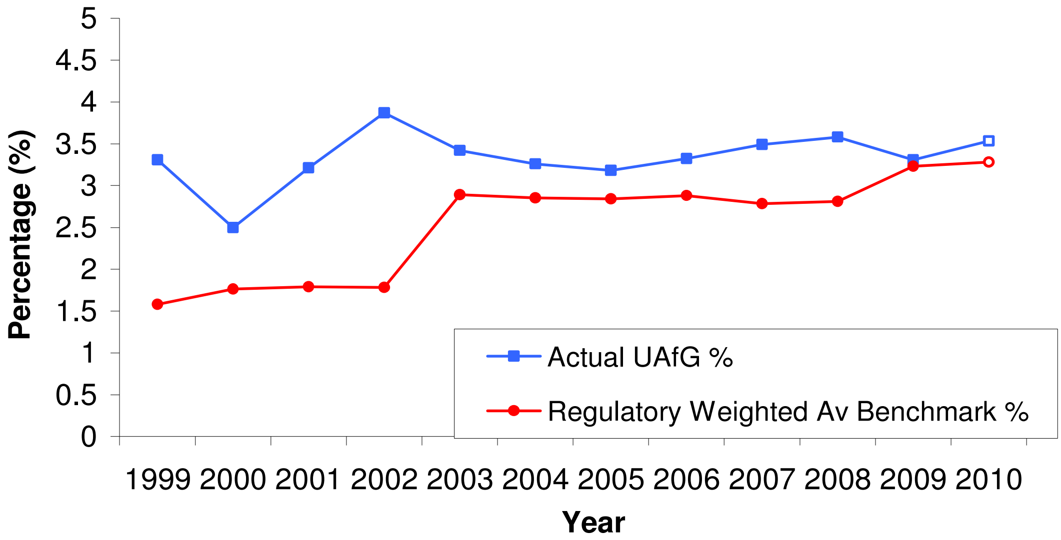
In addition, SP AusNet's analysis shows that if the implied relationship of leak rate per km is assumed to be true, replacing the entire low pressure network would only achieve a UAfG saving of $1 million[76] per annum compared to a capital cost of $275 million[77]. This analysis illustrates that the current incentive mechanism cannot drive the LPMR program, instead, its focus must remain the safety of the network.

76 Calculation of $1.092million based on a reduction of 200GJ/km, renewal of 1400km of low pressure at an average spot/transport cost of $3.90/GJ, based on data and dollars from 2010.

77 Calculation of $187.6million based on remaining low pressure length in 2010 of 1,400km at an average replacement cost of $134kper km.

As shown in Figure 10-1 below, SP AusNet remains in a net loss position on its UAfG payments. SP AusNet has been unable to achieve a below benchmark result in any year and therefore has not received any payment from retailers. Although SP AusNet has implemented significant LPMR over the period this has not resulted in improved UAFG outcomes (2008 being a clear example).

Figure 10-1: SP AusNet (PTS) UAfG



Source: SP AusNet

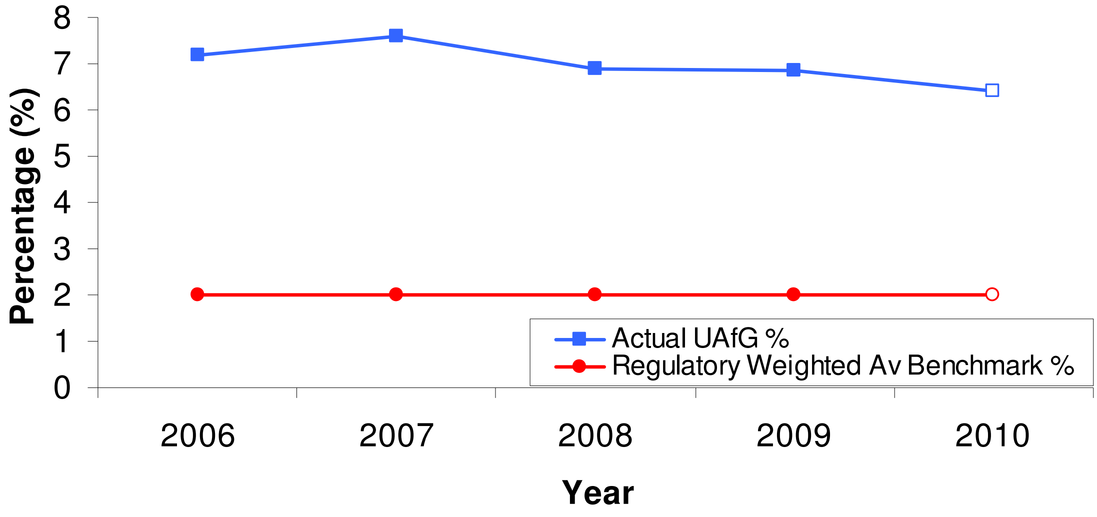
SP AusNet was also disadvantaged in the 2008 GAAR due to the implementation of a benchmark level of losses in the Non-Principal Transmission System (Non-PTS)[78] networks in line with the other DBs.

Whereas the Non-PTS networks operated by Multinet and Envestra are predominately new towns, with low leakage rates associated with modern, recently constructed polyethylene networks, SP AusNet's Non-PTS assets comprise the old 'town gas' networks of Ararat, Stawell and Horsham. Although sections of these towns have been more recently reticulated, significant parts of these networks are old low pressure cast iron mains, with high leakage rates.

Much of these networks previously carried 'town gas' prior to being connected to natural gas supply from the coastal pipeline. It was at this stage that the amount of reticulation increased and newer assets were added to the existing older networks. SP AusNet's actual UAfG during the current access arrangement period supports the concerns raised by SP AusNet in the 2008 GAAR as demonstrated in Figure 10-2 below.

78 Non PTS network is a transmission system not operated by AEMO.

Figure 10-2: SP AusNet (Non-PTS) UAfG



Source: SP AusNet

Table 10-1 below sets out the weighted average benchmarks and performance attained during the 2010 year as submitted for reconciliation with the applicable retailers.

Table 10-1: 2010 SP AusNet UAFG benchmarks and performance

Network Supplied by	Regulatory Weighed Average Benchmark %	Actual %	Internal KPI
PTS	3.27	3.53	3.43%
Non-PTS	2.00	6.40	-

Source: SP AusNet

10.5 Proposed arrangements for forthcoming period

In accordance with rule 72(1)(l), this section explains SP AusNet's rationale for the proposed UAfG incentive mechanism for the forthcoming access arrangement period.

SP AusNet proposes to maintain the current structure of UAfG arrangements. Although the current incentive arrangement does not drive mains replacement, it does provide an important focus on maintaining downward pressure on UAfG in making operating and capital expenditure decisions. The mechanism is therefore consistent with the Revenue and Pricing Principles section 24(3) of the NGL, as required by rule 98(3). SP AusNet therefore continues to support the UAfG incentive arrangements providing that the benchmark is set appropriately. As already noted, the current benchmark has proven to be unrealistically low, particularly for the Non – PTS network.

SP AusNet proposes that benchmarks be set to reflect the most recent observed levels (2010) to ensure, as far as practicable, the outcomes of this incentive arrangement are symmetrical in nature. In addition, SP AusNet proposes the benchmarks be kept flat and include no downwards adjustment for the LPMR program, for the reasons set out below. SP AusNet's proposed benchmarks are set out in Table 10-2 below.

Table 10-2: Proposed SP AusNet UAFG benchmarks

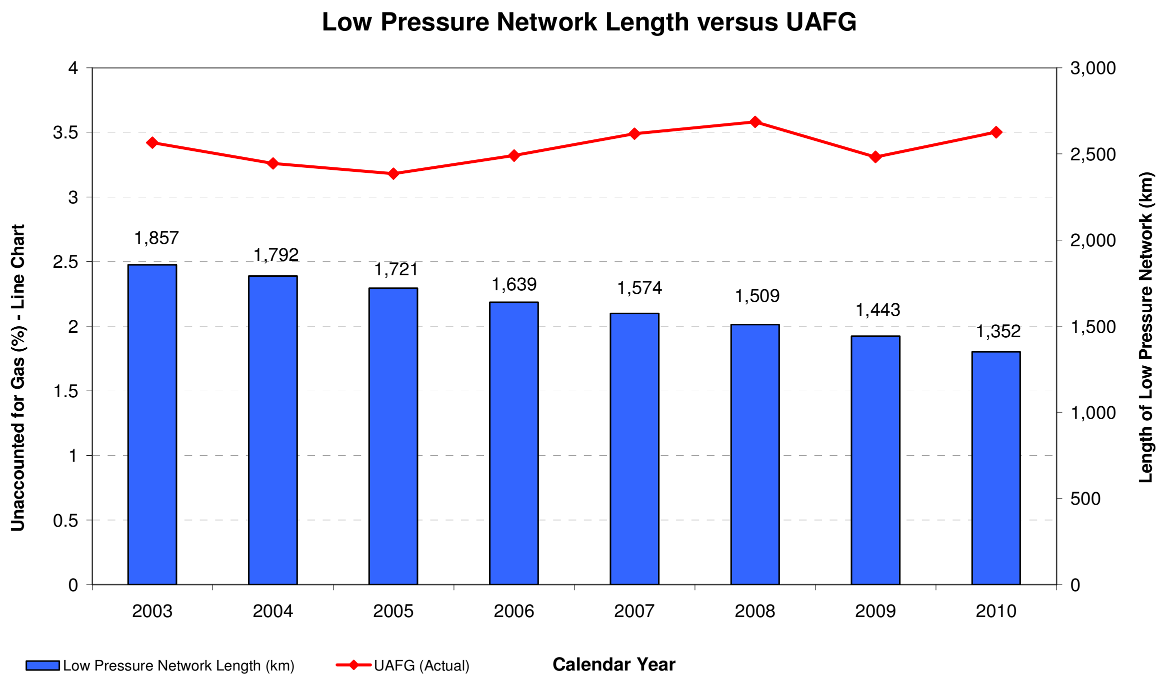
Network Supplied by	Regulatory Benchmark Class A	Regulatory Benchmark Class B	Regulatory Weighed Average Benchmark %
PTS	0.3	5.4	3.53
Non-PTS	6.4[79]	6.4	6.4

Source: SP AusNet

10.5.1 Rationale for Flat Benchmark

The LPMR and MPMR programs are justified on a safety and operational risk mitigation basis, not in terms of reducing UAfG (only a proportion of which is from fugitive emissions). The lack of correlation between mains replacement and UAfG is set out below in Figure 10-3 and clearly identifies that although intuitively mains replacement should have a discernible impact on UAfG, in reality, the relationship is unclear. The rationale for this lack of relationship is set out later in this chapter.

Figure 10-3: Comparison of LPMR activities and UAFG results



Correlation: -0.47413 R2: 0.22480

Source: SP AusNet

The Figure 10-3, above, suggests that there is a negative relationship between UAfG and mains renewal, i.e. a decrease in network length is resulting in increased UAfG. This is counterintuitive, but can be explained by numerous other influences, such as weather impacts and/or deterioration rates of the overall network assets, that outweigh the effect of the mains renewal program.

---

[79] While no Class A users exist in the SP AusNet Non-PTS network a benchmark has been included for completeness.

SP AusNet commissioned a detailed study by Asset Integration Australia (AIA)[80] to determine the contributors to UAfG and assist SP AusNet to address the consistent financial penalties realised under the current UAfG framework. This study is attached as Appendix 10A.

A key finding is that:

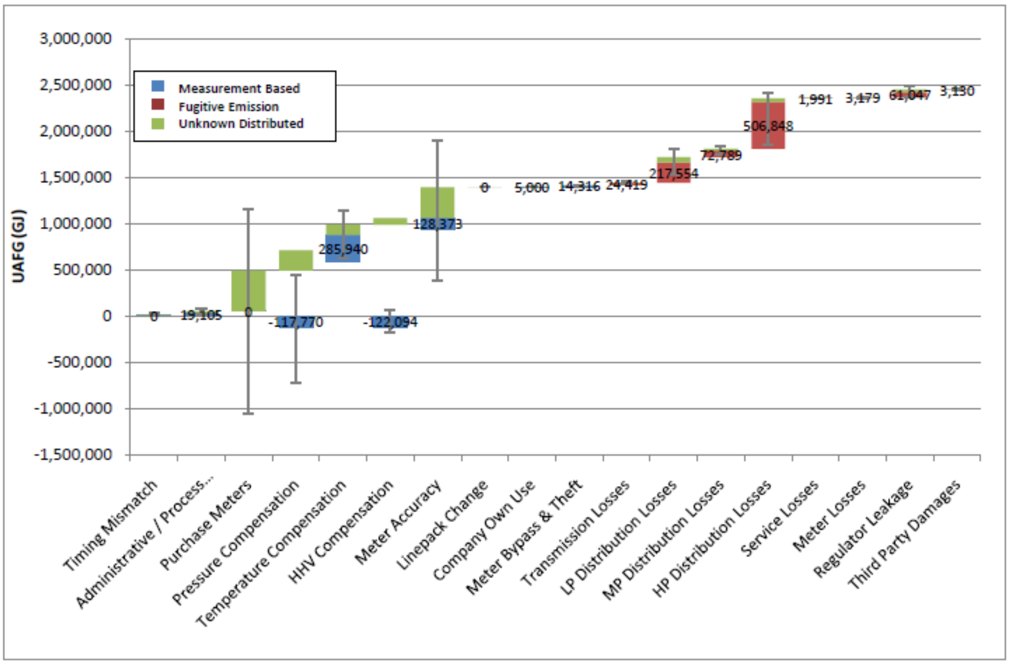
> *"The estimation of UAfG to each category results in 54% of actual UAfG not attributed to any category. This emphasizes the uncertainty associated with UAfG."*

Noting that fugitive emissions are often incorrectly referred to as UAfG (as UAfG also includes measurement based errors) the report grouped the components into two sub categories:

1. Measurement Based UAFG
2. Fugitive Emissions

Each component of UAfG, together with its uncertainty (represented by error bars) is shown in Figure 10-4 below. Additionally the unknown quantity of UAfG has been distributed over all categories of UAfG (displayed as green) with those categories accounting for a larger uncertainty been proportioned more of the unknown component.

Figure 10-4: AIA researched UAFG components and uncertainty



Source: ??

The key categories that the report identified as areas that could effectively reduce UAfG are:

Purchase Meters (CTMs) Metering Accuracy

Uncertainty is 1.5 to 3% of throughput. Small errors on large throughput can have a large impact on UAfG. For example a systemic 1.5% error in CTM readings would contribute up to 45% of UAfG.

80 Asset Integrity Australia was known as GTL Business International. Dr Bob Fisher is managing Director of Asset Integrity Australia. Bob has over 30 years' experience in the gas industry and was involved extensively with Transco UK in the 1990's in developing economic models in UAFG reduction. GASCOR engaged GTL in the mid 1990's to perform a review into UAfG. GTL also played a major role in establishing the first regulator reset period and UAfG benchmark. Multinet Gas engaged GTL to perform a similar review into UAfG.

Large Tariff D Customer Uncertainty

As with CTM accuracy, uncertainty in large Tariff D customers can have a large effect on total UAfG.

Temperature Compensation

Temperature assumption for basic meter customers introduces an error that is estimated to increase UAfG and is more pronounced for customers on high pressure networks. The addition of customers to high pressure networks is increasing UAfG slowly on an annual basis.

Classification of Class A Meters

Movement of customers between the classifications can have a significant impact on UAfG both positive and negative to SP AusNet. As such greater clarification of the definition of Class A is required in order to establish rules for initial classification and any subsequent classification movement due to changes in consumption.

As already noted, the LPMR program was not identified by AIA as a key factor in determining the UAfG. On the contrary, AIA noted that the contribution to UAFG from the LP network is relatively small, and less than that for other parts of the network.

As such it would be unreasonable to set a declining benchmark in the next regulatory period based on the false assumption that mains replacement programs actively reduce UAfG. Instead, a flat benchmark based on the latest historical figure would be appropriate.

10.5.2 Rationale for Business Specific Benchmarks

SP AusNet supports independent UAfG benchmarks for each distributor. This is appropriate for the Victorian market as each distribution business is unique; with varying mains lengths, ages, material compositions, geographical operating conditions, customer base and natural gas fed from sources of differing heating value. All of these factors contribute to different levels of UAfG.

11 Incentive arrangements

11.1 Summary of key points

This chapter provides an overview of SP AusNet's proposed incentive arrangements for the forthcoming access arrangement period. The key points are:

- SP AusNet proposes to retain the existing efficiency carryover mechanisms.
- SP AusNet does not propose to introduce an incentive mechanism to improve network reliability as the Victorian gas network already provides high levels of reliability. SP AusNet will, however, retain the existing guaranteed service levels, which compensate customers if certain minimum standards of service are not achieved.

11.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 11.3 cites the applicable regulatory requirements.
- Section 11.4 sets out SP AusNet's proposed efficiency carryover mechanisms, which will provide incentives to achieve efficiency improvements in operating and capital expenditure.
- Section 11.5 presents details of SP AusNet's proposed guaranteed service levels.

11.3 Regulatory requirements and SP AusNet's compliance

Rule 98 sets out provisions relating to incentive mechanisms. It states:

> *"(1) A full access arrangement may include (and the AER may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider.*
>
> *(2) An incentive mechanism may provide for carrying over increments for efficiency gains and decrements for losses of efficiency from one access arrangement period to the next.*
>
> *(3) An incentive mechanism must be consistent with the revenue and pricing principles."*

Rule 72(1)(l) states that the access arrangement information for a full access arrangement proposal must include the service provider's rationale for any proposed incentive mechanism.

Section 24(3) of the NGL sets out the revenue and pricing principles that are directly applicable to incentive mechanisms as follows:

> *"A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—*
>
> *(a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and*
>
> *(b) the efficient provision of pipeline services; and*
>
> *(c) the efficient use of the pipeline."*

The information and proposals set out in this chapter accord with all of the applicable requirements of the NGR.

11.4 Efficiency Carryover Mechanisms

SP AusNet proposes to retain the existing efficiency carryover mechanisms as set out in Part B of the current access arrangement. The efficiency carryover mechanism (ECM) rewards efficiency improvements in relation to operating and capital expenditure by allowing the service provider to retain the saving for 5 years, irrespective of the year in which the saving is achieved. By encouraging efficiency improvements, the efficiency carry over mechanisms are consistent with the revenue and pricing principles in section 24(3) of the NGL, which refer to efficient investment in, or in connection with, a pipeline with which SP AusNet provides reference services; and the efficient provision of pipeline services.

The current ECM has been in operation for two successive access arrangement periods. It has driven evident efficiencies and done so without providing retained rewards for failing to deliver programs forecast at the time of an access arrangement determination. SP AusNet has retained the arrangements since they drive efficient outcomes while sharing the benefits of these outcomes between investors and those who receive pipeline services.

As detailed in Section 9.3, SP AusNet's customers will benefit from significant efficiencies in operating expenditure achieved in the current regulatory period. While there was no net savings achieved for capital expenditure, the ECM provided an important balance to limit expenditure increases.

The existing efficiency carryover mechanisms were the subject of consultation at the time of the last Gas Access Arrangement Review, where the then regulator (the ESC) set out the rationale underpinning the use of incentive mechanisms:

> *"The ECM was designed to enable distributors to have a continuing incentive to make efficiency gains throughout the regulatory period and to reduce the incentive to defer the pursuit of efficiency gains that might otherwise exist immediately before a regulatory review. It was also intended to encourage the distributors to reveal their actual costs and therefore to reduce the cost and complexity that might otherwise be involved in reviewing whether forecast operating expenditure is consistent with the Code."*[81]

11.4.1 Capital Incentive

The issue of whether it is appropriate to provide a capital incentive, given the potential for it to reward deferrals rather than genuine efficiencies, was also considered at length by the ESC. The ESC found that the threat of deferrals of capital projects was less pertinent in gas distribution than in electricity distribution. The ESC chose to retain an incentive for capital efficiencies on the basis that:

> *"• the widespread capital expenditure deferrals observed in the electricity industry do not appear to have occurred in the gas industry[…]*
>
> *• the nature of capital expenditure in the gas industry and the Commission's ability to monitor units and unit rates better than in the electricity industry provides the Commission with the ability to adjust benchmarks to reflect the actual amount of capital works undertaken*
>
> *• removing capital expenditure from the ECM may create an imbalance in the regime's incentives."*[82]

This finding aligns with SP AusNet's experience with capital efficiency incentives in its gas network. The ECM for capital expenditure provides a continuous level of incentive *within* the regulatory period for capital investment, removing the incentive to defer capital investment within the regulatory period. SP AusNet, therefore, proposes that a capital incentive should be retained in the next regulatory period as it encourages efficiency improvements.

As highlighted by the above comments from the ESC, the use of benchmark adjustments in the ECM provide greater protections in gas than in electricity.

---

81 Essential Services Commission, May 2006, *Gas Access Arrangement Review 2008-2012: Consultation Paper No. 1*, Melbourne. p.86.

82 Essential Services Commission, March 2008, *Gas Access Arrangement Review 2008-2012: Final Decision – Public Version*, Melbourne, p.584.

By adjusting for factors such as the actual kilometres of mains replaced, the actual number of meter replacements and the actual number of customer connections (deviation of actuals from forecast), the ECM ensures that businesses are rewarded only for genuine capital efficiencies, rather than inefficient deferrals.

11.4.2 Operating Incentive

The ECM for operating expenditure has continued to drive significant efficiency gains in the current regulatory period. While it is likely that SP AusNet's gas business is near to the efficient frontier and that further operating expenditure savings will be difficult to achieve, it is important that the incentive is maintained to ensure that the incentive to seek efficiency gains remains.

11.4.3 Incentive Formulations

The formulation of the efficiency carryover mechanisms is summarised below.

For capital expenditure, efficiency gains (or losses) in any year would reflect the difference between the actual expenditure and the original forecast (or benchmark) expenditure level, as follows:

$$\text{Efficiency Gain} = \text{WACC} * (\text{Capex}_i^{\text{Forecast}} - \text{Capex}_i^{\text{Actual}})$$

where:

WACC is the pre-tax WACC applying to SP AusNet.

For operating expenditure the annual efficiency gain (or loss) in calendar year i would be calculated as:

$$\text{Efficiency Gain} = \text{Underspending}_i - \text{Underspending}_{i-1}$$

where:

$$\text{Underspending}_i = \text{Opex}_i^{\text{Forecast}} - \text{Opex}_i^{\text{Actual}}$$

11.4.4 Benchmark adjustments

The current formulation for adjustment to original benchmarks, which SP AusNet proposes to retain, is summarised below.

For capital expenditure, benchmarks are adjusted for customer connections (domestic and non-domestic), mains replacement works (low pressure and medium pressure) and meter replacement works (domestic and non-domestic) as follows:

For the low and medium pressure mains replacement benchmarks:

- (Actual / Forecast km replaced – Benchmark km replaced) × benchmark unit rate per km

For the domestic and commercial meter replacement benchmarks:

- (Actual / Forecast meters replaced – Benchmark meters replaced) × benchmark unit rate meter replacement

For customer connections the benchmark will be revised as follows for commercial and domestic:

- (Actual / Forecast customer connections – Benchmark customer connections) × benchmark unit rate per customer connection.

In regard to scope changes relating to other programs, SP AusNet proposes that benchmarks be amended for changes in scope in so far as this can be substantiated. For example, SP AusNet is proposing that the benchmark for 2012 be amended to reflect significant augmentation expenditures required due the unforseen growth experienced during the Third Access Arrangement Period.

For operating expenditure, the benchmark will be adjusted for actual network growth, with the output parameter of the 'rate of change' formulation to be updated for actual customer numbers and energy throughput in the manner consistent with the application of the rate of change as agreed in the final decision.

This detail regarding the operation of the ECM has been included in section 6.4 of the Reference tariff Policy in the proposed access arrangement that accompanies this document.

11.5 Guaranteed Service Levels

SP AusNet's gas distribution system is highly reliable, with customers rarely losing access to supply. When interruptions do occur, they generally affect only a small number of customers. For this reason, the current access arrangement does not contain an incentive mechanism that is specifically focused on improving reliability. However, SP AusNet is required to satisfy Guaranteed Service Levels (GSLs) or otherwise pay customers an amount specified in the access arrangement.

The GSLs are specified in Schedule 1, Part E of the Victorian Gas Distribution System Code which continues to be regulated by the ESC. SP AusNet proposes that the existing GSLs should be maintained for the forthcoming access arrangement period. In accordance with the applicable revenue and pricing principles, these GSLs provide incentives to promote economic efficiency with respect to reference services, and in particular the efficient provision of services.

For ease of reference the current GSLs are reproduced below.

Figure 11-1: Guaranteed service levels

Service Area	Threshold to incur GSL payment	Amount
Appointments	Failure to attend appointment within agreed appointment window: Customer present – 2 hours Customer absent – agreed date	$50 per event
Connections	Failure to connect a customer within 1 day of agreed date	$80 per day (subject to a maximum of $240)
Repeat interruptions	Unplanned interruptions to a customer in a calendar year period resulting from faults in the distribution system: Upon fifth interruption Upon tenth interruption	$150 Additional $150
Lengthy interruptions	Gas supply interruption to a customer not restored: within 12 hours within 18 hours	$150 Additional $150

Source: SP AusNet

For full details of the terms and conditions that apply to GSL payments, please refer to the Victorian Gas Distribution System Code and Part C of SP AusNet's access arrangement, clause 7.6.

12 Cost pass-through arrangements

12.1 Summary of key points

This chapter provides an overview of SP AusNet's proposed cost pass through arrangements.

The key points are:

- The pass through events defined in SP AusNet's current access arrangement should be maintained, and minor drafting changes should be made to clarify the operation of the pass through arrangements.
- Additional pass through events should be included, based on those that were adopted for SP AusNet's electricity distribution network in order to ensure consistency between regulatory arrangements for similar services (both within and beyond the relevant jurisdiction).
- SP AusNet is further proposing a tariff variation mechanism to implement any approved pass through amount pursuant to an event foreshadowed in this chapter. The details of this mechanism are set out in Chapter 14.

12.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 12.3 cites the applicable regulatory requirements.
- Section 12.4 SP AusNet's proposed pass through arrangements.
- Section 12.5 explains the proposed pass through threshold.

12.3 Regulatory requirements and SP AusNet compliance

A reference tariff variation mechanism may provide for variation of a reference tariff:

> *(a) in accordance with a schedule of fixed tariffs; or*
>
> *(b) in accordance with a formula set out in the access arrangement; or*
>
> *(c) as a result of a cost pass through for a defined event (such as a cost pass through for a particular tax); or*
>
> *(d) by the combined operation of 2 or more or the above.*

Rule 97(2) sets out some of the examples of the different forms of price control mechanisms that may be adopted.

Rule 97(3) requires the AER to have regard to the following matters in deciding whether a particular reference tariff variation mechanism is appropriate to a particular access arrangement:

> *(a) the need for efficient tariff structures; and*
>
> *(b) the possible effects of the reference tariff variation mechanism on administrative costs of the AER, the service provider, and users or potential users; and*
>
> *(c) the regulatory arrangements (if any) applicable to the relevant reference services before the commencement of the proposed reference tariff variation mechanism; and*
>
> *(d) the desirability of consistency between regulatory arrangements for similar services (both within and beyond the relevant jurisdiction); and*
>
> *(e) any other relevant factor.*

Rule 97(4) requires that a reference tariff variation mechanism must give the AER adequate oversight or powers of approval over variation of the reference tariff.

12.4 Cost Pass Through Arrangements

Part A of SP AusNet's current access arrangement provides the following definition of Relevant Pass Through Events:

> *"(a) a Change in Taxes Event;*
>
> *(b) the Financial Failure of a Retailer Event;*
>
> *(c) a Declared Retailer of Last Resort Event;*
>
> *(d) a New Connection Process Event; or*
>
> *(e) a Victorian Energy Efficiency Target Scheme Event."*

Section 8 of Part B of SP AusNet's current access arrangement outlines the regulatory process for adjustment to reflect a Relevant Pass Through Event. Applying this process, a Pass Through Event may lead to either a Positive Pass Through Amount or a Negative Pass Through Amount, and a subsequent increase or decrease in SP AusNet's costs, depending on the impact of the event in question.

Specifically, SP AusNet proposes that the following pass through events should be included in its access arrangement for the forthcoming period:

- an Insurer Credit Risk Event, to address the risk of an insurer defaulting;
- an Insurance Event, to address the liabilities from losses that exceed the maximum insured amount;
- a Natural Disaster Event;
- a Terrorism Event; and
- a Regulatory Change Event.

The first three of the above definitions have been adopted from the AER's recent determination for SP AusNet's electricity distribution network. The definitions of a Terrorism Event and Regulatory Change Event have been adopted from the definitions contained in the National Electricity Rules.

None of the proposed pass through events could be deemed to be within SP AusNet's control nor are the costs associated with these risks compensated through the weighted average cost of capital.

The inclusion of these pass through events is consistent with the revenue and pricing principles in subsections 24(2) of the NGL, which state:

> *"(2) A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—*
>
> *(a) providing reference services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment."*

12.5 Thresholds

The existing Relevant Pass Through Events are not subject to a materiality threshold. The absence of a materiality threshold means that the full costs or savings that arise from these events are passed on to customers. SP AusNet's view is that a strong case can be made for continuing with the existing arrangements.

However, SP AusNet also recognises that the AER has previously determined that a materiality threshold of cost variation equal to 1% of forecast revenue for the relevant year in a regulatory period or access arrangement period should apply. This determination was recently upheld in an appeal to the Australian Competition Tribunal in regard to the recent Electricity Distribution Price Review.

SP AusNet proposes to apply a 1% of revenue cost materiality threshold for pass through events which fall within its Fourth Access Arrangement Period.

13 Reference services

13.1 Summary of key points

This chapter provides an overview of SP AusNet's reference services. The key points are:

- SP AusNet is proposing to retain its three current Haulage Reference Services, namely its Tariff V Haulage Reference Service, Tariff M Haulage Reference Service, and Tariff D Haulage Reference Service.
- Based on analysis of historical demands, SP AusNet has assessed that all of its current suite of Ancillary Reference Services, except for its Meter and Gas Installation Test service, are likely to be sought by a significant part of the market in the forthcoming regulatory control period.

13.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 13.3 cites the applicable regulatory requirements.
- Section 13.4 outlines SP AusNet's proposed Haulage Reference Services.
- Section 13.5 outlines SP AusNet's proposed Ancillary Reference Services.

13.3 Regulatory requirements and SP AusNet's compliance

Rule 48 sets out a number of requirements in relation to pipeline services and reference services, including:

> *"A full access arrangement must:*
>
> *(b) describe the pipeline services the service provider proposes to offer to provide by means of the pipeline; and*
>
> *(c) specify the reference services;*
>
> *(d) specify for each reference service:*
>
> *(i) the reference tariff; and*
>
> *(ii) the other terms and conditions on which the reference service will be provided."*

Rule 101 states:

> *"(1) A full access arrangement must specify all reference services.*
>
> *(2) A reference service is a pipeline service that is likely to be sought by a significant part of the market."*

SP AusNet's Reference Tariffs and Reference Tariff Policies are set out in Part B of SP AusNet's access arrangement. This chapter provides an overview of the pipeline services and reference services offered by SP AusNet.

13.4 Haulage reference services

SP AusNet is proposing to retain its three current Haulage Reference Services, namely:

- **Tariff V Haulage Reference Service:** The Haulage Reference Service where the withdrawal of gas is at a Tariff V Distribution Supply Point. This includes domestic and commercial customers who consume less than 10,000 Gigajoules of gas in a 12 month period, and less than 10 Gigajoules in any one hour;
- **Tariff M Haulage Reference Service:** The Haulage Reference Service where the withdrawal of gas is at a Tariff M Distribution Supply Point. To qualify for Tariff M, a customer previously taking supply under Tariff V Haulage Reference Service should be using either more than 10,000 Gigajoules of gas in a 12 month period, or more than 10

Gigajoules in an hour. Tariff M customers are not required to pay any additional charges for O&M or LCC as these have been embedded in the tariff.

- **Tariff D Haulage Reference Service:** The Haulage Reference Service where the withdrawal of gas is at a Tariff D Distribution Supply Point, but does not include Tariff D connection. To qualify for Tariff D, a customer should be using or expecting to use either more than 10,000 Gigajoules of gas in a 12 month period, or more than 10 Gigajoules in an hour. In addition to the tariff charges, customers on Tariff D are also required to pay an operations and maintenance (O&M) charge for any dedicated distribution assets, in particular the meter and regulator set installed at the connection point.

SP AusNet considers that these Haulage Reference Services are likely to continue to be sought by a significant part of the market during the Fourth Access Arrangement Period, as these services are identical to those currently provided.

13.5 Ancillary reference services

SP AusNet also proposes to maintain its current suite of Ancillary Reference Services (except for Meter and Gas Installation Test) as they are commonly demanded by users on a daily basis, and therefore are likely to be sought by a significant part of the market. The following services are provided in relation to distribution supply points at which gas is withdrawn by or in respect of a residential customer:

- **Disconnection Service**: Disconnection by the carrying out of work being:
  - Removal of the meter at a metering installation, or
  - The use of locks or plugs at a metering installation in order to prevent the withdrawal of gas at the distribution supply point.
- **Reconnection Service**: Reconnection by turning on supply, including the removal of locks or plugs used to isolate supply or reinstallation of a meter if it has been removed, performance of a safety check and the lighting of appliances where necessary.
- **Special Meter Reading Service**: Meter reading for a distribution supply point in addition to the scheduled meter readings that form part of the Haulage Reference Services.

Further, it is noted that SP AusNet is proposing to remove its Meter and Gas Installation Test, which is an on-site test to check the accuracy of a meter and the soundness of a gas installation, in order to determine whether the meter is accurately measuring the quantity of gas delivered. Its removal is because this service, based on historical demands, is not likely to be sought by a significant part of the market in the forthcoming regulatory control period. Furthermore, as it is more cost effective to replace the meter and perform the test off-site, the service is therefore now classed as a non-reference service and charged on a recoverable works basis.

14 Price control mechanisms

14.1 Summary of key points

This chapter provides an overview of SP AusNet's proposed price control mechanisms. The key points are:

- SP AusNet proposes to continue to use the tariff basket form of price control. This is in the form of a weighted average price cap (WAPC) formula.
- The current rebalancing constraint unnecessarily impedes changes to the tariffs which may be required to improve cost reflectivity and respond efficiently to any potential changes in customer behaviour. Therefore, SP AusNet is proposing that the rebalancing constraint be changed such that a 5% constraint is applied at the Reference Service level.
- SP AusNet proposes additional adjustment mechanisms to address the recovery of the carbon tax related liability. This mechanism will ensure that SP AusNet recovers the actual costs of the carbon liability from customers.
- SP AusNet also proposes a demand risk adjustment factor. This mechanism will manage the risk of a material reduction in gas usage, in the event that there is a material increase in wholesale gas prices.

14.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 14.3 cites the applicable regulatory requirements.
- Section 14.4 outlines the existing price control mechanism and licence fee factor.
- Section 14.5 outlines the proposed arrangements for an additional pass through factor.
- Section 14.6 outlines the proposed arrangements for recovery of the Carbon Liability.
- Section 14.7 outlines the proposed demand risk adjustment factor.
- Section 14.8 outlines the proposed tariff variation process that SP AusNet proposes in relation to its Haulage Reference Services.
- Section 14.8 outlines the proposed amendments rebalancing constraint formula.
- Section 14.9 outlines the proposed amendments rebalancing constraint formula.
- Section 14.10 outlines the price control mechanism and tariff variation process that SP AusNet proposes in relation to its Ancillary Reference Services.

14.3 Regulatory requirements and SP AusNet's compliance

Rule 92 states:

> *"(1) A full access arrangement must include a mechanism (a reference tariff variation mechanism) for variation of a reference tariff over the course of an access arrangement period.*
>
> *(2) The reference tariff variation mechanism must be designed to equalise (in terms of present values):*
>
> *(a) forecast revenue from reference services over the access arrangement period; and*
>
> *(b) the portion of total revenue allocated to reference services for the access arrangement period."*

Rule 72(1)(k) states that the access arrangement information for a full access arrangement proposal must include the service provider's rationale for any proposed reference tariff variation mechanism.

Rule 97 sets out provisions relating to the mechanics of reference tariff variation as follows:

> *"(1) A reference tariff variation mechanism may provide for variation of a reference tariff:*
>
> *(a) in accordance with a schedule of fixed tariffs; or*
>
> *(b) in accordance with a formula set out in the access arrangement; or*
>
> *(c) as a result of a cost pass through for a defined event (such as a cost pass through for a particular tax); or*
>
> *(d) by the combined operation of 2 or more or the above.*
>
> *(2) A formula for variation of a reference tariff may (for example) provide for:*
>
> *(a) variable caps on the revenue to be derived from a particular combination of reference services; or*
>
> *(b) tariff basket price control; or*
>
> *(c) revenue yield control; or*
>
> *(d) a combination of all or any of the above.*
>
> *(3) In deciding whether a particular reference tariff variation mechanism is appropriate to a particular access arrangement, the AER must have regard to:*
>
> *(a) the need for efficient tariff structures; and*
>
> *(b) the possible effects of the reference tariff variation mechanism on administrative costs of the AER, the service provider, and users or potential users; and*
>
> *(c) the regulatory arrangements (if any) applicable to the relevant reference services before the commencement of the proposed reference tariff variation mechanism; and*
>
> *(d) the desirability of consistency between regulatory arrangements for similar services (both within and beyond the relevant jurisdiction); and*
>
> *(e) any other relevant factor.*
>
> *(4) A reference tariff variation mechanism must give the AER adequate oversight or powers of approval over variation of the reference tariff.*
>
> *(5) Except as provided by a reference tariff variation mechanism, a reference tariff is not to vary during the course of an access arrangement period."*

The information and proposals set out in this chapter accord with all of the applicable requirements of the rules.

14.4 Price Control Mechanism

SP AusNet proposes to continue to use the tariff basket form of price control, which is consistent with rule 97(2)(b).

- It transparently provides for the inclusion of the costs associated with changes in Licence Fees. The formula has also been updated to recover approved pass through events. SP AusNet considers that this is consistent with rule 97(1)(c) and (d).
- It relies on actual t-2 quantities, as opposed to estimated quantities, which reduces the administrative costs to all parties, which is consistent with rule 97(3)(b).

- It allows SP AusNet to adjust tariffs within period in order to ensure tariffs remain at cost reflective levels, thus leading to maintenance of tariffs that are consistent with rule 97(3)(a) and the NGO, and allowing SP AusNet to recover its efficient and prudent costs.

SP AusNet's proposed tariff basket form of price control formula is detailed below.

14.4.1 Price Control Formula

The Price Control Formula for the Calendar Year 2013 is:

$$(1 + CPI_t)(1 - X_t)(1 + L_t)(1 + A_t)(1 - A_{t-1}) \geq \frac{\sum_{i=1}^{n} \sum_{j=1}^{m} p_t^{ij} * q_{t-2}^{ij}}{\sum_{i=1}^{n} \sum_{j=1}^{m} p_{t-1}^{ij} * q_{t-2}^{ij}}$$

where the Service Provider has n Haulage Reference Tariff categories, each category having up to m Haulage Reference Tariff Components and where:

p_t^{ij} is for each Haulage Reference Service the proposed Haulage Reference Tariff for Haulage Reference Tariff component *j* of Haulage Reference Tariff *i* in Calendar Year *t*;

p_{t-1}^{ij} is for each Haulage Reference Service the Haulage Reference Tariff being charged for Haulage Reference Tariff Component j of Haulage Reference Tariff *i* in Calendar Year *t-1*;

q_{t-2}^{ij} is for each Haulage Reference Service the Quantity of Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* that was sold in Calendar Year *t-2*;

CPI_t is the CPI for Calendar Year *t*, as defined in the Glossary;

X_t is 0.0388;

L_t is the Licence Fee Factor for Calendar Year *t*, as defined below;

A_t is an approved Pass Through Factor for Calendar Year *t*, as defined below; and

A_{t-1} is the approved Pass Through Factor in relation to Carbon Liability for year t-1.

The Price Control Formula for the Calendar Year 2014 to 2017 is:

$$(1 + CPI_t)(1 - X_t)(1 + L_t)(1 + A_t) \geq \frac{\sum_{i=1}^{n} \sum_{j=1}^{m} p_t^{ij} * q_{t-2}^{ij}}{\sum_{i=1}^{n} \sum_{j=1}^{m} p_{t-1}^{ij} * q_{t-2}^{ij}}$$

where the Service Provider has n Haulage Reference Tariff categories, each category having up to m Haulage Reference Tariff Components and where:

p_t^{ij} is for each Haulage Reference Service the proposed Haulage Reference Tariff for Haulage Reference Tariff component *j* of Haulage Reference Tariff *i* in Calendar Year *t*;

p_{t-1}^{ij} is for each Haulage Reference Service the Haulage Reference Tariff being charged for Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* in Calendar Year *t-1*;

q_{t-2}^{ij} is for each Haulage Reference Service the Quantity of Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* that was sold in Calendar Year *t-2*;

CPI_t is the CPI for Calendar Year *t*, as defined in the Glossary;

X_t is 0.0;

L_t is the Licence Fee Factor for Calendar Year *t*, as defined below; and

A_t is an approved Pass Through Factor for Calendar Year *t*, as defined below.

14.4.2 Licence Fee Factor

SP AusNet operates its gas distribution system under a license issued by the Victorian Government. In Victoria, the ability for the ESC to charge fees to industry for licences provides the primary means of funding the costs of regulatory oversight of the industry. More specifically, the ESC charges annual licence fees approved by the Minister for Finance, WorkCover and the Transport Accident Commission subject to s. 30 of the Gas Industry Act.

SP AusNet notes that it will still be required to pay a Licence fee in each year of the forthcoming access arrangement period. This, in conjunction with the fact that the magnitude of these fees are uncertain and outside of SP AusNet's control, means that it is appropriate for these to be recovered via the inclusion of a Licence Fee Factor in the Price Control Formula, as opposed to traditional, ex ante approaches to recovering costs.

The Licence Fee Factor is:

L is the Licence Fee pass through adjustment to the Distribution price control in Calendar Year *t* for the Service Provider is determined below:

Calculation of the Licence Fee factor

The Licence Fee Factor pass through adjustment Lt, for the Service Provider is:

$$1 + L_t = \frac{(1 + L'_t)}{(1 + L'_{t-1})}$$

where:

If Calendar Year t is 2013:

$$L'_t = \frac{lf_{t-1}(1 + pretaxWACC_D)^{3/2}(1 + CPI_t)^{3/2}}{(1 + CPI_t)(1 - X_t)(1 + A_t)(1 - A_{t-1})\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-1}^{ij} q_{t-2}^{ij}}$$

If Calendar Year t is 2014 to 2017:

$$L'_t = \frac{lf_{t-1}(1+pretaxWACC_D)^{3/2}(1+CPI_t)^{3/2}}{(1+CPI_t)(1-X_t)(1+A_t)\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-1}^{ij} q_{t-2}^{ij}}$$

L'_{t-1} (a) if Calendar Year t is the Calendar Year ending 31 December 2013, is the licence fee paid in the final year of the previous access arrangement period; and

(b) if Calendar Year t is after the Calendar Year ending 31 December 2013, is the value of L'_t determined in the Calendar Year *t* - 1;

lf_{t-1} is the Licence Fee paid by the Service Provider for the Financial Year ending in June of the Calendar Year *t* -1;

CPI_t is the CPI for Calendar Year *t*, as defined in the Glossary;

X_t if Calendar Year t is 2013 is 0.0388, if Calendar Year t is 2014 to 2017 is 0.0;

p_{t-1}^{ij} is for each Haulage Reference Service the Haulage Reference Tariff being charged for Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* in Calendar Year *t* –1;

q_{t-2}^{ij} is for each Haulage Reference Service the Quantity of Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* that was sold in Calendar Year *t* – 2 ;

A_t is an approved Pass Through Factor for Calendar Year *t*, as defined below;

A_{t-1} is an approved Pass Through Factor for Calendar Year *t*-1; and

pretax $WACC_D$ is 0.0725, being the implied real pre-tax WACC applying to the Service Provider.

14.5 The Demand Risk Adjustment Factor

As foreshadowed in Chapter 4, SP AusNet proposes to implement a new factor within its price control to address a new demand risk that it considers to be both significant and asymmetric.

The combination of domestic and international energy market conditions has created unprecedented uncertainty in the outlook for gas prices over the 2013-17 access arrangement period. In particular, there is a significant asymmetric risk that wholesale gas prices will move to international parity because of a combination of the following:

- a number of LNG facilities will be commissioned on the eastern seaboard towards the end of the forthcoming access arrangement period;
- the current integrated gas supply network would allow gas that would have otherwise been sold into the Victorian market to be transported to areas where these facilities are to be located. Further, it is highly probable that further pipeline development will occur during the forthcoming access arrangement period to further facilitate transmission of gas to these areas, because of the large value differential between domestic gas and international gas; and
- the opportunity cost of selling gas into the domestic market will increase even prior to the commissioning of these plants. The economics of withholding gas supply to the domestic market, to sell on the world market at some point in the future, improves the closer the plants are to commissioning and the greater the capacity of those plants to process that withheld gas.

CIE have also noted[83] this risk in their report:

> *currently Victorian wholesale gas prices are substantially below export parity prices and there is the potential for much sharper rises in wholesale prices than factored into our forecasts…..*
>
> *A major risk to the projections [in its report] is that there are substantial changes in gas wholesale prices above that embedded in the projections. If Victorian wholesale prices move towards Australian average prices, this would lead to an almost doubling of prices. Based on our estimates of the response of residential and commercial customers to gas prices, this could reduce usage by 5 to 10 per cent relative to base projections. This reduction would be greater if prices moved to match international prices.*

Attachment E of their report (Appendix 4A) provides a full discussion of their wholesale gas price projections.

In this context, SP AusNet faces an uncertain yet very material risk that the price path that the AER determines for the 2013-2017 access arrangement period will not adequately provide for cost recovery. If actual wholesale and retail gas prices are materially higher, the SP AusNet's actual demand will be lower than forecast and revenue recovery will not be achieved. Such an outcome would be inconsistent with the NGL s.24(2) requirements that SP AusNet be provided a reasonable opportunity to at least recover its efficient costs.

There are two possible ways of mitigating this asymmetric risk:

- CIE could adopt an ex ante, probability weighted estimate of the possible wholesale gas price forecasts, for inclusion in their gas usage forecasts model; or
- the AER could allow SP AusNet to adopt an ex post adjustment in the price control formula to accommodate for the actual outcomes that result from this risk eventuating.

SP AusNet notes that CIE have adopted a 'median' case to determine the wholesale gas price forecasts that it included in SP AusNet's model, as opposed to assessing the expected value of the entire distribution of possible outcomes for wholesale gas prices. SP AusNet notes that where the distribution of possible outcomes is 'normal', CIE's approach is entirely appropriate (it will deliver forecasts and outcomes that are consistent with the Rules and the Law), however, because the distribution of possible outcomes is skewed as a result of the asymmetric risk of wholesale gas prices moving to international parity, this approach effectively underfunds SP AusNet in this case because the probability weighted outcome would lead to a higher wholesale gas price forecast than is obtained if just the median case is used.

Given the above, SP AusNet proposes a demand risk adjustment factor (DT_t) to the tariff variation mechanism (or 'price cap' formula). Further, after reviewing the relevant NGRs and the NGL, SP AusNet considers that the use of an ex-post adjustment factor is in fact likely to be the preferred way of mitigating this asymmetric risk at this point in time. In particular, SP AusNet considers that its adjustment factor is consistent with:

- The NGO, as the inclusion of a demand adjustment formula continues to promote efficient operation and use of natural gas services, because it does not disincentive SP AusNet from setting cost reflective tariffs. Further, SP AusNet notes that compared to the viable alternative (a probabilistic assessment, and inclusion in the baseline gas usage forecasts), the demand adjustment factor is likely to promote the long term interests of consumers, as it mitigates what would otherwise be a real risk of SP AusNet materially:

[83] CIE, Gas demand forecasts, SP AusNet 2012-17, January 2012, p.127

  - over-recovering revenue as a result of over-forecasting the probability weighted impact of this exogenous event, which impacts on allocative efficiency; or
  - under-recovering revenue as a result of under-forecasting the probability weighted impact of this exogenous event, which impacts on SP AusNet's longer term ability to invest in the network for the longer term benefit of customers.
- The Pricing Principles, in particular, s. 24 (3). This is not a 'cost' that is directly incurred by SP AusNet, thus there are no efficiency losses associated with adopting a demand adjustment factor (i.e., there is no moral hazard issue associated with treating this risk in this way).
- Rule 74 (2), as SP AusNet's forecasts would still:
  - be arrived at on a reasonable basis, in fact, the proposed factor leads to actual outturn outcomes being embedded within prices, hence its reasonableness cannot be questioned; and
  - represent the best forecast or estimate possible in the circumstances. This is particularly so as this approach is specifically tailored to the circumstances pertaining to one specific driver of gas usage forecasts. These circumstances include the significant uncertainty and volatility around the move to international parity, and thus it represents a tailored mechanism to address this substantial, isolated risk.
- Both rule 94 and rule 97(3)(a), as it still incentivises SP AusNet to set tariffs at efficient levels, having regard to the LRMC of supply, but also to adjust tariffs with minimum distortion to efficient patterns of consumption where it may not recover its expected revenue.

More specifically, the proposed DT_t factor would allow an automatic revenue adjustment where the wholesale price change relative to forecast wholesale prices generates material revenue gains or losses in a given year. It is set to adjust the allowed annual movement in regulated prices to those that would have been determined in the case that such wholesale prices had been assumed at the time of the price review. To facilitate this, it utilises the price elasticities assumed within CIE's demand forecasts for residential and commercial customers respectively; the volume of gas assumed by CIE in its original model to be used by each of those respective customer classes; the proportion of the overall retail price that the wholesale gas price makes up; and the difference between the actual wholesale gas price for the year in question (which is based on the weighted average of the Australian Energy Market Operator's published Victorian gas prices) and the wholesale gas prices assumed by CIE as part of its original demand forecasts. A dead band of 1% of revenue has been adopted as the definition of 'material' as this acknowledges that even in the absence of a move to international parity, natural fluctuations in wholesale gas prices will occur, which are both symmetrical and business-as-usual.

Overall, the detailed mechanics of SP AusNet's proposed DT_t factor have been designed such that it:

- Targets the asymmetric element of demand risk – the adjustment formula quarantines the element of demand forecast error attributable to the wholesale gas price subject to a symmetrically applied dead-band.
- Applies symmetrically – the adjustment formula will adjust to prevent both windfall gains and windfall losses attributable to the changes in the wholesale gas price.

- Relies upon an objective measure of actual outcomes – the adjustment formula will rely upon published AEMO data to calculated the volume-weight actual annual Victorian wholesale gas spot price.
- Employs the demand relationship for changes in the wholesale gas price that CIE determined – the adjustment formula uses the same mathematical relationship between gas usage and the wholesale gas price that CIE determined when forecasting demand for the 2013-17 access period, building upon the same assumptions about the share of retail prices attributable to wholesale prices and the own price demand elasticity CIE used in its demand forecasting.

SP AusNet considers that the DT_t factor provides an optimal means of accommodating this asymmetric risk to its gas usage forecasts whilst not distorting the efficiency of current arrangement and allowing recovery of efficient costs.

The full formulaic expression of the proposed DT_t factor is outlined below, and is also included in section 3.1 of SP AusNet's proposed reference tariff policy.

14.6 Adjustment Factor

As foreshadowed above SP AusNet is proposing to implement a 'Adjustment Factor' to provide a mechanism for implementing the 'Carbon Tax True Up' required in relation to revenues recovered in 2012, the 'Demand Risk Adjustment' factor and any passthrough amount approved by the AER pursuant to a pass through application relating to a pass through event. The proposed pass through events are set out in Chapter 12.

The adjustment factor

A_t is the adjustment to the Distribution price control in Calendar Year t for the Service Provider and is determined below:

$$1 + A_t = \frac{(1 + A'_t)}{(1 + A'_{t-1})}$$

where:

A'_{t-1} (a) if Calendar Year t is the Calendar Year ending 31 December 2013, is zero;

(b) if Calendar Year t is after the Calendar Year ending 31 December 2013, is the value of A'_t determined in the Calendar Year t - 1;

$$A'_t = \frac{PT_t + DT_t}{(1 + CPI_t)(1 - X_t)\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-1}^{ij} q_{t-2}^{ij}}$$

where:

PT_t is the approved pass through to apply to the Distribution price control in Calendar Year t for the Service Provider and is determined below; and

DT_t is the demand true-up to apply to the Distribution price control in Calendar Year t for the Service Provider and is determined below.

Approved pass through

$$PT_t = ap_{t-1}(1 + pretaxWACC_D)^{3/2}(1 + CPI_t)^{3/2}$$

where:

ap_{t-1} is the amount of any approved Passthrough for the Calendar Year *t* -1; and

$pretaxWACC_D$ is the implied real pre-tax WACC applying to the Service Provider.

Demand true-up

DT_t (a) if Calendar Year *t* is prior to the Calendar Year ending 31 December 2015, is zero;

(b) if Calendar Year *t* is after the Calendar Year ending 31 December 2014, is calculated as follows

$$DT_t = df_{t-2}(1 + WACC)^2(1 + CPI_{t-1})(1 + CPI_t)$$

where:

df_{t-2} is the financial impact of retail price variations in the year $t-2$ and is calculated as follows:

$$df_{t-2} = \left(\frac{WGP_{actual} - WGP_{forecast}}{WGP_{forecast}}\right)(100)(\delta)(RR_{avg}) + \left(\frac{WGP_{actual} - WGP_{forecast}}{WGP_{forecast}}\right)(100)(\alpha)(RC_{avg})$$

where:

If df_{t-2} is less than one per cent of the determined revenue requirement for the Service Provider in year $t-2$ and greater than minus per cent of the determined revenue requirement for the Service Provider in year $t-2$, then df_{t-2} equals zero.

If df_{t-2} is greater than one per cent of the determined revenue requirement for the Service Provider in year $t-2$ or less than minus per cent of the determined revenue requirement for the Service Provider in year $t-2$, then df_{t-2} equals its calculated value.

$WGP_{forecast}$ is the forecast wholesale gas price (real, $/GJ) in year $t-2$ used to determine SP AusNet's approved price path as set out below:

- 3.60 in 2013;
- 3.75 in 2014;

- 3.90 in 2015;
- 4.07 in 2016; and
- 4.20 in 2017.

WGP_{actual} is the actual wholesale gas price (real, \$/GJ) in year $t-2$ measured as the weighted average spot price for the twelve months to December in year $t-2$ calculated using the Australian Energy Market Operator's published Victorian gas prices and withdrawals.

δ is the estimated amount by which residential gas use for all residential customers varies with a 1 per cent increase in the wholesale gas price in year $t-2$, and is (in GJ):

- 11,216 in 2013;
- 11,270 in 2014;
- 11,321 in 2015;
- 11,364 in 2016; and
- 11,411 in 2017.

RR_{avg} is the average price for the usage (through-put) based Haulage Reference Tariff components applicable to residential customers and is calculated as:

$$RR'_{avg} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-2}^{ij} q_{t-2}^{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} q_{t-2}^{ij}}$$

where:

p_{t-2}^{ij} is the tariff for usage based charges to residential customers for Haulage Reference Tariff component i of reference tariff j in year $t-2$ (in\$/GJ); and

q_{t-2}^{ij} is the quantity delivered against Haulage Reference Tariff component p_{t-2}^{ij} in year $t-2$.

α is the estimated amount by which commercial gas use for all commercial customers that are not an Tariff M or Tariff D varies with a 1 per cent increase in the wholesale gas price in year $t-2$, and is (in GJ):

- 13,798 in 2013;
- 13,890 in 2014;
- 13,900 in 2015;
- 13,849 in 2016; and
- 13,838 in 2017.

RC_{avg} is the average price for the usage (through-put) based Haulage Reference Tariff components applicable to commercial customers and is calculated as:

$$RC^{'}_{avg} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-2}^{ij} q_{t-2}^{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} q_{t-2}^{ij}}$$

where:

p_{t-2}^{ij} is the tariff for usage based charges to commercial customers for Haulage Reference Tariff component i of reference tariff j in year $t-2$ (in$/GJ); and

q_{t-2}^{ij} is the quantity delivered against Haulage Reference Tariff component p_{t-2}^{ij} in year $t-2$.

14.7 Rebalancing Constraint

Unlike the National Electricity Rules, which codifies a 2% rebalancing constraint, the gas regulatory framework provides no direct guidance on this issue. Rather, Rule 97 sets out broad provisions pertaining to the tariff variation mechanism.

SP AusNet considers that the following issues should be considered relating in determining the appropriate tariff rebalancing constraint:

- **Ability to set cost reflective ('efficient') tariff structures**: SP AusNet considers that if the rebalancing constraint inhibits its ability to move towards, or maintenance of, cost reflective pricing within the regulatory period, then there is a strong argument under the NGRs (Rule 97(3)(a)) and NGO to increase the rebalancing constraint;
- **Administrative costs:** In deciding whether a particular reference tariff variation mechanism is appropriate to a particular access arrangement, the AER must have regard to the administrative costs incurred by "*the AER, the service provider, and users or potential users*". SP AusNet considers that the practical application of this Rule must reference back to the NGO, which, would require that the administrative costs be weighed up against the allocative efficiency benefits that could reasonably be assumed to occur as a result of adopting a particular rebalancing constraint, relative to a larger or smaller rebalancing constraint. Where the allocative efficiency benefits are greater than the administrative costs, then this will be in the "*long term interests of consumers of natural gas*"; and
- **Consistency between regulatory arrangements for similar services and previous regulatory arrangements for gas:** SP AusNet considers that the strict application of these constraints should not impede the AER from making decisions that are consistent with the NGO, which, subject to a number of other considerations, implicitly requires a move towards cost reflective prices ("to promote efficient investment in, and efficient operation and use of, natural gas services").

Having regard to the above, and consistent with the requirements of Rule 72(1)(k), which requires that the access arrangement information must include the service provider's rationale for any proposed reference tariff variation mechanism, SP AusNet's position is that the rebalancing constraint should contain the following features:

- The side constraints *should not* apply in the first year of the regulatory period:
    - this provides significant scope for the rebalancing of tariffs towards more cost reflective levels in year 1 of the forthcoming regulatory control period, which is consistent with rule 97(3)(a). Further, this is consistent with the requirements of NGO;
    - a further, albeit, secondary benefit, is that this is consistent with how the rebalancing constraint is applied in the electricity industry, and other gas decisions made by the AER (e.g., the recent Envestra decision), therefore, it is consistent with Rule 97(3)(d); and
    - SP AusNet does not consider that its proposal materially impacts on the administrative costs incurred by any stakeholder (i.e., '*the AER, the service provider, and users or potential users*'). More specifically, it is SP AusNet's contention that once tariffs are allowed to change *at all*, relative to the prices in year t-1, then the marginal administrative costs to '*the AER and the service provider*' of assessing a larger change in tariffs is virtually zero. Further, SP AusNet is not aware of any evidence to suggest that *'users or potential users*' are adversely impacted, in terms of administrative costs, associated with changing gas prices, within the reasonable bounds expected to result from a regulatory review process. Moreover, prima facie, it appears from the AER's previous decisions (e.g., Envestra decision) that it too has not considered the administrative costs to be so burdensome as to breach Rule 97(3)(b).
- The rebalancing constraint for years 2-5 of the regulatory period should be applied at the 'Haulage Reference Service' level, and the rebalancing constraint (Y-Factor) should be set at 5%:
    - notwithstanding the previous statement about setting cost reflective prices, SP AusNet considers that the NGO also implies that the longer term interests of customers may, in some circumstances, also be promoted by adopting a glide path approach to rebalancing tariffs, where there is a significant disconnect between existing tariffs and 'cost reflective' tariffs. As such, it cannot be automatically assumed that perfectly cost reflective tariffs will be adopted from the first day of the next regulatory period. This is a primary reason for the inclusion of the Y factor in the first place;
    - SP AusNet notes that a disconnect between prices and costs can occur for a number of reasons, many of which are outside of the business' control. For example, in SP AusNet's case, its current rebalancing constraint is placed at the tariff component level, which imposes significant limitations on SP AusNet's ability to rebalance tariffs within period. This is because SP AusNet's ability to rebalance tariffs is limited by the amount of revenue that is generated by applying the full relancing constraint (CPI+2%) on the lowest revenue producing component. For example, if SP AusNet applied the full price increase on a Tariff V, off peak block 4 component in the Central region (which generates the lowest amount of revenue in this tariff), the proportionate reduction that it could pass through to say the Tariff V, peak block 1 tariff component (which generates the highest amount of revenue in this tariff), is infinitesimally small, because of the relative proportion of revenue that is captured in those blocks. SP AusNet proposes to overcome this issue in the future by placing the constraint on Haulage Reference Service, not on the tariff or the tariff component;
    - further, the Pricing Principles contained in the NGL require that businesses be "*provided with a reasonable opportunity to recover at least the efficient costs*

the service provider incurs". An overly restrictive rebalancing constraint – whether due to its overall magnitude, or the level (e.g., 'tariff class' or 'tariff' component) at which it is applied – will inhibit a business' ability to adjust tariffs in response to within-period exogenous events, such as changing consumption profiles, the impact of climate on demand, changes in Government policies affecting gas usage, or changes in the amount and location of new development due to macroeconomic events. This exacerbates the risk that businesses will not be provided with a reasonable opportunity of recovering their efficient costs, thus contravening the Pricing Principles (Section 24(2)) in the NGL. For example, the application of a rebalancing constraint at the tariff class level instead of at the Haulage Reference Service level, severely limits SP AusNet's ability to mitigate the impact of an economic downturn on gas sales or connections to its gas network, because it severely limits its ability to rebalance tariffs to other tariffs/tariff components that are less influenced by macroeconomic factors. Analogous to this, SP AusNet's initial modelling indicates that the application of a Y factor of any less than 5% will similarly impact upon SP AusNet's ability to mitigate the risk of exogenous events, thus not providing it with a '*reasonable opportunity to recover at least the efficient costs*' that it incurs; and

- SP AusNet acknowledges that its proposed rebalancing constraint differs to both the electricity industry, and to that which has historically been applied in the Victorian gas industry. SP AusNet considers that the strict application of previous regulatory decisions, or the adherence to outcomes from other regulated industries, is a secondary issue, and should not be a barrier to application now if the new approach is justified and would lead more directly to satisfaction of the NGO. These elements of the NGL are necessarily non-prescriptive to allow evolution of approaches over time. First and foremost, the NGL (Section 28(1)) requires that the AER must "*in performing or exercising an AER economic regulatory function or power, perform or exercise that function or power in a manner that will or is likely to contribute to the achievement of the national gas objective*". SP AusNet notes that the wording or Rule 97 (3)(d) refers to the "*desirability of consistency between regulatory arrangements for similar services*" – the word 'desirability' infers a level of 'want', not 'need', which places a lower regulatory burden upon the AER.

SP AusNet's proposed Rebalancing Control Formula is detailed below.

Rebalancing Control Formula:

$$(1+CPI_t)(1-X_t)(1+Y_t)(1+L_t)(1+A_t) \geq \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} p_t^{ij} * q_{t-2}^{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} p_{t-1}^{ij} * q_{t-2}^{ij}}, i = 1,...n$$

where:

p_t^{ij} is for each Haulage Reference Service the proposed Haulage Reference Tariff component *j* for Haulage Reference Tariff *i* in Calendar Year *t*;

p_{t-1}^{ij} is for each Haulage Reference Service the Haulage Reference Tariff component *j* being Charged for Haulage Reference Tariff *i* in Calendar Year *t-1*;

q_{t-2}^{ij} is for each Haulage Reference Service the Quantity of Haulage Reference Tariff Component *j* of Haulage Reference Tariff *i* that was sold in Calendar Year *t* – 2;

CPI_t is the CPI for Calendar Year *t*, as defined in the Glossary;

X_t is 0.0;

Y_t is equal to 0.05;

L_t is the Licence Fee factor as determined. If L_t <0, then (1+L_t) = 1; and

A_t is an approved Passthrough Factor for Calendar Year *t*. If A_t <0, then (1+ A_t) = 1

14.8 Arrangements for recovery of the Carbon Liability

The introduction of the carbon tax, pursuant to the Clean Energy Act 2011, will have direct and indirect effects on SP AusNet's gas distribution business. The key elements of the carbon tax that will affect SP AusNet summarised below:

- A carbon price of $23 per tonne of $C0_2$ emissions will commence on 1 July 2012, and will be increased at a rate of 2.5% per annum in real terms until June 2015. From July 2015, the carbon price will be set by the market under a cap and trade scheme, and the number of permits issued by the Government each year will be capped.
- The carbon tax will be levied on approximately 500 companies. Facilities that have direct greenhouse gas emissions of 25,000 tonnes of CO_2-equivalent per year or more - excluding emissions from transport fuels and some synthetic greenhouse gases – will be covered. The tax will apply directly to SP AusNet's gas distribution business as SP AusNet has reported under the National Greenhouse Emissions Reporting Scheme (NGERS) emissions of over 25,000 tonnes of CO_2-equivalent per year from its gas facility.
- Treasury modelling indicates that the carbon tax will increase the Consumer Price Index in 2012/13 by 0.7%. The modelling also indicates that the economy will continue to grow strongly to 2020, with the carbon tax expected to reduce gross national income per capita by 0.1% per annum. Gross national income per person under the carbon tax is expected to grow at 1.1% per annum.

Based on this analysis, the carbon tax will therefore have the following impacts on SP AusNet's gas distribution network:

- direct impacts will arise - in terms of increased costs for SP AusNet – as a result of the carbon tax being applied to fugitive emissions;
- there will be indirect impacts due to the effects of the carbon tax on SP AusNet's input costs; and
- there will be indirect impacts on gas demand through income and price effects.

SP AusNet proposes that the indirect impacts of the carbon tax should be addressed in SP AusNet's expenditure forecasts and gas demand projections.

In contrast, the direct impact of the carbon tax should be addressed by including an appropriately defined "Carbon Liability" variable in the price control formula. This approach ensures that the actual direct cost of the carbon tax is recovered from customers, which is an important principle of the carbon tax. An alternative approach of forecasting the direct impact of the carbon tax and providing SP AusNet with an allowance based on the forecast would likely result in SP AusNet either under- or over-recovering compared to the actual costs.

SP AusNet proposes that the Carbon Liability variable in the price control formula will include a true-up mechanism for each year. This true-up or correction factor mechanism will compare SP AusNet's cost recovery during a particular year (based on a forecast of the Carbon Liability for that year) with the actual impact of the Carbon Liability. An adjustment will be made in the following year(s) to ensure that SP AusNet only recovers the actual costs of the Carbon Liability, taking into account the time value of money.

The proposed mechanism is set out below and is consistent with the pass through application SP AusNet will propose in regard to tariffs for the 6 months remaining during the current access arrangement period from 1 July 2012.

The Carbon Liability Formula

When assessing the Service Provider's proposed tariffs, submitted in accordance with this access arrangement, it is proposed that the AER allow SP AusNet to include an 'Approved Tariff to recover the 'Carbon Liability' amount.

The 'Carbon Liability' amount would be based on an assessment as to whether the expected revenue from Carbon Tariffs (CTR_t), is less than or equal to the Maximum Carbon Tariff Revenue allowed ($MCTR_t$):

$$CTR_t \leq MCTR_t$$

where:

$MCTR_t$ is determined by the formula in clause 3.7.1 of Part B of SP AusNet's access arrangement, and as set out below; and

CTR_t is the total of the Service Provider's proposed 'Carbon Tariffs' – defined as '*the uplift in Reference Tariffs directly associated with the recovery of the Carbon Liability'* - in Calendar Year t multiplied by the corresponding forecast quantities to be distributed for each tariff component of each tariff, in Calendar Year *t*.

Maximum Carbon Tariff Revenue ($MCTR_t$):

$MCTR_t$ is expressed by the formula as set out below:

$$MCTR_t = CTP_t - K_t$$

where:

$MCTR_t$ is the maximum revenue the Service Provider is allowed to receive from its Carbon Tariffs from all distribution customers for the Calendar Year *t*;

CTP_t is the aggregate of all charges which the Service Provider forecasts it will be required to pay in Carbon Liability in respect of Calendar Year *t*, and

K_t is determined in accordance with clauses 3.7.2. of Part B of SP AusNet's access arrangement, and as set out below.

Correction factor K_t:

K_t is a correction factor to account for any under or over recovery of actual revenue from Carbon Tariffs in relation to allowed revenue.

K_t is determined by reference to the formula set out below.

$$K_t = (Ky_t + Kz_t + K_{t-1})(1 + CPI_t)(1 + pretaxWACC_D)$$

where:

Ky_t is calculated in accordance with clause 3.7.3 of Part B of SP AusNet's access arrangement, and as set out below;

Kz_t is calculated in accordance with clause 3.7.4 of Part B of SP AusNet's access arrangement, and as set out below;

K_t-1 is the figure calculated for K_t for Calendar Year *t–1*;

pretax WACC$_D$ is 0.0725; and

CPI_t is the CPI for Calendar Year *t*, as defined in the Glossary.

Calculation of Ky_t:

Ky_t is a correction factor determined with reference to the formula in this clause.

$$Ky_t = CTR_{t-1} - CTP_{t-1}$$

where:

CTR_{t-1} is the total revenue which it is estimated the Service Provider will earn from its 'Carbon Tariffs' in respect of all distribution customers in Calendar Year *t-1*; and

CTP_{t-1} is the aggregate of all Carbon Liability which it is estimated will be payable by the Service Provider in respect of Calendar Year *t-1*.

Calculation of Kz_t

Kz_t is a correction factor for the difference between the estimates made in clause 3.7.3 of Part B of SP AusNet's access arrangement in Calendar Year *t-1* and actual audited values and is expressed by the formula in this clause.

$$Kz_t = \{(CTRa_{t-2} - CT\,\mathrm{Re}_{t-2}) - (CTPa_{t-2} - CTPe_{t-2})\ \} \times (1 + pretaxWACC_D)(1 + CPI_{t-1})$$

where:

$CTRa_{t-2}$ is the actual audited total revenue earned by the Service Provider from Carbon Tariffs in respect of all distribution customers in Calendar Year t–2;

$CTRe_{t-2}$ is the figure used for t1 CTR_{t-1} when calculating Ky_t for Calendar Year t-2 under clause 3.7.3 of Part B of SP AusNet's access arrangement;

$CTPa_{t-2}$	is the audited aggregate of all Carbon Liability paid by the Service Provider in respect of Calendar Year t-2;
$PCTPe_{t-2}$	is the figure used for CTP_{t-1} when calculating Kyt for Calendar Year t-1 under clause 3.7.3 of Part B of SP AusNet's access arrangement;
CPIt-1	is CPI_t as defined in the Glossary for the Calendar Year t-1.

pretax $WACC_D$ is 0.0725, being the implied real pre tax WACC applying to the Service Provider.

14.9 Tariff variation process

Consistent with its current tariff variation process, and the process outlined in section 4 of Part B of SP AusNet's current access arrangement, SP AusNet proposes the following process to varying tariffs:

- SP AusNet will, at least 35 business days prior to the commencement of the next Calendar Year, submit proposed Haulage Reference Tariffs to apply from the start of the next Calendar Year for verification of compliance by the AER;
- Where SP AusNet proposes to change a Haulage Reference Tariff within a Calendar Year, it will submit the proposed Haulage Reference Tariff change for verification of compliance by the AER; and
- Where SP AusNet proposes to introduce a new Haulage Reference Tariff or new Haulage Reference Tariff Component or withdraw an existing Haulage Reference Tariff or existing Haulage Reference Tariff Component within a Calendar Year it will submit the proposal for verification of compliance by the AER.

SP AusNet will ensure its proposed Haulage Reference Tariffs or proposed changes to Haulage Reference Tariffs submitted under clauses comply with the tariff control and rebalancing formulae. SP AusNet considers that the reference tariff variation mechanism in the current access arrangement provides the AER with appropriate oversight of the reference tariffs, consistent with the requirements of Rule 97(4).

14.10 Ancillary reference services

14.10.1 Price Control Mechanism

SP AusNet proposes to be able to vary its Ancillary Reference Services, initially on the 1 January 2013, based on the prices approved as part of the Final Decision, and annually thereafter, based on the following formula.

$$ART_t = ART_{t-1} * CPI_t$$

where:

ART_t	is the Reference Tariff that will apply to an Ancillary Reference Service in year $_t$;
ART_{t-1}	is the Reference Tariff that applied to that Ancillary Reference Service in year $_{t-1}$;
CPI_t	is calculated as the CPI for the year ending 30 September immediately preceding the start of year $_t$, divided by the CPI for the year ending 30 September immediately preceding the start of year $_{t-1}$.

14.10.2 Rebalancing Constraint

Given that it is proposed that Ancillary Reference Services are to be escalated by CPI annually, SP AusNet does not propose to adopt a rebalancing constraint for Ancillary reference services.

14.10.3 Tariff variation process

SP AusNet proposes that this be applied in the same manner as for Haulage Reference Services, as outlined in Section 14.6 above.

15 Reference tariffs

15.1 Summary of key points

This chapter provides an overview of SP AusNet's reference tariffs. The key points are:

- SP AusNet proposes to maintain its existing tariff structure.
- SP AusNet demonstrates that its proposed tariff structures and levels are consistent with the requirements of the NGR and NGL, in particular, for each tariff class, the amount of revenue that is generated is between the standalone cost and avoidable cost of supply, further, they take into account the LRMC of supply.

15.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 15.3 cites the applicable regulatory requirements.
- Section 15.4 describes SP AusNet's cost allocation and tariff setting approach.
- Section 15.5 outlines SP AusNet's interpretation of the Pricing Principles outlined in the Rules, including its approach to calculating the LRMC and Standalone/Avoidable cost parameters.
- Section 15.6 describes SP AusNet's proposed tariffs, and why it considers them to be consistent with the NGR.

15.3 Regulatory requirements and SP AusNet compliance

Rule 48(1)(d)(i) states that a full access arrangement must specify the reference tariff for each reference service.

Rule 72(1) states:

> *"The access arrangement information for a full access arrangement proposal (other than an access arrangement variation proposal) must include the following:*
>
> *(j) the proposed approach to the setting of tariffs including:*
>
> *(i) the suggested basis of reference tariffs, including the method used to allocate costs and a demonstration of the relationship between costs and tariffs; and*
>
> *(ii) a description of any pricing principles employed but not otherwise disclosed under this rule."*

Rule 93 sets out provisions relating to allocation of total revenue and costs as follows:

> *"(1) Total revenue is to be allocated between reference and other services in the ratio in which costs are allocated between reference and other services.*
>
> *(2) Costs are to be allocated between reference and other services as follows:*
>
> *(a) costs directly attributable to reference services are to be allocated to those services; and*
>
> *(b) costs directly attributable to pipeline services that are not reference services are to be allocated to those services; and*
>
> *(c) other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER."*

Rule 94 sets out provisions relating to tariffs for distribution pipelines as follows:

> *"(1) For the purpose of determining reference tariffs, customers for reference services provided by means of a distribution pipeline must be divided into tariff classes.*
>
> *(2) A tariff class must be constituted with regard to:*

(a) the need to group customers for reference services together on an economically efficient basis; and

(b) the need to avoid unnecessary transaction costs.

(3) For each tariff class, the revenue expected to be recovered should lie on or between:

(a) an upper bound representing the stand alone cost of providing the reference service to customers who belong to that class; and

(b) a lower bound representing the avoidable cost of not providing the reference service to those customers.

(4) A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class:

(a) must take into account the long run marginal cost for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates;

(b) must be determined having regard to:

(i) transaction costs associated with the tariff or each charging parameter; and

(ii) whether customers belonging to the relevant tariff class are able or likely to respond to price signals.

(5) If, however, as a result of the operation of subrule (4), the service provider may not recover the expected revenue, the tariffs must be adjusted to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption.

(6) The AER's discretion under this rule is limited."

The information and proposals set out in this chapter accord with all of the applicable requirements of the NGR.

15.4 Cost Allocation and Tariff Setting

To address the NGR requirements set out in section 15.2, SP AusNet applies the following broad principles:

- Wherever possible, operating costs are directly attributed to assets and distribution service categories where the cost is directly related to the management (i.e. operation, maintenance, construction) of the asset or the delivery of the service. In other words, where there is a clear 'line of sight' between the costs incurred and the particular assets and/or service, then these costs are directly attributed to those assets and/or service categories. These cost allocations are set out in SP AusNet's annual regulatory accounts.
- Further SP AusNet directly attributes costs within its regulatory accounts to:
    - Haulage Reference Services;
    - Ancillary Reference Services; and
    - Pipeline services that are not Reference Services.
- Costs incurred in the provision of Ancillary reference services are included within the building block calculation. Tariffs for Ancillary Reference Services are based on the incremental cost to SP AusNet of providing those services. These tariffs are levied on customers requesting ancillary reference services, the forecast revenue from these services are removed from the revenue requirement prior to calculating Haulage Reference Service prices and are therefore not recovered from Haulage Reference Services;

- Costs associated with non-reference services are set out in the regulatory accounts but are not included within the building block costs. These services are not required by a large part of the market, each service is likely to vary in cost significantly and the number of services requested by customers varies. For this reason SP AusNet does not propose that these services be included as Ancillary Reference Services, rather these services are charged on a recoverable works basis. This ensures that the costs associated with these services are not included in the building block calculation, and are therefore only recovered from those customers who request these services and not subsidised by either Haulage Reference Service or Ancillary Reference Service Customers.
- SP AusNet allocates costs between the tariffs for Haulage Reference Services according to cost drivers. For example, business customers' usage profiles indicate that these customers use peak gas at only 1.8 times the rate of off peak gas while residential customers' peak usage is 3.4 times off peak, accordingly, SP AusNet's retains a lower peak and off-peak charge for business customers to reflect this differing load factor.

15.5 Pricing principles

SP AusNet's interpretation of the NGR, in particular, rule 94, is that it requires SP AusNet to not only propose reference tariffs that recover the efficient cost of providing reference services, but also, that those tariffs themselves are 'efficient'.

There are three underlying criteria outlined in the NGR that can be used to assess the 'efficiency' of a tariff:

1. A reference tariff should encourage consumers to consume gas up to the point where the marginal benefit to them of consuming an additional gigajoule of gas equals the marginal cost of providing that extra gigajoule of gas to that customer.
2. A reference tariff should not:
    - Encourage consumers to disconnect from the network, or seek to bypass the existing network, when the cost to SP AusNet is less than their willingness to pay for gas services; and
    - Encourage consumers to consume gas, when the value that they place on that consumption is less than the avoidable cost of distributing that gas to them.
3. A reference tariff should be administratively simple, in that customers should be able to readily understand it; and the allocative efficiency benefits of introducing the tariff must outweigh the costs of introducing and administering that tariff. In relation to this last point, if a customer is unable to respond to the price signal (i.e., they have a very low or ~zero elasticity of demand) then there will only be minimal (~zero) allocative efficiency benefits from sending more cost reflective price signals. In this case, it may in fact be economic to send a price signal that is not perfectly cost reflective, in order to save on the administrative costs of adopting the more cost reflective tariff.

15.5.1 Long Run Marginal Cost

As detailed in the introduction to this section, rule 94(4) requires that charging parameters '*take into account the long run marginal cost for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates'*.

The long-run marginal cost for a network service can be calculated in a number of different ways. The methodology that SP AusNet has utilised is known as the Average Incremental Cost (AIC) approach. This approach is commonly used in distribution networks, as it is well suited to situations where there is fairly consistent profile of investment over time to service growth in demand. An alternative approach is to use the perturbation approach, however this is generally considered to be more suited to wholesale supply systems where there is lumpy capital investment required to augment the system.

The AIC approach to determining the LRMC utilises the following formula:

$$= \frac{PV\text{ (growth related shared network capex and opex)}}{PV\text{ (incremental demand)}}$$

SP AusNet has adopted three key assumptions to derive its LRMC:

1. Only the 'costs' that are able to be mitigated by the broader customer base, if they were to respond to the price signal derived by the LRMC, are included in the model. Put another way, if the broader customer base were to respond to a particular price signal, and that response did not lead to a reduction in a particular cost item, then that cost item should not be included in the LRMC calculation that is used to set variable prices. In general, this means that only 'shared network assets' (and their associated opex) have been included;
2. The split between peak and off peak LRMC is based on the extent to which the relevant cost in the model is driven by 'average consumption' or 'peak' consumption. In the case of a gas distribution system, almost all reinforcement related capital expenditure is required to alleviate capacity constraints during peak periods, hence, the peak period exhibits a higher LRMC than the off-peak period; and
3. Relevant capital costs are split between commercial and residential customer classes based on their proportionate contribution to the increase in MDQ in each tariff zone, which in turn is the underlying driver of the capital augmentations that are included in the model.

The results of the LRMC analysis (average for the access arrangement period) are contained in Table 15-1 and Table 15-2 below.

Table 15-1: LRMC results – Residential

Area	Peak ($/GJ)	Off Peak ($/GJ)
Central	$0.90	$0.06
West	$0.90	$0.06
Adjoining Central	$2.57	$0.05
Adjoining West	$0.55	$0.05

Source: SP AusNet

Table 15-2: LRMC results – Commercial

Area	Peak ($/GJ)	Off Peak ($/GJ)
Central	$0.98	$0.01
West	$1.44	$0.01
Adjoining Central	$0.62	$0.01
Adjoining West	$0.86	$0.01

Source: SP AusNet

Notwithstanding the above assessment, SP AusNet notes that the modelling undertaken relies on a number of assumptions having to be made. The LRMC results are highly sensitive to changes in many of those assumptions, therefore, SP AusNet would caution that these figures should be seen as a guide only.

15.5.2 Standalone / Avoidable Cost

Rule 94 (3) requires that for each tariff class, the revenue expected to be recovered should lie on or between an upper bound, representing the stand alone cost of providing the reference, and a lower bound, representing the avoidable cost of not providing the reference service to those customers.

Therefore, for a reference tariff to be deemed to be efficient under the NGR, it must deliver a stream of revenue from a class of customers that is between this upper and lower bound. This is commonly known as the ‘efficient pricing band’. There are two reasons why a price within this ‘band’ is deemed to be efficient:

- **Greater than the avoidable cost**: Breaching this minimum revenue level results in that customer / customer class receiving a subsidy from SP AusNet’s remaining customer base; further, assuming the marginal price is less than the marginal cost, and that customer or customer class’ demand curve is not perfectly inelastic, they would also be over-consuming relative to efficient levels; and
- **Less than the stand alone cost:** Breaching this upper bound may result in that group of customers being incentivised to inefficiently bypass SP AusNet’s existing gas distribution network in order to avoid paying SP AusNet’s tariffs, despite the fact that the cost to SP AusNet of providing these services to that customer may be less than the alternative (bypass) option.

SP AusNet considers that the avoidable costs of supply are best estimated by the SRMC of supply, multiplied by the estimated usage for that customer/customer class.

SP AusNet notes that there are a number of methodologies that can be utilised to estimate the stand alone cost of servicing a customer, or group of customers. These broadly include:

- A ‘bottom up’ build of stand-alone costs, via the construction of a modern day equivalent, optimised, asset base in support of the delivery of services to each customer or group of customers; and
- A ‘top-down’ approach, which involves allocating each existing asset / asset type to a customer or group of customers, based on some allocation process/methodology. This allocation driver is generally based on the key underlying cost driver.

SP AusNet considers that there are a number of practical and theoretical issues that need to be considered when determining which approach should be used to calculate the stand alone cost for each group of customers. In particular, the adoption of an average stand alone cost to serve a group of customers may not capture what could be termed ‘outlier’ (non-average) customers, for example those that are particularly close to the transmission network, or have particularly large usages. Further, the adoption of an average stand alone cost neglects the fact that the most likely substitute for existing (residential) customers is not a network solution, but rather a bottled gas solution.

As a result, SP AusNet has adopted an approach that focuses on the potential for individual customers within a broader customer class to bypass SP AusNet’s network, as well as assessing the potential for an entire customer class to bypass SP AusNet’s network. SP AusNet considers this a practical and robust application of the underlying economic principle that underpins the NGR, as it allows it to assess the possibility of individual customers within a customer class to disconnect from the system.

SP AusNet has further split this analysis into two categories, reflecting the likely alternative servicing solution that would be taken up by an individual customer:

- **Large Customers**: SP AusNet has estimated the total network cost of connecting a customer to the existing transmission network, and determined at what distance away from the existing transmission network, if any, this becomes economic, relative to paying SP AusNet's existing network charges. This is done for both Tariff M and Tariff D customers, and specifically has regard to the location and size of existing connections in each of those customer classes; and
- **Small Customers**: Assessing the cost per Gigajoule of utilising 'bottled gas', and comparing this to each of SP AusNet's proposed Tariff V tariffs.

The former focuses on the fact that it is the location of a large customer to another potential alternative source of gas that will be the predominant (but not only) driver of bypass. Further, this acknowledges that the larger the customer, the less economic it is to actually utilise non-network sources of gas (e.g., bottled gas).

The latter recognises that rather than it being a 'class of customer' that is likely to bypass SP AusNet's existing network, it will be individual customers within that class that seek to bypass SP AusNet's existing network. Moreover, it reflects the fact that given the size of residential and small commercial customers, it may not be a network solution that is utilised to bypass the network, rather it maybe through the use of an alternate fuel sources, including non-network sources of gas (e.g., bottled gas).

The results of the analysis are contained in Table 15-3 and Table 15.4 below.

Table 15-3: Standalone / Avoidable cost results – Residential and Commercial customers

Tariff Class	Standalone[1]	Avoidable[2]	Average Revenue[3]
Central – Residential	$1,486	$3.16	$540
West – Residential	$1,492	$3.17	$455
Adjoining Central – Residential	$1,054	$2.07	$577
Adjoining West – Residential	$1,514	$3.23	$804
Central – Non Residential	$10,043	$4.11	$1,425
West – Non Residential	$6,546	$2.64	$937
Adjoining Central – Non Residential	$10,161	$4.16	$4,171
Adjoining West – Non Residential	$13,118	$5.40	$5,284

[1]Based on average GJ per customer usage in 2009 from SP AusNet Gas tariff Model for each respective tariff zone.

[2]Based on the estimated SRMC multiplied by that class' average GJ per customer usage in 2009

[3]Based on 2011 Average Bill from SP AusNet's 2011 Gas Tariff Model for each respective tariff zone

Source: SP AusNet

It is noted that for all volume levels tested, SP AusNet's Tariff V complies with the requirements of Rule 94 (3).

Table 15-4: Standalone / Avoidable Cost Results – Large Industrial Customers

Tariff Class	Standalone	Avoidable	Average Revenue
Tariff D			
-0m from transmission, with MHQ of 387GJ/hr[1]	$653 per MHQ	$240 per MHQ	$459 per MHQ
-Customers above this threshold[2]	$1,902 - $615 per MHQ	$192 - $82 per MHQ	$442 - $424 per MHQ
Tariff M			
-0m from transmission assuming usage equivalent to citygate capacity of 387GJ/hr	$653 per MHQ	$240 per MHQ	$901 per MHQ
-825m from transmission, assuming average usage equivalent to citygate capacity of 387GJ/hr	$902 per MHQ	$240 per MHQ	$901 per MHQ
-0m from transmission assuming largest Tariff M customer of 105MHQ and citygate of 387GJ/hr	$2408 per MHQ	$240 per MHQ	$901 per MHQ

[1]*Based on the average capacity of a citygate of 387GJ/hr.*

2 SP AusNet tested the specific impact on the three Tariff D customers that are above 387GJ/hr. This had regard to their location, relative to the transmission network (3.2km – 7km from the transmission network), along with costs associated with the larger citygate capacity that would be required to service those customers.

Source: SP AusNet

It is noted that for all distances away from the transmission network, SP AusNet's Tariff D complies with the requirements of Rule 94(3) when consumption from that class is assumed to equate to the average capacity of a citygate of 387GJ/hr. Further, SP AusNet tested the sensitivity of these results for MHQ's above 387GJ/hr to test whether the scale efficiency benefits that accrue from providing an increased capacity at the citygate would lead to the standalone cost being less the than the revenue that is accrued via the levying of Tariff D charges. In short, this analysis showed that even when utilising the largest MHQ exhibited by an individual customer on SP AusNet's network, the revenue generated from levying Tariff D charges is still below the standalone cost of supply, once the cost of connecting that customer to the transmission network, given their specific location, is taken into account. More specifically, the standalone cost, inclusive of connection assets to distribute gas to their specific location, ranges from $615 per MHQ to $1902 per MHQ.

Further, whilst the average revenue for Tariff M customers is assessed as being above the standalone cost, when *a group* of tariff M customers are: a) assumed to be situated directly adjacent to the transmission network, and b) in total, they utilise the full capacity (387GJ/hr) of the citygate; this is not a situation that exists in SP AusNet's network. In particular, SP AusNet's largest Tariff M customer has a capacity of less than a third of this amount (105 GJ/hr), which results in the standalone cost ($2,408) being above the revenue generated from that customer. Further, and more importantly, a group of Tariff M customers that collectively, used 387GJ/hr would need to be situated less than 825m away from the transmission network to make bypass economic. SP AusNet notes that none of its large Tariff M customers are within this vicinity of the transmission network.

Having regard to the above, SP AusNet considers that its tariffs comply with the NGR, in particular, Rule 94(3).

15.6 Tariff design

The following section outlines SP AusNet's proposed tariff design, including the relevant tariff classes that it considers are consistent with the NGR, and the tariff structure that it proposes to apply.

15.6.1 Tariff Classes

Rule 94 requires that a tariff class must be constituted with regard to: the need to group customers for reference services together on an economically efficient basis; and the need to avoid unnecessary transaction costs.

SP AusNet is proposing to maintain its existing tariff classes, as it considers that they are consistent with the requirements of Rule 94. Each tariff class is a sub component of a Haulage Reference Service. This relationship, along with a description of the tariff class, is outlined in the table below.

Table 15-5: Tariff classes applicable to each haulage reference services

Tariff V Haulage Reference Service	Tariff M Haulage Reference Service	Tariff D Haulage Reference Service
Central Zone – Residential	Central Zone – Demand	Central Zone – Demand
Central Zone – Non Residential	West Zone – Demand	West Zone – Demand
West Zone – Residential	Adjoining Central Zone – Demand	Adjoining Central Zone – Demand
West Zone – Non Residential	Adjoining West Zone – Demand	Adjoining West Zone – Demand
Adjoining Central Zone – Residential		
Adjoining Central Zone – Non Residential		
Adjoining West Zone – Residential		
Adjoining West Zone – Non Residential		

Source: SP AusNet

SP AusNet considers that its proposed tariff classes are consistent with the NGR. In particular, SP AusNet considers that the first limb of the Rule necessitates a linkage between tariff classes and network cost drivers. In particular, there are a number of 'natural' characteristics of a customer's connection and usage characteristics that drive costs within SP AusNet's gas distribution system, and thus allow customers to be grouped on an economically efficient basis. These relate to a customer's:

- Anytime maximum demand;
- Location; and
- Contribution to overall system peak demand.

In the case of the former, a customer's anytime maximum demand impacts the size of their connection, which influences the 'level' of the network that they are connected into, and thus the proportion of SP AusNet's assets that they require in order to be provided with pipeline services.

SP AusNet has also grouped customers by location, to reflect the different costs of delivering gas to, and within, certain broad geographic areas within their license area. The regions also reflect previous policy decisions with regard to pricing zones, along with the requirement to extend the gas network to a number of new regional towns adjacent to the existing supply areas.

Further, different customer classes will typically have different load factors across the year, which leads to different utilisation patterns of SP AusNet's asset base across the year, and therefore, different contributions to SP AusNet's cost of service. In the absence of more sophisticated metering arrangements, it is efficient to group customers into different classes based on their expected load factor. SP AusNet has created two classes: residential and non-residential, based on the fact that generally, these two kinds of customers exhibit quite different load factors. This minimises the distortion to tariffs as a result of not being able to directly reflect the underlying network cost drivers in tariffs, which promotes the delivery of economically efficient outcomes.

SP AusNet also considers that its proposed tariff classes are consistent with the second aspect of the limb ('*the need to avoid unnecessary transaction costs*'). For example, SP AusNet uses customer type (residential, non-residential) and location to determine a customer's tariff class. As they are both definitive (i.e., interpreting them is not generally problematic), and static (i.e., they don't change), the transaction costs associated with transferring customers between classes once that customer is connected to SP AusNet's network is minimised. Further, the application of one demand threshold for Tariff M and Tariff D Haulage Reference Services means that transfers between classes year-on-year are reduced, relative to if multiple demand thresholds were utilised to define different tariff classes.

15.6.2 Tariff Structure and levels

SP AusNet proposes to maintain its existing tariff structure for both its Haulage Reference Services and its Ancillary Reference Services. The structures and proposed tariff levels for each tariff for 2013 are outlined in the following tables.

Table 15-6: Tariff V Haulage reference services

Tariff V Haulage Reference Service	Domestic	Commercial
Central		
• Fixed Charge per day	0.1102	0.1112
• Peak (0 - 0.1)	9.2518	8.3458
• Peak (0.1 - 0.2)	6.8390	5.5490
• Peak (0.2 – 1.4)	2.1447	2.9965
• Peak (>1.4)	1.3377	1.2044
	7.4139	7.9031

Tariff V Haulage Reference Service	Domestic	Commercial
• Off Peak (0 - 0.1)	4.6678	5.5408
• Off Peak (0.1 - 0.2)	2.1419	2.9622
• Off Peak (0.2 – 1.4)	0.7365	1.1560
• Off Peak (>1.4)		
West		
• Fixed Charge per day	0.1102	0.1112
• Peak (0 - 0.1)	7.4188	5.9794
• Peak (0.1 - 0.2)	6.7965	5.0022
• Peak (0.2 – 1.4)	2.8210	2.7687
• Peak (>1.4)	1.2764	1.0010
• Off Peak (0 - 0.1)	4.9763	5.6327
• Off Peak (0.1 - 0.2)	3.4077	4.7957
• Off Peak (0.2 – 1.4)	2.0408	2.5930
• Off Peak (>1.4)	0.9045	0.9691
Adjoining Central		
• Fixed Charge per day	0.1102	0.1112
• Peak (0 - 0.1)	13.0105	12.3527
• Peak (0.1 - 0.2)	10.4239	9.5982
• Peak (0.2 – 1.4)	7.9290	7.5336
• Peak (>1.4)	5.5742	5.5887
• Off Peak (0 - 0.1)	11.0690	11.9607
• Off Peak (0.1 - 0.2)	8.6006	9.1957
• Off Peak (0.2 – 1.4)	6.6764	7.3892
• Off Peak (>1.4)	5.1009	5.4756
Adjoining West		
• Fixed Charge per day	0.1102	0.1112
• Peak (0 - 0.1)	11.6681	10.2265
• Peak (0.1 - 0.2)	10.8307	9.5815
• Peak (0.2 – 1.4)	7.8286	7.7162
• Peak (>1.4)	5.3670	5.6564
• Off Peak (0 - 0.1)	9.3687	9.8307

Tariff V Haulage Reference Service	Domestic	Commercial
• Off Peak (0.1 - 0.2)	8.6790	9.1157
• Off Peak (0.2 – 1.4)	6.6514	7.5790
• Off Peak (>1.4)	5.1328	5.5308

Source: SP AusNet

Table 15-7: Tariff M haulage reference services

Tariff M Haulage Reference Service	Central	West	Adjoining Central	Adjoining West
0 – 10 MHQ (GJ/hour)	2176.5416	2176.5416	2176.5416	2176.5416
10 – 50 MHQ (GJ/hour)	1576.2486	1576.2486	1576.2486	1576.2486
>50 MHQ (GJ/hour)	895.0592	895.0592	895.0592	895.0592

Source: SP AusNet

Table 15-8: Tariff D haulage reference services

Tariff D Haulage Reference Service	Central	West	Adjoining Central	Adjoining West
0 – 10 MHQ (GJ/hour)	1178.1886	1178.1886	1178.1886	1178.1886
10 – 50 MHQ (GJ/hour)	804.6436	804.6436	804.6436	804.6436
>50 MHQ (GJ/hour)	454.1539	454.1539	454.1539	454.1539

Source: SP AusNet

Table 15-9: Ancillary reference services

Ancillary Reference Service	2013 Tariff
Disconnection Service	53.31
Reconnection Service	53.31
Special Meter Reading Service	8.26

Source: SP AusNet

15.6.3 Consistency with the NGR

SP AusNet considers that its proposed tariff structures and levels are consistent with the NGR and NGO. The reasons for this are outlined below.

Tariff V Haulage Reference Services

These tariffs apply to both residential and small to medium sized commercial consumers. Each has a fixed and variable component. The variable component is a declining block tariff that is driven by level of gas consumption (measured in GJ). Table 15-3 and Table 15-4 show that the expected revenue that will be generated from each tariff class is below the standalone cost of supply, and above the avoidable cost of supply, thus SP AusNet's proposed tariffs comply with Rule 94(3).

SP AusNet proposes to maintain volumetric charges, primarily because existing metering arrangements do not allow charging arrangements for Tariff V customers to be based on a customer's peak demand. Whilst SP AusNet has not undertaken a formal cost benefit analysis to support the retention of the existing metering arrangements (and therefore charging regime), it considers any move towards demand based charging for a Tariff V customer is likely to be contrary to the NGO, as the costs are likely to exceed the benefits, and therefore, it would not be '*long term interests of consumers of natural gas with respect to price'*.

Whilst the fixed charge is higher for commercial customers, this in part reflects the fact that the gigajoule tariff is lower, and again, SP AusNet notes that its tariffs are consistent with Rule 94(3). Further, the lower gigajoule tariff for commercial customers is considered efficient as the load factor for commercial customer is lower than residential customers, which means a greater proportion of their consumption does not contribute to peak loading, and therefore, future costs to be incurred.

Both residential and commercial tariffs have peak and off-peak pricing, with marginally higher pricing in the peak (winter) period. This reflects the fact that future augmentation of the shared network is primarily driven by growth in peak demand, as opposed to growth in anytime demand. SP AusNet's LRMC calculation highlights this difference (See Section 15.5.1). Consistent with the requirements of the Rule 94(4) to take into account the long run marginal cost, SP AusNet has chosen to retain existing price differentials. Further, in assessing its Tariff V charging structure, it has considered the fact that:

- The elasticity of demand for off peak gas is extremely low, therefore, it does not consider there to be any material allocative efficiency benefits from adopting variables prices that exactly replicate the calculated LRMC of supply, relative to its proposed pricing levels. This is consistent with Rule 94(4)(b)(ii); and
- There would be significant customer impacts from readjusting tariffs to perfectly reflect the calculated LRMC of supply, as any reduction in off peak revenue would be recovered through higher fixed costs, which would disproportionately impact on low volume users, which SP AusNet considers is inconsistent with the NGO.

Both the residential and commercial tariff variable components charge declining prices for higher consumption. This approach is viewed as efficient in an environment where marginal costs of consumption are low and per customer costs vary little according to their consumption characteristics. Further, SP AusNet notes that across Australia, declining block tariffs are commonly used. In all three of the AER's recent gas reviews (NSW, SA and QLD) declining block tariffs have been approved, therefore, by deduction, SP AusNet concludes that the AER also considers a declining block tariff to be consistent with the requirements of the NGO and the NGR.

Tariff M Haulage Reference Services

This tariff applies to customers who consume 10,000 Gigajoules of gas in a 12 month period or more than 10 Gigajoules in an hour. Tariff M customers are not required to pay any additional charges for O&M or Local Capacity Charge (LCC) as these have been embedded in the tariff.

Tariffs are applied to the MHQ recorded for the calendar year in declining blocks. Once a customer's MHQ exceeds the first block the second block rate is applied to incremental MHQ until that is exceeded and the third block rate applied to the balance. When a customer records an MHQ that is greater than that in any prior month, the excess amount is retrospectively applied to all prior months for that year.

SP AusNet considers this to be consistent with requirements of the NGR for the following reasons:

- Even when large customers change their usage characteristics sufficiently to drive required upstream augmentation, the costs of augmentation are covered by the customer, based on modelling of the increased revenue and additional cost (in the same way as a new customer connection). Therefore, the customer receives a price signal with regards to the additional costs that SP AusNet must incur to provide that additional capacity; and
- The other LRMCs associated with incremental changes in usage are low, and are predominately shared costs.

Finally, SP AusNet notes that any change to the declining block tariff (e.g., move to a flat rate) would inevitably result in extremely large swings in pricing for customers. SP AusNet considers that one off changes to tariff structures that lead to such outcomes are likely to be inconsistent with the NGO. Rather, such changes, if required, should be undertaken over time. Further, SP AusNet understands that the majority of Australian Gas Distributors that have previously submitted access arrangements to the AER have utilised declining block tariffs for the purposes of recovering revenue from their large Commercial/Industrial customers, therefore, SP AusNet concludes that the AER also considers a declining block tariff to be consistent with the requirements of the NGO and the NGR.

Tariff D Haulage Reference Services

As above, except that the:

- LCC applied to Tariff D customers is a non-reference service charge for providing connection assets and main extensions for a distribution supply point that a new Tariff D customer is required to pay prior to connection being made.
- Operations and Maintenance (O&M) charge applied to Tariff D customers is a non-reference service charge that recovers the cost of operating and maintaining mains extensions, services, metering and all other installation-related costs. O&M charges are levied on a per-month basis and apply to all Tariff D customers while they are connected to SP AusNet‘s Distribution Network.

Neither is considered to impact on the efficiency of the underlying tariff.

16 Fixed principles

16.1 Summary of key points

This chapter provides an overview of SP AusNet's fixed principles to apply under the revised access arrangement. The key points are:

- SP AusNet proposes to retain the fixed principles relating to:
  - the continued use of CPI-X incentive based regulation;
  - the adjustment of the Capital Base;
  - the rate of return; and
  - the efficiency carryover mechanism.
- SP AusNet proposes to remove the fixed principle relating to the adoption of an X factor in the CPI-X formula.
- SP AusNet proposes to introduce a new fixed principle relating to the carryover of any mechanism for varying or adjusting tariffs into the next access arrangement period.

16.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 16.3 cites the applicable regulatory requirements.
- Section 16.4 sets out the proposed fixed principles and the rationale for them.

16.3 Regulatory requirements and SP AusNet's compliance

Rule 99 sets out provisions relating to fixed principles as follows:

> *"(1) A full access arrangement may include a principle declared in the access arrangement to be fixed for a stated period.*
>
> *(2) A principle may be fixed for a period extending over 2 or more access arrangement periods.*
>
> *(3) A fixed principle approved before the commencement of these rules, or approved by the AER under these rules, is binding on the AER and the service provider for the period for which the principle is fixed.*
>
> *(4) However:*
>
> *(a) the AER may vary or revoke a fixed principle at any time with the service provider's consent; and*
>
> *(b) if a rule is inconsistent with a fixed principle, the rule operates to the exclusion of the fixed principle."*

16.4 Rationale for proposed fixed principles

SP AusNet's existing access arrangement includes a number of fixed principles, some of which expire at the end of the current access arrangement period, 31 December 2012. The existing fixed principles were approved by the ESC in accordance with the National Gas Code. The National Gas Code was subsequently replaced by the NGR, which has clarified the regulatory arrangements in a number of important respects.

SP AusNet proposes to retain the following existing fixed principles, in the interests of providing certainty, as follows:

> *"(1) The Regulator will use incentive based regulation adopting a CPI - X approach and not rate of return regulation.*
>
> *This fixed principle will apply until the end of the Fifth Access Arrangement Period.*

(2) *To the extent that the Capital Base is relevant to the determination of Reference Tariffs, the value of the Capital Base at the start of the Fifth Access Arrangement Period will be adjusted in the same manner as set out in the National Gas Rules in force at 30 March 2012, using benchmark depreciation (as opposed to actual) determined by the AER for Fourth Access Arrangement Period.*

This fixed principle will apply until the end of the Fifth Access Arrangement Period.

(3) *For the Access Arrangement that applied from commencement of the Third Access Arrangement Period, the Regulator approved the fixed principles set out in this subparagraph (3). Pursuant to clause 7.1 above, this fixed principle applies in accordance with its terms. Accordingly, this fixed principle, if applicable, applies until 31 December 2032.*

To the extent that the rate of return is relevant to the determination of Reference Tariffs, the rate of return on the Capital Base shall be calculated on a real, post-tax basis.

If applicable, this fixed principle applies for 30 years.

To the extent that the rate of return is relevant to the determination of Reference Tariffs, the rate of return on the Capital Base shall be calculated using the Capital Asset Pricing Model.

(4) *To the extent that the application of clause 6.4 results in a positive efficiency carryover at the end of the Fourth Access Arrangement Period, the reward earned in the Fourth Access Arrangement Period is to be added to the Total Revenue and carried forward into the Fifth Access Arrangement Period, until it has been retained by the Service Provider for a period of a full six years for Years 1-4 and five years for Year 5 in accordance with clause 6.4.*

This fixed principle will apply until the end of the Fifth Access Arrangement Period."

SP AusNet has updated these existing fixed principles for the Fourth Access Arrangement Period (see accompanying mark up of Part B of the SP AusNet access arrangement) and considers that the above fixed principles provide important assurances to SP AusNet that:

- the AER will continue to use incentive based regulation based on the CPI-X approach rather than rate of return approach;
- the value of SP AusNet's Capital Base at the start of the Fifth Access Arrangement Period will be adjusted in the same manner as used for the Fourth Access Arrangement Period, using benchmark depreciation (as opposed to actual) determined by the AER for Fourth Access Arrangement Period;
- the rate of return insofar as it is relevant to the determination of Reference Tariffs shall be calculated on a real, post-tax basis; and
- incentive payments earned in accordance with the efficiency carryover mechanism are recognised in the subsequent access arrangement determination. By providing certainty in relation to the operation of the efficiency carryover mechanism, the fixed principle will promote the incentive properties of the incentive mechanism and further the achievement of the NGO under the NGL.

SP AusNet proposes to remove the following fixed principle as it is viewed as no longer necessary:

"(2) The Regulator will adopt an X factor in the CPI – X formula so that only one X factor applies without revision for the second and following Calendar Years of the Fourth Access Arrangement Period to which the decision applies. The

requirement to adopt a single X factor will not preclude a P_0 adjustment in the first year of the Fourth Access Arrangement Period.

This Fixed Principle will apply until the end of the Third Access Arrangement Period."

SP AusNet proposes to introduce the following new fixed principle:

"(5) The Regulator will ensure that any mechanism for varying or adjusting the Haulage Reference Tariffs approved for the Fourth Access Arrangement Period will, to the extent required to give full effect to such variation or adjustment, be carried forward into the Fifth Access Arrangement Period.

This fixed principle will apply until the end of the Fifth Access Arrangement Period."

SP AusNet considers that this fixed principle provides assurance that any mechanism for varying or adjusting tariffs in the Fourth Access Arrangement Period is carried over into the next access arrangement period, to the extent required to give complete effect to that mechanism.

17 Other matters

17.1 Summary of key points

SP AusNet proposes no significant amendments to the key components of Part A (Principal Arrangements) of its access arrangement. This chapter provides an overview of how SP AusNet complies with the NGR in relation to these matters.

This chapter sets out information on various other matters relating to SP AusNet's revised access arrangement.

17.2 Chapter Structure

The remainder of this chapter is structured as follows:

- Section 17.3 outlines the proposed submission and review commencement dates for the fifth access arrangement period.
- Section 17.4 outlines SP AusNet's approach to the queuing policy requirements.
- Section 17.5 outlines SP AusNet's approach to capacity trading.
- Section 17.6 outlines SP AusNet's approach to extensions and expansions policy.
- Section 17.7 outlines SP AusNet's approach to the requirements surrounding changes to receipt and delivery points.

17.3 Review submission date and revision commencement date

17.3.1 Regulatory requirements

Rule 49(1)(i) states:

> *"A full access arrangement (other than a voluntary access arrangement):*
>
> *(a) must contain a review submission date and a revision commencement date; and*
>
> *(b) must not contain an expiry date."*

17.3.2 Proposed arrangements

SP AusNet proposes that the duration of the forthcoming Access Arrangement Period should be five years.

Accordingly, the access arrangement specifies:

- a review submission date of 30 March 2017; and
- a revision commencement date of 1 January 2018.

In accordance with the requirements of rule 49(1)(i)(b) the access arrangement does not contain an expiry date.

The proposed review submission date is consistent with the lead-time required in this review and earlier reviews conducted by the ESC. SP AusNet regards the continuation of this timeframe, which is somewhat shorter than the general provisions in rule 50(1), as consistent with the requirements of the national gas objective and the revenue and pricing principles, as required by rule 50(4).

Notwithstanding the above, there is merit in considering whether an earlier submission date may offer advantages. A longer review process, which starts earlier would offer both the AER and the Distributors more time to engage in analysis and discussions and involve stakeholders in the process. However, the review submission date proposed by SP AusNet above and used for this review does ensure that parties have more recent information reflected in the access arrangement proposal than would otherwise be the case.

SP AusNet will engage with the AER and other stakeholders during this review process to determine whether an earlier date has merit.

17.4 Queuing policy requirements

17.4.1 Regulatory requirements

Rule 103(1)(a) states that an access arrangement must contain queuing requirements if the access arrangement is for a distribution pipeline and the AER notifies the service provider that the access arrangement must contain queuing requirements

Rules 103(3) and 103(5) set out the queuing requirements.

17.4.2 Current arrangements

Clause 5.5 of the current access arrangement sets out SP AusNet's queuing policy and states that requests for connection or modification to a connection are processed on a "first come, first served" basis.

17.4.3 Proposed arrangements

SP AusNet proposes to retain the current queuing policy as it provides users and prospective users with information to enable them to understand the basis on which all requests for connection or modification to a connection are processed, in accordance with the requirements of rules 103(3) and 103(5).

17.5 Capacity trading requirements

17.5.1 Regulatory requirements and Victorian arrangements

Rule 48(1)(f) states that a full access arrangement must set out the capacity trading requirements. Rule 105 specifies the circumstances under which capacity trading requirements must provide for transfer of capacity.

Under the Market Rules, the Victorian Market has transportation rights which come in the form of authorised MDQ (Maximum Daily Quantity). In Victoria:

- AEMO and the transmission pipeline owner have entered into a Service Envelope Agreement which determines, amongst other things, transportation capacity of the transmission system, including that associated with new transmission pipelines or augmentations, and the obligations of each party in relation to the delivery of the agreed transmission capacity.
- At the commencement of the market, AEMO allocated the initial transmission pipeline capacity to individual large (tariff D) customers in the form of authorised MDQ and the balance collectively to the small customer load (tariff V -residential and small to medium sized commercial / industrial customers).
- Market Participants and/or tariff D customers may trade authorised MDQ.
- Distribution networks do not grant a right to capacity in any section of the network, hence the issue of transferring capacity on the distribution network does not arise.

17.5.2 Proposed arrangements

In accordance with the Market Rules and Rule 105(1) of the National Gas Rules, SP AusNet does not provide for the transfer of capacity on its distribution pipeline.

17.6 Extension and expansion policy requirements

17.6.1 Regulatory requirements

Rule 48(1)(g) states that a full access arrangement must set out the extension and expansion requirements.

Rule 104 sets out the extension and expansion requirements as follows:

> *"(1) Extension and expansion requirements may state whether the applicable access arrangement will apply to incremental services to be provided as a result of a particular extension to, or expansion of the capacity of, the pipeline or may allow for later resolution of that question on a basis stated in the requirements.*
>
> *(2) Extension and expansion requirements included in a full access arrangement must, if they provide that an applicable access arrangement is to apply to incremental services, deal with the effect of the extension or expansion on tariffs.*
>
> *(3) The extension and expansion requirements cannot require the service provider to provide funds for work involved in making an extension or expansion unless the service provider agrees."*

17.6.2 Current arrangements

Clause 5.6 of the current access arrangement sets out SP AusNet's extensions and expansions policy.

17.6.3 Proposed arrangements

SP AusNet's policy is essentially unchanged, minor revisions have been made to reflect the adoption of the NGR in substitution of the National Gas Code in relation to the extension and expansion requirements.

17.7 Change of receipt or delivery points

17.7.1 Regulatory requirements

Rule 48(1)(h) states that a full access arrangement must state the terms and conditions for changing receipt and delivery points.

Rule 106 states:

> *"(1) An access arrangement must provide for the change of a receipt or delivery point in accordance with the following principles:*
>
> *(a) a user may, with the service provider's consent, change the user's receipt or delivery point;*
>
> *(b) the service provider must not withhold its consent unless it has reasonable grounds, based on technical or commercial considerations, for doing so.*
>
> *(2) The access arrangement may specify in advance conditions under which consent will or will not be given, and conditions to be complied with if consent is given."*

The only receipt points on SP AusNet's gas distribution network are the custody transfer meters (CTMs) between the transmission system and other distribution networks. It is therefore highly unlikely that SP AusNet would consent to a request by a user to change any receipt point.

Requests for changes to any customer delivery point would be considered on a case-by-case basis, depending on technical and commercial viability.

17.7.2 Current arrangements

The current access arrangement was developed and approved in accordance with the requirements of the National Gas Code and does not contain terms and conditions for changing receipt points as there was no such requirement in the National Gas Code. However, users may on behalf of their customers seek a delivery point be moved, such as a request for 'alter meter position'. SP AusNet proposes to continue offering this service as a non-reference service. Consent will always be given on the basis that it is safe to do so, the movement is consistent with technical standards and requirements and that the cost of undertaking the work is reimbursed to SP AusNet by the retailer or the customer.

17.7.3 Proposed arrangements

It is proposed to revise the current access arrangements to include a new clause 5.8 outlining the principles set out in Rule 106.

SP AusNet will continue to provide alterations to customers. In the case that the customer, rather than the user, requests the service payment will be required in full prior to the work being undertaken.

18 Terms and Conditions

18.1 Summary of key points

The access arrangement has been updated to the Fourth Access Arrangement Period, being 1 January 2013 to 31 December 2017. The detailed terms and conditions are contained in the accompanying Part C of SP AusNet's access arrangement. This chapter provides an overview of the rationale for the changes in SP AusNet's revised terms and conditions in Part C of the revised access arrangement.

The changes made to the Part C terms and conditions are predominantly driven by three factors:

- the introduction of the National Energy Customer Framework, anticipated to be implemented in part in July 2012 and in total on or before 1 January 2013;
- ensuring consistency across current regulatory arrangements; and
- minor improvements and refinements made to incorporate changes in the market or the law.

18.2 Chapter structure

The remainder of this chapter is structured as follows:

- Section 18.3 cites the applicable regulatory requirements.
- Section 18.4 explains the reasoning for the proposed revisions to the Part C terms and conditions.

18.3 Regulatory requirements and SP AusNet's compliance

Rule 48(1)(d)(ii) states that a full access arrangement must specify for each reference service the terms and conditions on which the reference service will be provided.

SP AusNet's revised terms and conditions are set out in the accompanying access arrangement document. A revision-marked version against the current Part C terms and conditions is provided as part of this Access Arrangement Information, showing the proposed revisions.

18.4 Rationale for proposed changes

Clause Reference	Reason for Change
1.2(14)	The proposed introduction of National Energy Customer Framework requires that the terms and conditions of the Access Arrangement be drafted in anticipation of its commencement. These new interpretation provisions reflect this.
1.2(d) & 1.2(e)	These amendments are intended to clarify the wording of existing Access Arrangement
2.1(b)	This amendment is intended to clarify the wording of existing Access Arrangement.
3(a)	Under the proposed Rule 504 of the National Gas Rules, a Customer may contract directly with the Service Provider for services (and pay directly); accordingly, this clause has been altered to reflect the possibility.
3(b) (New clause)	As for clause reference 3(a).
3(b) and 3(c) (existing clauses)	These clauses have been deleted. As a matter of practice, if the Service Provider has a contract directly with a Customer, the Service Provider will not simultaneously supply the same Distribution Services to the User in respect of that Customer. It is therefore viewed by SP AusNet as being unnecessary to expressly specify a reasonable endeavours requirement or other procedures that apply in this type of circumstance.
4.1(a)	This amendment is intended to clarify the existing Access Arrangement and accommodate the proposed introduction of part 21 of the National Gas Rules.
4.1(c)	This statement has been inserted for the purposes of clarifying how part 21 of the National Gas Rules will operate in conjunction with this Access Arrangement.
4.3(a)	This change reflects the establishment of AEMO since the last Access Arrangement review.
4.4(a)	The words 'or to Supply' have been deleted the same is covered by the definition of Distribution Services.
4.4(b)	This clause has been added for the avoidance of doubt only, and simply confirms the extent of the Service Provider's liability that would otherwise be applicable even in the absence of this provision, including in relation to new National Energy Customer Framework requirements.
4.4(c)	This clause has been inserted to provide the Service Provider with a reasonable mechanism for protecting the Distribution System in respect of Gas which does not meet the Specifications or may otherwise have qualities deleterious to the Distribution System.

Clause Reference	Reason for Change
4.4(d)(2)	The amendment in this clause has been included to prevent conflict with Part 21 of the National Gas Rules.
4.5(a) – 4.5(d)	This clause contains additional provisions to address the retailer of last resort provisions within the National Energy Retail Law, and clarifies the Service Provider's rights in the event of a person commencing to act as a supplier of last resort under the (Gas Industry Act 2001 (Vic)), or as a retailer of last resort under the (National Energy Retail Law).
4.6(f)	This is a minor amendment intended to simply clarify the wording of existing Access Arrangement.
4.7(c)	This clause has been inserted to provide a reasonable position as between the Service Provider and the User in respect of Gas which does not meet the Specifications or may otherwise have qualities deleterious to the Distribution System. The Service Provider does not enter into agreements for the purchase of the Gas which is injected into the Distribution System, at no stage does the Service Provider have title to the gas, and therefore has no direct contractual control over Gas quality. By contrast, the User is in a position to influence the quality of Gas and ensure its compliance with the Specifications; this new clause has been inserted to reflect this.
4.8	The amendment to this clause reinforces the intention of the existing clause in the Access Arrangement by clarifying that the Gas must be free of liens, encumbrances and the like.
4.10(b)	This amendment to this clause is intended to modify the Access Arrangement in light of Rule 317 of the National Gas Rules and the Distribution UAFG Procedures.
4.10(c)	The amendment to this clause is intended to modify the Access Arrangement in light of Rule 317 of the National Gas Rules and the creation of AEMO.
4.10(d)	This clarification is intended to ensure that the Access Arrangement does not conflict with provisions within any relevant Regulatory Instruments.
5(a)	The amendment to this clause is intended to modify the Access Arrangement in light of the new terminology under National Energy Retail Law, and does not change the substantive effect of the clause.
5(b)	This clarification is intended to ensure that that the Access Arrangement does not contradict provisions within the National Gas Rules.

Clause Reference	Reason for Change
6.1(a)(4)	The change in this clause is intended to modify the Access Arrangement in light of the new references to National Energy Retail Law and National Energy retail Rules, and does not change the substantive effect of the clause.
6.1(a)(5)	This new clause is intended to enable SP AusNet, in an emergency, to comply with directions from relevant Authorities in a timely manner where there is a reasonable belief that SP AusNet is required to comply with that direction.
6.1(a)(6)	The proposed introduction of National Energy Customer Framework requires that the terms and conditions be drafted in anticipation of its commencement. The new wording in this clause reflects the model terms and conditions for deemed standard connection contracts at Schedule 2 of the National Energy Retail Rules (particularly clause 12 of those terms and conditions).
6.1(b)	This change is intended to clarify that the manner and sequence of any disconnections or disruptions to supply will be at the Service Provider's discretion.
6.2(a)	This clarification is intended to ensure that the Access Arrangement does not contradict provisions within the National Gas Rules or the National Energy Customer Framework.
6.2(b)	This clarification is intended to ensure that that the Access Arrangement does not contradict provisions within the National Gas Rules or the National Energy Customer Framework.
6.2(e)	This new wording is intended to anticipate the operation of Rule 105 of the National Energy Retail Rules which would, upon commencement, supersede the existing clauses 6.2(c) and 6.2(d) of part C of the Access Arrangement.
6.2(f)	This clarification is intended to ensure that that the Access Arrangement does not impose obligations to Disconnect where provisions within the National Gas Rules or the National Energy Customer Framework allow or require the Service Provider not to Disconnect.
6.2(g)	The clarification in the first line of clause 6.2(g) is intended to ensure that that the Access Arrangement does not contradict provisions within the National Gas Rules or the National Energy Customer Framework. The new clause 6.2(g)(3) is intended to allow the Service Provider to decline a request to Disconnect a Distribution Supply Point if the Service Provider is of the reasonable opinion that a dangers to personnel exists at the relevant premises. This amendment has been inserted as a result of incidents involving threats to the safety of SP AusNet personnel.

Clause Reference	Reason for Change
6.2(h)	This amendment is intended to prevent the Service Provider becoming liable under Clause 6.2(c) by virtue of there being a mere delay in Disconnection rather than an outright refusal in circumstances where the Service Provider would not otherwise be so liable.
6.3(a)	The terminology in this clause has been updated to reflect the introduction of the National Energy Customer Framework.
6.3(b)	This clause has been inserted to clarify that, if the Service Provider is not satisfied as to the Customer's identity, it may refuse a request by that Customer to disconnect supply, or refer that Customer to the User.
6.3(d)	This clause has been updated to reflect the introduction of the National Energy Customer Framework and is simply a statement, for the avoidance of any doubt, that clause 6.3 is to be read subject to the provisions of Part 6. of the National Energy Retail Rules.
6.4(b)	This clause has been updated to reflect the potential for the Service Provider and the Customer to enter into contracts under Part 12A of the National Gas Rules, and the National Energy Retail Law which would allow the Service Provider to disconnect on grounds other than those provided for under a Regulatory Instrument.
6.4(d)	This clause has been included to accord with the obligations imposed on the Service Provider under clause 4.2(b) of the Gas Distribution System Code
7.1(a) & 7.1(b)	Under Rule 504 of the National Gas Rules, a customer may contract directly with the distributor for services (and pay directly). Accordingly this clause has been inserted to reflect the possibility.
7.1(f)	This clause has been updated to reflect Rule 506(1) of the National Gas Rules and clarify the meaning of 'retail billing period' for the purposes of Rule 502.
7.2(d)	This clause has been updated to reflect Rule 507(1) of the National Gas Rules and the definition of 'due date for payment' under Rule 502.
7.2(f)	This clause has been amended to correct an error in the previous Access Arrangement.
7.4(d)	This clause has been amended for the purposes of consistency across distribution businesses, however, the substantive effect is similar to that which appeared at clause 7.4(d) of the previous Access Arrangement.

Clause Reference	Reason for Change
7.4(f)	This new wording is intended to anticipate the operation of division 2 of part 21 of the National Energy Retail Rules which would, upon commencement, supersede the existing clauses 7.4(d) and 74(e) of Part C of the Access Arrangement.
7.4(g)	This new clause has been included to clarify that where Metering Data is not available for a Customer for a period as at the time the invoice relating to that period is being prepared then the Service Provider may either issue an invoice based upon an Estimated Meter Reading or include the Charges for that Customer for that period in a subsequent invoice issued by the Service Provider which invoice is issued after the time the Metering Data for that Customer and period becomes available.
7.4(j)	This clause has been updated to include a statement, for the avoidance of any doubt that the adjustment to any Charge under this clause is to be made in accordance with clause 7.5, but subject to the requirements of any Regulatory Instruments.
7.4(k)	This clause has been updated to include a statement, for the avoidance of any doubt, that the User's obligation to pay invoiced amounts with 10 Business days is subject to any contrary requirements in any Regulatory Instruments.
7.4(n)	This clause contains a clarification that the methodology for the calculation of interest under clause 7.4(m) is only to be used in circumstances where Rule 511 of the National Gas Rules does not apply.
7.5(a)	This clause contains a clarification that the methodology for the adjustment of invoices under clause 7.5 is only to be used in circumstances where to do so would not contravene the requirements of any Regulatory Instruments.
7.5(b), 7.5(b)(1) and 7.5(b)(2)	There was no specific reference to theft or meter tampering, or to errors or omissions in information provided by the User or a Customer in this clause in the previous Access Arrangement. The clarifications now appearing in this clause have been inserted to address an increased occurrence of such incidents since the previous gas access arrangement review.
7.5(e)	This clarification is intended to ensure that that the Access Arrangement does not contradict provisions within the Division 3 of part 21 of the National Gas Rules
7.6(d)	This clause has been removed on the basis that it is not required under the National Energy Retail Rules (refer to Rule 84), and it is generally unnecessary that this notification be made by a distributor to a retail business.

Clause Reference	Reason for Change
7.7(e)	This additional wording has been inserted to clarify that payment of a disputed amount may be effected by an adjustment to a subsequent invoice, rather than requiring that a separate payment be made between the parties.
7.7(i)	This new wording is intended to anticipate the operation of division 3 of part 21 of the National Energy Retail Rules which would, upon commencement, supersede the existing clauses 7.7(a) to 7.7(f) and 7.7(h) of part C of the Access Arrangement.
7.7(j)	This clause clarifies that the parties, in the event of notification of a dispute under Rule 510 of the National Gas Rules, must use their best endeavours to resolve the dispute.
7.8(a)(4), 7.8(a)(5), 7.8(a)(6),	The amendments in these sub-paragraphs are intended to modify the Access Arrangement in light of new regulatory provisions.
7.8(l) & 7.8(m)	These clarifications are intended to ensure that that the Access Arrangement does not conflict with, or duplicate obligations under, the provisions within division 4 of the part 21 of the National Gas Rules.
9.1(a)	This clarification is intended to ensure that that the Access Arrangement does not contradict provisions within Divisions 3 and 4 of part 5 of the National Energy Retail Rules.
9.1(d)	The deletion of the reference to clause 9.2 in these clauses, and its replacement with a new reference to the Regulatory Instruments, reflects that the substance of clause 9.2 itself is now predominantly framed by reference to the Regulatory Instruments. Therefore, for simplicity, the reference to clause 9.2 has been removed and a direct reference to the Regulatory instruments has been inserted in its place.
9.1(h)	The cross referencing in the clause has been revised to reflect the changes in paragraph numbering
9.1(i)	As for clause reference 9.1(d).
9.1(j)	This new clause has been introduced to reflect actual industry practice.
9.1(k)	This clause has been amended to correct an error in the previous Access Arrangement.
9.2(a), 9.2(b), 9.2(c) and 9.2(d)	These amendments are required to reflect new requirements under the National Energy customer Framework (predominantly under the part 5 of the National Energy Retail Rules).
9.3(e)	This clarification is intended to ensure that that the Access Arrangement does not conflict with the provisions within division 3 of the part 5 of the National Energy Retail Rules.

Clause Reference	Reason for Change
9.4(a)	This clause has been amended to require certain other relevant Customer information from Users.
9.4(b)(1)	This clause has been amended for the purposes of clarification only.
9.5(h)	This change is intended to modify the Access Arrangement in light of the new terminology under National Energy Retail Law.
9.5(i), (j), (k)	These clauses have been amended to require certain other relevant information for new Distribution Supply Points.
9.7(c)	This clarification is intended to ensure that that the Access Arrangement does not conflict with the provisions within Rule 101 of the National Energy Retail Rules.
9.8(c)	This clarification is intended to ensure that that the Access Arrangement does not conflict with the provisions within Rule 102 of the National Energy Retail Rules.
10.3(a)	This clause has been amended to correct an error, and to clarify to the existing wording.
10.3(b)	This new clause has been inserted to prevent an unnecessary duplication of notice requirements.
11.1(c)	The amendments to this clause are designed to ensure that the Service Provider may Disconnect a Customer's supply without notice where it is reasonably necessary to do so to comply with the direction of an Authority or to comply with the relevant Regulatory Instruments.
12.2(a)(1) and 12.2(a)(2)	These amendments have been made to reflect requirements introduced under the National Gas Rules.
12.2(d)	These amendments have been made to reflect the operation of the retailer of last resort scheme under part 6 of the National Energy Retail Law.
12.7	This clause has been amended for the purposes of clarification.
13.1(a)	This clause has been amended to reflect the commencement of the *Competition and Consumer Act 2010* (CT)
13.2	The substance of the first two lines of this clause has been moved to a new clause 13.2(c), that clause now also containing reference to the relevant provisions of the National Energy Retail Law as appropriate.
13.2(a)	This clause has been amended for the purposes of clarification.

Clause Reference	Reason for Change
13.2(b)(1) to 13.2(b)(4)	This clause has been amended to reflect the commencement of the *Competition and Consumer Act 2010* (CT)
13.2(c)	This clause has been amended to reflect the new National Energy Customer Framework.
13.2(d), 13.2(e), 13.2(f) and 13.3	These clauses have been amended to correct cross-references in the existing Access Arrangement.
13.5(c)	This clause has been inserted as a clarification and is designed to specifically address the circumstance were retailers are unable to collect because of a failure by retailers to maintain up-to-date customer information.
13.6(b)	This clause has been included to restrict either party's liability for losses of an indirect or consequential nature. This reflects standard commercial practice and was an omission from the previous Access Arrangement.
13.7(c)	This new clause confirms that the Access Arrangement is not intended to affect an exclusion, limitation or immunity which is otherwise provided for under a Regulatory Instrument.
13.8	This clause has been amended to reflect the commencement of the *Competition and Consumer Act 2010* (CT), and the right provided for under clause 64A of the Australian Consumer Law to limit liability under that Law in certain circumstances.
13.9(a)(1)	The amendment to this clause is for the purposes of clarification only.
14.1(a) & 14.1(b)	These amendments clarify that certain disputes are dealt with under Regulatory Instruments including part 15C of the National Gas Rules and the National Energy Customer Framework.
15.1(a)	This new wording is intended to anticipate the operation of the National Energy Retail Law.
15.4	The deletion in this clause corrects an error in the previous Access Arrangement.
16.4	The deletion in this clause corrects an error in the cross-referencing in the previous Access Arrangement, and clarifies the practical operation of the notification process.
16.5(a)	This clause has been added for the purpose of clarifying the practical process for notification of changes in details.
16.5(b)	This amendment has been proposed for the purposes of clarifying the existing notice procedures.

Clause Reference	Reason for Change
17.1(a)(3) and 17.1(a)(4)	Additional exceptions to the confidentiality obligations have been inserted into this clause for the purposes of ensuring that common day to day practices of the parties do not cause an unintentional breach of the confidentiality provisions.
17.1(d)(2)	This clause has been renumbered and amended to reflect SP AusNet's internal corporate structure and that the Service Provider's parent entity, rather than the Service Provider itself, is subject to stock exchange obligations.
17.1(k)	This clause has been amended to correct the terminology used in the previous Access Arrangement.
17.1(l)	This clause has been inserted to allow for the possibility of a transfer of the shares or business of the Service Provider.
17.1 (final paragraph)	This change reflects the establishment of AEMO since the last Access Arrangement review.
17.2	The amendment to this clause is necessary as a consequence of clause 17.2(a)(3) and 17.1(a)(4).
17.4(a) and 17.4(b)	The requirements of these clauses were impractical and unnecessary and, for this reason, these clauses have been deleted.
19.2	The amendment to this clause is to clarify that revisions to the Access Arrangement terms and conditions approved by the regulator are automatically incorporated into the agreements with Users, and to simplify the process without the need for the parties to execute amending documentation.
19.8	The amendments in this clause are designed to added clarity to the existing wording.

The obligations, duties and responsibilities of SP AusNet and any Network User described in the terms and conditions are in addition to those established in law or by any relevant regulatory instrument.

19 Compliance with NGR Requirements

Rule	Provision	Proposal cross-ref	Comments
Part 8:Access Arrangements			
Division 2: Access Arrangement Information			
42	**General requirements for access arrangement information**		
42(1)	*Access arrangement information* for an access arrangement or an *access arrangement proposal* is information that is reasonably necessary for users and prospective users: (a) to understand the background to the access arrangement or the *access arrangement proposal*; and (b) to understand the basis and derivation of the various elements of the access arrangement or the *access arrangement proposal*.	AAI, section 1.1 and chapter 19	
42(2)	*Access arrangement information* must include the information specifically required by the *Law*.	AAI, section 1.1 and chapter 19; completed RIN templates	
43	**Requirement to provide access arrangement information**		
43(1)	A service provider, when submitting an *access arrangement proposal* for the AER's approval, must submit, together with the proposal, *access arrangement information* for the *access arrangement proposal*.	See comments	This submission complies with this rule.

Rule	Provision	Proposal cross-ref	Comments
43(2)	If particular information (**sensitive information**) is confidential, and its public disclosure could cause undue harm to the legitimate business interests of the service provider, a user or prospective user, the AER may permit the service provider to submit *access arrangement information* in a form, approved by the AER, in which the sensitive information: (a) is aggregated or generalised so as to avoid disclosure of the elements that make it sensitive; or (b) if that is not possible – is entirely suppressed.	See comments	Sensitive information is restricted to the Appendices, where so these are marked Confidential.
Division 4: Full access arrangements			
48	**Requirements for full access arrangement (and full access arrangement proposal)**		
48(1)	A full access arrangement must: (a) identify the pipeline to which the access arrangement relates and include a reference to a website at which a description of the pipeline can be inspected; and	Clause 5.1 of Part A of the AA provides a reference to the website.	
	(b) describe the pipeline services the service provider proposes to offer to provide by means of the pipeline; and	Clause 5.2 of Part A of the AA sets out the services policy.	
	(c) specify the reference services; and	Clause 5.2.1 of Part A of the AA specifies the reference services.	

Rule	Provision	Proposal cross-ref	Comments
	(d) specify for each reference service:		
	(i) the reference tariff; and	Section 1 Part B of the AA	
	(ii) the other terms and conditions on which the reference service will be provided; and	Part C of the access arrangement.	
	(e) if the access arrangement is to contain queuing requirements – set out the queuing requirements; and **Note:** Queuing requirements are necessary if the access arrangement is for a transmission pipeline but, if the pipeline is a distribution pipeline, queuing requirements are not necessary unless the AER has given prior notification of the need to include queuing requirements (See rule 103).	Clause 5.5 of Part A of the AA sets out the queuing policy. Section 17.4 of the AAI explains the rationale.	
	(f) set out the capacity trading requirements; and	Clause 5.7 of Part A of the AA. Section 17.5 of the AAI explains the approach.	
	(g) set out the extension and expansion requirements; and	Clause 5.6 of Part A of the AA.	
	(h) state the terms and conditions for changing receipt and delivery points; and	Clause 5.8.1 of Part A of the AA.	

Rule	Provision	Proposal cross-ref	Comments
	(i) if there is to be a *review submission date* – state the *review submission date* and the revision commencement date; and **Note:** A full access arrangement must contain a *review submission date* and a revision commencement date unless it is a voluntary access arrangement – See rule 49.	Clause 5.9.1 of Part A of the AA.	
	(j) if there is to be an *expiry date* – state the *expiry date*. **Note:** A full access arrangement may contain an *expiry date* if it is a voluntary access arrangement (but not otherwise) – See rule 49.	An expiry date is not specified, in accordance with rule 49(1)	
Division 5: Review and expiry of certain access arrangements			
49	**Review submission, revision commencement and expiry dates**		
49(1)	A full access arrangement (other than a voluntary access arrangement): (a) must contain a *review submission date* and a revision commencement date; and (b) must not contain an *expiry date*.	Clauses 5.9.1 and 5.9.2 of Part A of the AA. An expiry date has not been specified.	Section 17.3.2 of the AAI explains that SP AusNet has selected a review submission date and revision commencement date in accordance with the requirements of rule 50.
52	**Access arrangement revision proposal**		
52(1)	A service provider must, on or before the *review submission date* of an applicable access arrangement, submit an *access arrangement revision proposal* to the AER.	See comments	This submission complies with this rule.

Rule	Provision	Proposal cross-ref	Comments
Part 9: Price and revenue regulation			
Division 2: Specific requirements for access arrangement information relevant to price and revenue regulation			
72	**Specific requirements for access arrangement information relevant to price and revenue regulation**		
72(1)	The *access arrangement information* for a *full access arrangement proposal* (other than an *access arrangement variation proposal*) must include the following: (a) if the *access arrangement period* commences at the end of an earlier *access arrangement period*: (i) capital expenditure (by asset class) over the earlier *access arrangement period*; and (ii) operating expenditure (by category) over the earlier *access arrangement period*; and (iii) usage of the pipeline over the earlier *access arrangement period* showing:	AAI, section 3.5 AAI, section 6.12,	Figure 6.10 shows historic and forecast operating expenditure by the categories of operations and maintenance.
	(A) for a distribution pipeline, minimum, maximum and average demand and, for a transmission pipeline, minimum, maximum and average demand for each *receipt or delivery point*; and	AAI, section 3.4 Table 3.8	
	(B) for a distribution pipeline, customer numbers in total and by tariff class and, for a transmission pipeline, user numbers for each *receipt or delivery point*;	AAI, section 3.4 Table 3.9	

Rule	Provision	Proposal cross-ref	Comments
	(b) how the capital base is arrived at and, if the *access arrangement period* commences at the end of an earlier *access arrangement period*, a demonstration of how the capital base increased or diminished over the previous *access arrangement period*;	AAI, section 7.4	
	(c) the projected capital base over the *access arrangement period*, including: (i) a forecast of conforming capital expenditure for the period and the basis for the forecast; and (ii) a forecast of depreciation for the period including a demonstration of how the forecast is derived on the basis of the proposed depreciation method;	AAI, sections 7.5 and 7.6, including Table 7.7. AAI, section 7.5	
	(d) to the extent it is practicable to forecast pipeline capacity and utilisation of pipeline capacity over the *access arrangement period*, a forecast of pipeline capacity and utilisation of pipeline capacity over that period and the basis on which the forecast has been derived;	AAI, section 4.3 notes that it is not practicable to do this.	A forecast of pipeline capacity is not a requirement of the RIN template. Correspondence with the AER in February 2012 has confirmed this information is not required by the AER from SP AusNet for a conforming submission unless SP AusNet seek to rely on such information for the purpose of justifying the proposal.
	(e) a forecast of operating expenditure over the *access arrangement period* and the basis on which the forecast has been derived;	AAI, Table 6.1 and sections 6.4-6.11. Opex model Regulatory Template 13	

Rule	Provision	Proposal cross-ref	Comments
	(f) the key performance indicators to be used by the service provider to support expenditure to be incurred over the *access arrangement period*;	AAI, section 3.7	
	(g) the proposed rate of return, the assumptions on which the rate of return is calculated and a demonstration of how it is calculated;	AAI, Chapter 8 and Template 9 – WACC Inputs.	
	(h) the proposed method for dealing with taxation, and a demonstration of how the allowance for taxation is calculated;	AAI, sections 8.9, 8.10 and 8.11.	
	(i) if an incentive mechanism operated for the previous *access arrangement period*—the proposed carry-over of increments for efficiency gains or decrements for efficiency losses in the previous *access arrangement period* and a demonstration of how allowance is to be made for any such increments or decrements;	AAI, sections 9.4 and 9.5.	
	(j) the proposed approach to the setting of tariffs including: (i) the suggested basis of reference tariffs, including the method used to allocate costs and a demonstration of the relationship between costs and tariffs; and (ii) a description of any pricing principles employed but not otherwise disclosed under this rule;	 AAI, sections 15.4, 15.5 and 15.6 AAI, sections 15.4, 15.5 and 15.6	
	(k) the service provider's rationale for any proposed *reference tariff variation mechanism*;	AAI, sections 14.4 to 14.9 inclusive	

Rule	Provision	Proposal cross-ref	Comments
	(l) the service provider's rationale for any proposed incentive mechanism;	AAI, sections 10.5 and 11.4	
	(m) the total revenue to be derived from pipeline services for each regulatory year of the *access arrangement period*.		
73	**Basis on which financial information is to be provided**		
73(1)	Financial information must be provided on: (a) a nominal basis; or (b) a real basis; or (c) some other recognised basis for dealing with the effects of inflation.	Financial information presented in the AAI meets this requirement. Template information satisfies the AER's preferred presentation.	
73(2)	The basis on which financial information is provided must be stated in the *access arrangement information*.	AAI, section 1.1	
73(3)	All financial information must be provided, and all calculations made, consistently on the same basis.	AAI, section 1.1	
74	**Forecasts and estimates**		

Rule	Provision	Proposal cross-ref	Comments
74(1)	Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate.		It is not feasible to cross reference each section of the AAI where the bases of forecasts or estimates are explained. However, SP AusNet has ensured that all forecasts and estimates are fully explained and justified. The demand forecasting sections provide detailed explanation of the basis of each estimate of gas usage. The accompanying report by CIE (Appendix 4A) also provides a detailed outline of the basis for their forecasts. Chapter 6 provides a statement of the basis for the overall opex methodology. Statements are provided on: The basis for the Rate of Change approach which is employed (and supported by the Economic Insights reports in the appendices 6A-6D) The basis of the productivity and growth forecast (and supported by the Economic Insights reports in the appendices 6A and 6B) The basis of the labour escalation forecast (and supported by the BIS Shrapnel report in Appendix 5F) The basis of the materials escalation forecast (and supported by the SKM report in the Appendix 5G)

Rule	Provision	Proposal cross-ref	Comments
74(2)	A forecast or estimate:	The AAI explains the basis of all forecasts or estimates in chapters 4, 5, 6, 7 and 8.	SP AusNet is relying on the work of experienced and respected consultants who are experts in their fields. The basis from which forecasts have been derived (e.g the volume of mains replacement) is documented throughout the submission and supporting appendices. All forecasts have been derived on a reasonable basis (annotated as appropriate) and represents SP AusNet's best forecast at the time of derivation.
	(a) must be arrived at on a reasonable basis; and (b) must represent the best forecast or estimate possible in the circumstances.		The demand forecasting section provides detailed explanation of the basis of each estimate of gas usage, including why SP AusNet considers that they have been arrived at on a reasonable basis, and represent the best forecast / estimate possible in the circumstances. The accompanying report by CIE also provides a detailed outline of the basis for their forecasts
75	**Inferred or derivative information** Information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based.	Estimates have been made on a reasonable basis.	Where information has been inferred or derived both in the primary submission and supporting appendices, commentary regarding the derivation or inference has been provided. Consultants reports, provided in the Appendices, detail the primary information on which they have relied.

Rule	Provision	Proposal cross-ref	Comments
			Most of this is publicly available. Some information is not publicly available (e.g. SKMs private database of industry costs) but are fully described in their reports It should also be noted that historic information is provided throughout the AAI to provide context for the forecast information, even though extrapolation may not be the forecasting method.
Division 3: Building block approach			
76	**Total revenue**		
	Total revenue is to be determined for each regulatory year of the *access arrangement period* using the building block approach in which the building blocks are:		
	(a) a return on the projected capital base for the year (See Divisions 4 and 5); and	AAI, section 9.5, Table 9.4	
	(b) depreciation on the projected capital base for the year (See Division 6); and	As above	
	(c) if applicable – the estimated cost of corporate income tax for the year; and	As above	
	(d) increments or decrements for the year resulting from the operation of an incentive mechanism to encourage gains in efficiency (See Division 9); and	As above	
	(e) a forecast of operating expenditure for the year (See Division 7).	As above	

Rule	Provision	Proposal cross-ref	Comments
Division 4: The capital base			
77	**Opening capital base**		
	(2) If an *access arrangement period* follows immediately on the conclusion of a preceding *access arrangement period*, the opening capital base for the later *access arrangement period* is to be:		
	(a) the opening capital base as at the commencement of the earlier *access arrangement period* (adjusted for any difference between estimated and actual capital expenditure included in that opening capital base); plus:	AAI, section 7.4.2	
	(b) conforming capital expenditure made, or to be made, during the earlier *access arrangement period*; plus:	AAI, section 7.4.3	
	(c) any amounts to be added to the capital base under rule 82, 84 or 86; less:	AAI, section 7.4.4 addresses the requirements of rule 82. See comments.	No amounts have been added to the capital base under rules 84 and 86.
	(d) depreciation over the earlier *access arrangement period* (to be calculated in accordance with any relevant provisions of the access arrangement governing the calculation of depreciation for the purpose of establishing the opening capital base); and **Note:** See rule 90.	AAI, section 7.4.4	

Rule	Provision	Proposal cross-ref	Comments
	(e) redundant assets identified during the course of the earlier *access arrangement period*; and	No redundant assets have been identified	
	(f) the value of pipeline assets disposed of during the earlier *access arrangement period*.	AAI, section 7.4.3	
78	**Projected capital base**		
	The projected capital base for a particular period is:		
	(a) the opening capital base; plus: (b) forecast conforming capital expenditure for the period;	AAI, section 7.4.6 AAI, section 7.4.6 and chapter 5	
	less: (c) forecast depreciation for the period; and	AAI, section 7.4.6 and section 7.5	
	(d) the forecast value of pipeline assets to be disposed of in the course of the period.	AAI, section 7.5	
79	**New capital expenditure criteria**		
	(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria: (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable	AAI, section 7.4.3 in relation to current period expenditure. AAI, chapter 5 in relation to forecast capital expenditure	All proposed capital expenditure conforms with the requirements of Rule 79 of the NGR. Major programs are highlighted within section 5 of the submission with specific reference to the confirming component of Rule 79. Additional information is provided at a

Rule	Provision	Proposal cross-ref	Comments
	cost of providing services; (b) the capital expenditure must be justifiable on a ground stated in subrule (2).		program/project level within the submission appendices, specifically SP AusNet's Gas Asset Management Plan (Appendix 5B) and detailed plant strategies (Appendix 5J).

Rule	Provision	Proposal cross-ref	Comments
	(2) Capital expenditure is justifiable if: (a) the overall economic value of the expenditure is positive; or (b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or (c) the capital expenditure is necessary: (i) to maintain and improve the safety of services; or (ii) to maintain the integrity of services; or (iii) to comply with a regulatory obligation or requirement; or (iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or (d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).	AAI, sections 5.5 to 5.13 inclusive	

Rule	Provision	Proposal cross-ref	Comments
	(3) In deciding whether the overall economic value of capital expenditure is positive, consideration is to be given only to economic value directly accruing to the service provider, gas producers, users and end users.	n/a	
	(4) In determining the present value of expected incremental revenue: (a) a tariff will be assumed for incremental services based on (or extrapolated from) prevailing reference tariffs or an estimate of the reference tariffs that would have been set for comparable services if those services had been reference services; and (b) incremental revenue will be taken to be the gross revenue to be derived from the incremental services less incremental operating expenditure for the incremental services; and (c) a discount rate is to be used equal to the rate of return implicit in the reference tariff.	AAI, section 5.5	This approach is reflected in the calculation of customer-initiated capital expenditure, the costs of which are recovered through reference tariffs.
	(5) If capital expenditure made during an *access arrangement period* conforms, in part, with the criteria laid down in this rule, the capital expenditure is, to that extent, to be regarded as conforming capital expenditure.	AAI, section 5.5.3	This provision applies to customer-initiated capital expenditure only. In all other respects, the capex forecast is wholly conforming capital expenditure.

Rule	Provision	Proposal cross-ref	Comments
82	**Capital contributions by users to new capital expenditure** (1) A user may make a capital contribution towards a service provider's capital expenditure. (2) Capital expenditure to which a user has contributed may, with the AER's approval, be rolled into the capital base for a pipeline but, subject to subrule (3), not to the extent of any such capital contribution. (3) The AER may approve the rolling of capital expenditure (including a capital contribution made by a user, or part of such a capital contribution) into the capital base for a pipeline on condition that the access arrangement contain a mechanism to prevent the service provider from benefiting, through increased revenue, from the user's contribution to the capital base.	AAI, sections 7.4.4 and 7.4.6 address capital contributions made by users in the period to 31 December 2012. AAI section 5.5.3 sets out forecast contributions. AAI, section 7.6 shows that the forecast capital base contains capex net of contributions.	

Rule	Provision	Proposal cross-ref	Comments
83	**Surcharges**		
	(1) When the service provider makes non-conforming capital expenditure, it may notify the AER that it proposes to recover the amount, or part of the amount, of the expenditure by means of a surcharge. **Note:** A surcharge may be proposed even where the non-conforming capital expenditure has been funded in whole or part by a user. (2) A surcharge is a charge, approved by the AER, in addition to a reference tariff (or other tariff): (a) to be levied on users of incremental services; and (b) designed to recover non-conforming capital expenditure or a specified portion of non-conforming capital expenditure.	See comments	The AAI contains no forecasts of amounts of non-conforming capital expenditure that SP AusNet proposes to recover by means of a surcharge

Rule	Provision	Proposal cross-ref	Comments
84	**Speculative capital expenditure account**		
	(1) A full access arrangement may provide that the amount of non-conforming capital expenditure, to the extent that it is not to be recovered through a surcharge on users or a capital contribution, is to be added to a notional fund (the **speculative capital expenditure account**). (2) The balance of the speculative capital expenditure account increases annually at a rate, determined at the AER's discretion, which may, but need not, be the rate of return implicit in a reference tariff. (3) (3) If at any time the type or volume of services changes so that capital expenditure that did not, when made, comply with the new capital expenditure criteria becomes compliant, the relevant portion of the speculative capital expenditure account (including the return referable to that portion of the account) is to be withdrawn from the account and rolled into the capital base as at the commencement of the next *access arrangement* period.	See comments	The AAI contains no forecasts of amounts of non-conforming capital expenditure that SP AusNet proposes to add to the speculative capital expenditure account.
85	**Capital redundancy** (1) A full access arrangement may include (and the AER may require it to include) a mechanism to ensure that assets that cease to contribute in any way to the delivery of pipeline services (redundant assets) are removed from the capital base.	See comments	The current access arrangement does not contain such a mechanism, and none is proposed for the forthcoming access arrangement period.

Rule	Provision	Proposal cross-ref	Comments
	(2) A reduction of the capital base in accordance with such a mechanism may only take effect from the commencement of the first *access arrangement period* to follow the inclusion of the mechanism in the access arrangement or the commencement of a later *access arrangement period*. (3) An applicable access arrangement may include a mechanism for sharing costs associated with a decline in demand for pipeline services between the service provider and users. (4) Before requiring or approving a mechanism under this rule, the AER must take into account the uncertainty such a mechanism would cause and the effect the uncertainty would have on the service provider, users and prospective users.		
86	**Re-use of redundant assets** (1) Subject to the new capital expenditure criteria, if, after the reduction of the capital base by the value of assets identified as redundant, the assets later contribute to the delivery of pipeline services, the assets may be treated as new capital expenditure of an amount calculated by taking their value as at the time of their removal from the capital base and increasing it annually at the rate of return implicit in the reference tariff. (2) To the extent the new capital expenditure criteria allow, the amount arrived at under subrule (1) will be returned to the capital base in accordance with those criteria.	See comments	There is no re-use of redundant assets included in SP AusNet's proposal

Rule	Provision	Proposal cross-ref	Comments
Division 5: Rate of return			
87	**Rate of return**		
	(1) The rate of return on capital is to be commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services. (2) In determining a rate of return on capital:	AAI, chapter 8	
	(a) it will be assumed that the service provider: (i) meets benchmark levels of efficiency; and	AAI, chapter 8 generally.	
	(ii) uses a financing structure that meets benchmark standards as to gearing and other financial parameters for a going concern and reflects in other respects best practice; and	AAI, chapter 8 generally and section 8.7 specifically	
87	(b) a well accepted approach that incorporates the cost of equity and debt, such as the Weighted Average Cost of Capital, is to be used; and a well accepted financial model, such as the Capital Asset Pricing Model, is to be used.	AAI, Section 8.4	

Rule	Provision	Proposal cross-ref	Comments
Division 6: Depreciation			
88	**Depreciation schedule**		
	(1) The depreciation schedule sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining a reference tariff. (2) The depreciation schedule may consist of a number of separate schedules, each relating to a particular asset or class of assets	AAI, section 7.5.1 sets out asset categories and lives, and depreciation methodology	
89	**Depreciation criteria**		
	(1) The depreciation schedule should be designed: (a) so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services; and	AAI, section 7.5.1	
	(b) so that each asset or group of assets is depreciated over the economic life of that asset or group of assets; and	AAI, section 7.5.1	
	(c) so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets; and	AAI, section 7.5.1	

Rule	Provision	Proposal cross-ref	Comments
	(d) so that (subject to the rules about capital redundancy), an asset is depreciated only once (ie that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time of its inclusion in the capital base (adjusted, if the accounting method approved by the AER permits, for inflation)); and	AAI, section 7.5.1	
	(e) so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.	AAI, section 7.5.1	
89	(2) Compliance with subrule (1)(a) may involve deferral of a substantial proportion of the depreciation, particularly where: (a) the present market for pipeline services is relatively immature; and (b) the reference tariffs have been calculated on the assumption of significant market growth; and (c) the pipeline has been designed and constructed so as to accommodate future growth in demand. (3) The AER's discretion under this rule is limited. **Note:** See rule 40(2).	See comments	The proposed Access Arrangement does not provide for deferral of depreciation

Rule	Provision	Proposal cross-ref	Comments
90	**Calculation of depreciation for rolling forward capital base from one access arrangement period to the next**		
	(1) A full access arrangement must contain provisions governing the calculation of depreciation for establishing the opening capital base for the next *access arrangement period* after the one to which the access arrangement currently relates.	Part B reference Tariff Policy Fixed Principles and Chapters 9 and 16	
	(2) The provisions must resolve whether depreciation of the capital base is to be based on forecast or actual capital expenditure.	Part B reference Tariff Policy Fixed Principles and Chapter 9 and 16	
Division 7: Operating expenditure			
91	**Criteria governing operating expenditure**		
	(1) Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.	AAI, section 6.3 states that opex forecast information set out in chapter 6 accords with all of the applicable requirements of the NGR	Addressed throughout chapter. Forecast is based on historical costs, which can be assumed to be efficient in line with Rule 71(1). Analysis by Economic Insights shows that SP AusNet is efficient relative to other Australian and New Zealand distribution businesses (Appendices 6B,6C,6D)

Rule	Provision	Proposal cross-ref	Comments
Division 8: Tariffs			
92	**Tariffs: Revenue equalisation**		
	(1) A full access arrangement must include a mechanism (a *reference tariff variation mechanism*) for variation of a reference tariff over the course of an *access arrangement period*.	AAI, chapters 12 and 14	
	(2) The *reference tariff variation mechanism* must be designed to equalise (in terms of present values): (a) forecast revenue from reference services over the *access arrangement period*; and (b) the portion of total revenue allocated to reference services for the *access arrangement period*.	AAI, section 9.5	
93	**Allocation of total revenue and costs**		
	(1) Total revenue is to be allocated between reference and other services in the ratio in which costs are allocated between reference and other services.	AAI, sections 9.6 and 9.7	

Rule	Provision	Proposal cross-ref	Comments
	(2) Costs are to be allocated between reference and other services as follows: (a) costs directly attributable to reference services are to be allocated to those services; and (b) costs directly attributable to pipeline services that are not reference services are to be allocated to those services; and (c) other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER.	AAI, sections 9.6 and 9.7	SP AusNet clearly identifies costs attributable to non-reference services and does not include these costs within the building block revenue
94	**Tariffs – distribution pipelines**		
	(1) For the purpose of determining reference tariffs, customers for reference services provided by means of a distribution pipeline must be divided into tariff classes.	AAI, section 15.6.1	
	(2) A tariff class must be constituted with regard to: (a) the need to group customers for reference services together on an economically efficient basis; and (b) the need to avoid unnecessary transaction costs.	AAI, section 15.6.1	

Rule	Provision	Proposal cross-ref	Comments
	(3) For each tariff class, the revenue expected to be recovered should lie on or between: (a) an upper bound representing the stand alone cost of providing the reference service to customers who belong to that class; and (b) a lower bound representing the avoidable cost of not providing the reference service to those customers.	AAI, sections 15.5.2.	
	(4) A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class: (a) must take into account the long run marginal cost for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates; (b) must be determined having regard to: (i) transaction costs associated with the tariff or each charging parameter; and (ii) whether customers belonging to the relevant tariff class are able or likely to respond to price signals.	AAI, section 15.5.1	

Rule	Provision	Proposal cross-ref	Comments
	(5) If, however, as a result of the operation of subrule (4), the service provider may not recover the expected revenue, the tariffs must be adjusted to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption.	See comments.	The circumstances contemplated in this rule are avoided through the proposed Demand Adjustment included in Chapter 14.
96	**Prudent discounts**		
	(1) Despite the other provisions of this Division, the AER may, on application by a service provider, approve a discount for a particular user or prospective user or a particular class of users or prospective users.	See comments	SP AusNet does not have any prudent discounts approved, and it is not proposing to seek any such approval in the forthcoming access arrangement period.
	(2) The AER may only approve a discount under this rule if satisfied that: (a) the discount is necessary to: (i) respond to competition from other providers of pipeline services or other sources of energy; or (ii) maintain efficient use of the pipeline; and		

Rule	Provision	Proposal cross-ref	Comments
	(b) the provision of the discount is likely to lead to reference or equivalent tariffs lower than they would otherwise have been. **Note:** Even though a user's incremental load is retained at a discounted price, overall tariffs may be lower because of the user's contribution to fixed costs.		
	(3) If the AER approves a discount under this rule, the AER may also approve allocation of the cost, or part of the cost, of providing the discount to the costs of providing a reference or other service in one or more future *access arrangement periods*.		
	(4) In this rule: **equivalent tariff** means the tariff that is likely to have been set for a service that is not a reference service if the service had been a reference service.		

Rule	Provision	Proposal cross-ref	Comments
97	**Mechanics of reference tariff variation**		
	(1) A *reference tariff variation mechanism* may provide for variation of a reference tariff: (a) in accordance with a schedule of fixed tariffs; or (b) in accordance with a formula set out in the access arrangement; or (c) as a result of a cost pass through for a defined event (such as a cost pass through for a particular tax); or (d) by the combined operation of 2 or more or the above.	AAI, chapters 12 and 14.	
	(2) A formula for variation of a reference tariff may (for example) provide for: (a) variable caps on the revenue to be derived from a particular combination of reference services; or (b) tariff basket price control; or (c) revenue yield control; or (d) a combination of all or any of the above.	AAI, sections 14.4 to 14.9 inclusive	
	(3) A *reference tariff variation mechanism* must give the AER adequate oversight or powers of approval over variation of the reference tariff.	AAI, section 14.6	
	(4) Except as provided by a *reference tariff variation mechanism*, a reference tariff is not to vary during the course of an *access arrangement period*.	AAI, sections 14.6	

Rule	Provision	Proposal cross-ref	Comments
Division 9: Incentive mechanisms			
98	**Incentive mechanism**		
	(1) A full access arrangement may include (and the AER may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider.	AAI, chapters 10 and 11 AA Parts B 6.4 and Part C (GSLs)	
	(2) An incentive mechanism may provide for carrying over increments for efficiency gains and decrements for losses of efficiency from one *access arrangement period* to the next.	AAI, section 11.4	
	(3) An incentive mechanism must be consistent with the revenue and pricing principles.	AAI, sections 10.4, 10.5, and 11.4	
Division 10: Fixed principles			
99	**Fixed principles**		
	(1) A full access arrangement may include a principle declared in the access arrangement to be fixed for a stated period.	AAI, chapter 16 Part B Clause 7	
	(2) A principle may be fixed for a period extending over 2 or more *access arrangement periods*.	AAI, chapter 16 Part B Clause 7	
Part 10: Other provisions of and concerning access arrangement			
100	**General requirement for consistency**		

Rule	Provision	Proposal cross-ref	Comments
	The provisions of an access arrangement must be consistent with: (a) the national gas objective; and (b) these rules and the Procedures as in force when the terms and conditions of the access arrangement are determined or revised.	See comments	The AAI notes in each relevant chapter that SP AusNet's proposal accords with all of the applicable requirements of the NGR – and, by inference, the NGO.
101	**Full access arrangement to contain statement of reference services**		
	(1) A full access arrangement must specify all reference services. (2) A **reference service** is a pipeline service that is likely to be sought by a significant part of the market.	Clause 5.2 of Part A of the AA	
103	**Queuing requirements**		
	(1) An access arrangement must contain queuing requirements if: (a) the access arrangement is for a transmission pipeline; or (b) the access arrangement is for a distribution pipeline and the AER notifies the service provider that the access arrangement must contain queuing requirements.	AAI, section 17.4; Clause 5.5 of Part A of the AA	

Rule	Provision	Proposal cross-ref	Comments
	(2) If the AER gives a notification under subrule (1), the access arrangement must contain queuing requirements as from the commencement of the first *access arrangement period* to commence after the date of the notification (but this requirement lapses if the AER, by notice to the service provider, withdraws the notification).		
	(3) Queuing requirements must establish a process or mechanism (or both) for establishing an order of priority between prospective users of spare or developable capacity (or both) in which all prospective users (whether associates of, or unrelated to, the service provider) are treated on a fair and equal basis.		
	(4) Queuing requirements might (for example) provide that the order of priority is to be determined: (a) on a first-come-first-served basis; or (b) on the basis of a publicly notified auction in which all prospective users of the relevant spare capacity or developable capacity are able to participate.		
	(5) Queuing requirements must be sufficiently detailed to enable prospective users: (a) to understand the basis on which an order of priority between them has been, or will be, determined; and (b) if an order of priority has been determined – to determine the prospective user's position in the queue.		

Rule	Provision	Proposal cross-ref	Comments
104	**Extension and expansion requirements**		
	(1) Extension and expansion requirements may state whether the applicable access arrangement will apply to incremental services to be provided as a result of a particular extension to, or expansion of the capacity of, the pipeline or may allow for later resolution of that question on a basis stated in the requirements. (2) Extension and expansion requirements included in a full access arrangement must, if they provide that an applicable access arrangement is to apply to incremental services, deal with the effect of the extension or expansion on tariffs. (3) The extension and expansion requirements cannot require the service provider to provide funds for work involved in making an extension or expansion unless the service provider agrees.	AAI, section 17.6; Clause 5.6 of Part A of the AA	SP AusNet is proposing to keep its existing Extensions/Expansion policy, updated to reflect adoption of the NGR in place of the National Gas Code.
105	**Capacity trading requirements**		
	(1) Capacity trading requirements must provide for transfer of capacity: (a) if the service provider is registered as a participant in a particular gas market – in accordance with rules or Procedures governing the relevant gas market; or	AAI, section 17.5; Clause 5.7 of Part A of the AA.	SP AusNet does not provide for capacity trading on its distribution system. Chapter 17, section 17.5, explains in high level how the Victorian Market operates and why this Rule is not applicable to Victorian distribution networks.
	(b) if the service provider is not so registered, or the relevant rules or Procedures do not deal with capacity trading – in accordance with this rule.		

Rule	Provision	Proposal cross-ref	Comments
	(2) A user may, without the service provider's consent, transfer, by way of subcontract, all or any of the user's contracted capacity to another (the **third party**) with the following consequences:		
	(a) the transferor's rights against, and obligations to, the service provider are (subject to paragraph (b)) unaffected by the transfer; but		
	(b) the transferor must immediately give notice to the service provider of: (i) the subcontract and its likely duration; and (ii) the identity of the third party; and (iii) the amount of the contracted capacity transferred.		
	(3) A user may, with the service provider's consent, transfer all or any of the user's contracted capacity to another (the **third party**) with the following consequences:	See above	
	(a) the transferor's rights against, and obligations to, the service provider are terminated or modified in accordance with the capacity trading requirements; and		

Rule	Provision	Proposal cross-ref	Comments
	(b) a contract arises between the service provider and the third party on terms and conditions determined by or in accordance with the capacity trading requirements.		
	(4) under subrule (3) unless it has reasonable grounds, based on technical or commercial considerations, for doing so.		
	(5) The service provider must not withhold its consent		
	(6) An adjustment of rights and liabilities under subrule (3) does not affect rights or liabilities that had accrued under, or in relation to, the contract before the transfer took effect.		
	(7) The capacity trading requirements may specify in advance conditions under which consent will or will not be given, and conditions to be complied with if consent is given.		
106	**Change of receipt or delivery point by user**		

Rule	Provision	Proposal cross-ref	Comments
	(1) An access arrangement must provide for the change of a *receipt or delivery point* in accordance with the following principles: (a) a user may, with the service provider's consent, change the user's *receipt or delivery point*;	Clause 5.8 of Part A of the AA.	SP AusNet is proposing that, in accordance with Rule 106 any change to a Receipt or Delivery Point on the Distribution System will require the consent of SP AusNet. Such consent will not be withheld unless there are reasonable technical or commercial grounds for withholding consent. As the only Receipt Points on the Distribution System are custody transfer points between the Distribution System and other networks, it is unlikely the SP AusNet would consent to a request to change a Receipt Point. Requests for changes to any Customer Distribution Supply Point will be considered on a case-by case basis, subject to technical and commercial feasibility, and will continue to be offered as a Service other than a Reference Service.
	(b) the service provider must not withhold its consent unless it has reasonable grounds, based on technical or commercial considerations, for doing so.		
	(2) The access arrangement may specify in advance conditions under which consent will or will not be given, and conditions to be complied with if consent is given.		

20 Compliance with Regulatory Information Notice Requirements

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
1.GENERAL				
Basis on which information is to be provided				
1.1	Provide:			
	(a)	all information required by each Regulatory Template in accordance with the instructions therein;	The information is included within the templates as required	Complete
	(b)	all consultant's reports commissioned and relied upon in whole or in part, including terms of reference for the purposes of the preparation of SP AusNet's Access Arrangement Proposal;	Appendices	All reports either include or have attached the terms of reference as agreed with the consultant.
	(c)	reasons explaining, for each instance where the information required by a Regulatory Template cannot be provided, why the information cannot be provided;	Within the attached Templates	Where information is not provided, or where assumptions have been made in regards to the estimation of the information notes are provided as explanation.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(d)	the basis on which information is provided. Financial information provided by SP AusNet must set out: (i) whether the information is actual, estimate or forecast. Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate;	Each figure and table within the AAI is set out in a way which clearly identifies whether information is actual, estimate or forecast.	All information provided up to and inclusive of 2010 should be assumed to be actual (unless otherwise stated). 2011 information will remain estimate until such time as the regulatory accounts have been finalised. Information relating to the years from 2012 are also estimates (to distinguish from forecast information). 2013-2017 information is forecast.
		(ii) the units of measure for parameters or values used to derive or infer values;	Each figure and table within the AAI is set out in a way which clearly identifies the units of measure.	The units of forecast information is also set out in the AAI and supporting Appendices.
		(iii) whether the information is expressed in nominal, real or other basis and including base year of information where relevant;	All real (Dec 31 2012)	Where information is provided in other than real 31 December 2012 dollars this is clearly stated.
	(e)	financial information provided in the Regulatory Templates should be:		

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(i)	actual financial information for the three years of the Current Access Arrangement Period;	Within the attached Templates	Per Regulatory Accounts, in so far as assumptions have been used to allocate the financial information into categories, the basis of these allocations is explained.
	(ii)	estimated financial information for year 4 of the Current Access Arrangement Period, to be updated with actual information when that becomes available during the review;	Within the attached Templates	This information will be updated with the provision of the final regulatory accounts for 2011.
	(iii)	estimate or forecast information as appropriate for year 5 of the current access period;	Within the attached Templates	
	(iv)	forecast financial information for the access arrangement period (the 'Next Access Arrangement Period' (2013–2017));	Within the attached Templates	
	(v)	where required, actual financial information for year 5 of the Previous Access Arrangement Period	Within the attached Templates	
	(f)	all financial models used in the preparation of SP AusNet's Access Arrangement Proposal including, but not limited to tariff, revenue, cost allocation and demand forecasts;	Provided (Confidential) within the supporting materials.	
	(g)	user manuals that underlie and support SP AusNet's Access Arrangement Proposal;	Not applicable	

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(h) a description of the processes, procedures, measurement systems, information systems and quality control systems applied in providing the information required by all Regulatory Templates; and	A copy of SP AusNet Due Diligence and Financial Assurance Plan is appended to the submission.	
1.2	Where SP AusNet has provided information required by Schedule 1 of this Notice as part of its Access Arrangement Proposal or Access Arrangement Information, identify in response to this Notice where that information is located in the Access Arrangement Proposal or Access Arrangement Information.	This Checklist	

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
1.3	Where SP AusNet has provided information required by the Regulatory Templates as part of its Access Arrangement Proposal or Access Arrangement Information, and that information is in the same form as that required in the Regulatory Template, identify in response to the Regulatory Templates where that information is located in the Access Arrangement Proposal or Access Arrangement Information.	This Checklist	CAPEX - In addition to this checklist, SP AusNet has provided a cross referencing spreadsheet which maps all capital programs against the various sections of the RIN, proposal and supporting information (including the asset management plans and strategies). The charts included within section 5 of SP AusNet's AAI have also been developed using the RIN template outcomes. The mapping to these charts has also been supplied by SP AusNet. OPEX – the escalators; rate of change parameters; and step changes are identical. Table 13.3 in the templates includes expenditure termed as 'zero based costs' section 6.11), as well as 'step changes' described in section 6.10. The AAI does not include the granular forecast included in the Templates. Demand information is replicated in Chapter 4 and also in CIE's model, which is provided (Confidentially) as supporting information.

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
2.SERVICE PROVIDER DETAILS AND BUSINESS CONTEXT			
Local agent of a service provider			
2.1	Provide all details of any local agent(s) of SP AusNet.	N/A	
3.BACKGROUND TO THE PIPELINE			
Pipeline and pipeline services			
3.1	Provide for the Current Access Arrangement Period:		
	(a) the annual volume demand in GJ for; and;	This information is included in the Templates and in Chapter 3.	
	(b) numbers of users that sought,	This information is included in the Templates and in Chapter 3.	
	Each pipeline service provided by the way of SP AusNet's Victorian gas distribution system that is not specified as a reference service in SP AusNet's access arrangement proposal.		

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
3.2	Provide:			
	(a)	in Regulatory Template 20, actual and estimated customer numbers for each year specified in Regulatory Template 20 for each tariff class disaggregated by band and zone; and	Templates	SP has provided historic (to 2010) customer numbers by tariff class, forecasts are based on net customers as per CIE forecast. (Appendix 4A) It should be noted that Gross Customer connections in the templates takes into account customer sites which have been re-energised throughout the year while gross disconnections takes into account de-energised as well as abolished customers, this will vary from gross new connections found in Template 3a which is a record of new network connection points.
	(b)	In Regulatory Template 21 actual, estimated and forecast consumption volumes for each year specified in Regulatory Template 21 for each tariff class disaggregated by band and zone; and	Templates	

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(c) in Regulatory Template 21, minimum, maximum and average demand and forecast minimum, maximum and average demand for each year specified in Regulatory Template 21 for each zone	Templates	
	Note: In circumstances where SP AusNet intends to vary its tariff classes or the disaggregation within tariff classes in the Next Access Arrangement Period, SP AusNet should estimate customer numbers, consumption volumes and minimum, maximum and average demand for the Current Access Arrangement Period assuming the new tariff classes had applied and explain the assumptions and modelling used to obtain those estimates.		Template 21 - Formulas in Template 21 Rows 35, 57, 92, 114, 149, 171, 206 and 228 refer to fixed customer tariff numbers which SP AusNet has interpreted to be the weighted customer numbers for the year, this customer number is reflective of the method used for calculating the other variables for this template. This varies from the original formula and is more reflective of the nature of connections to the gas network, where connections are not evenly spread across the year and where customers can be connected for a part year.
3.3	Provide:		
	(a) details of the key drivers behind the demand forecasts provided in response to paragraph 3.2;	Chapter 4 and CIE Report Appendix 4A	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	the methodology and models that have been used to develop the demand forecasts;	Chapter 4 and CIE Report Appendix 4A	Complete
	(c)	the key assumptions and inputs that have been used and how demand for pipeline services is differentiated;	Chapter 4 and CIE Report Appendix 4A	Complete
	(d)	an explanation of how the demand forecasts have been weather normalised;	Chapter 4 and CIE Report Appendix 4A	Complete
	(e)	an explanation of how the demand forecasts have been used to develop SP AusNet's capital expenditure and operating expenditure forecasts; and	Chapter 4 and CIE Report Appendix 4A	Complete
	(f)	an explanation of any trends of demand and volumes over the Previous, Current Access Arrangement Period and the Next Access Arrangement Period.	Chapter 4 and CIE Report Appendix 4A	Complete
4.PROJECTED CAPITAL BASE Note: The information required to be provided, prepared, kept or maintained in this part of the Notice relates to all pipeline services, including both reference services and pipeline services other than reference services				
Opening capital base at the beginning of the current access arrangement period				
4.1	Provide:			
	(a)	in Regulatory Template 1, the opening capital base by asset class for each year specified in Regulatory Template 1;	Templates 1	The asset base was not approved by asset class, so SP AusNet allocated for the purpose of opening RAB

RIN clause	Provision			Where information is provided in the regulatory proposal	Comments
	(b)	in Regulatory Template 1, the capital base approved by the jurisdictional regulator for each year specified in Regulatory T Template 1;		Templates 1	
	(c)	in Regulatory Template 8, the remaining asset lives and standard asset lives that reflect the capital base as at 31 December 2012;		Template 8	
	(d)	a reconciliation of the opening capital base provided in response to paragraphs 4.1(a) and 4.1(b), including:			
		(i)	adjustments for any difference in estimated and actual capital expenditure;	Chapter 7	
		(ii)	other adjustments made to the opening capital base as at 1 January 2008; and	Chapter 7	
		(iii)	an explanation for these variations; and	Chapter 7	
Capital expenditure in the current access arrangement period					
4.2	Explain:				
	(a)	any significant variations (i.e. a difference of more than 10 per cent) between capital expenditure approved by the jurisdictional regulator and the actual and/or estimated capital expenditure for the Current Access Arrangement Period; and		Chapter 3 and Appendices 3A and 3B	Variations are explained in Chapter 3 including information on unit rates, and activity levels.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	whether and how SP AusNet considers that conforming capital expenditure added to the capital base in the Current Access Arrangement Period meets the requirements of Rule 79 of the NGR.	Chapter 3 and Appendices 3A and 3B	SP AusNet commissioned external review of the expenditure within the current period to demonstrate that the capital expenditure is conforming in nature.
4.3	By asset class for each year of the Current Access Arrangement Period, provide an explanation for (a)	 amounts added to the opening capital base for conforming capital expenditure; and	Templates This information is replicated by asset class and function within Chapter 3 of the AAI	For ease of understanding SP AusNet has explained expenditure against benchmark allowance rather than asset class.
	(b)	amounts for non conforming capital expenditure identified as:	N/A	
		(i) recovered by surcharge;	N/A	
		(ii) added to speculative capital expenditure account (under the Code as speculative investment fund); and	N/A	
		(iii) other amounts of non conforming capital expenditure	N/A	
Past capital contributions, speculative capital expenditure account (under the code speculative investment fund), reused redundant assets, redundant assets, and disposals in the current access arrangement period				
4.4	Provide an explanation for whether and how SP AusNet considers:			

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(a)	amounts added to the opening capital base from the speculative capital expenditure account (under the Code, a speculative investment fund) meet the requirements of section Rule 79 of the NGR; and	N/A	
	(b)	amounts added to the opening capital base for the reuse of redundant assets meet the requirements of section Rule 79 of the NGR.	N/A	
4.5	In Regulatory Template 1, provide by asset class for each year specified in Regulatory Template 1:			
	(a)	amounts added to the opening capital base for capital contributions;	Template 1, table 1.5	Capital contributions are deducted from the RAB. No capital contributions been added to the RAB.
	(b)	amounts added to the opening capital base from the speculative capital expenditure account (under the Code a speculative investment fund);	N/A	
	(c)	amounts added to the opening capital base for the reuse of redundant assets;	N/A	
	(d)	amounts added to the capital base for gas extensions;	Template 1 and 25	Complete
	(e)	amounts deducted from the opening capital base for redundant assets; and	N/A	
	(f)	amounts deducted from the opening capital base for disposals.	Template 1	Complete

RIN clause	Provision			Where information is provided in the regulatory proposal	Comments
4.6	In Regulatory Template 25 provide information regarding the amount provided in paragraph 4.5(d).			Template 25	Complete
Depreciation in the Current Access Arrangement Period					
4.7	In Regulatory Template 8, for each year specified in Regulatory Template 8, provide				
	(a)	for each asset, class amounts deducted from the opening capital base for depreciation including amounts of depreciation for changes to the capital base in the Current Access Arrangement Period. Distinguish depreciation referable to the opening capital base and amounts added to, or deducted from, the opening capital base for:			
		(i)	re-used redundant assets, redundant assets;	N/A	
		(ii)	disposals;	N/A	
		(iii)	conforming capital expenditure;	Template 8	Complete
		(iv)	capital contributions included in the capital base; and	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
		(v) amounts from the speculative capital expenditure account (under the Code a speculative investment fund); and	N/A	
	(b)	asset lives of each asset class.	Template 8 and Chapter 7.5	Complete
Rate of inflation and adjustment to the capital base in the current access arrangement period				
4.8	Provide:			
	(a)	in Regulatory Template 1, the actual or estimated rates of inflation used to adjust the capital base for inflation for each year specified in Regulatory Template 1; and	Templates 1	Complete
	(b)	in Regulatory Template 1, the adjustments to the capital base for inflation for each year specified in Regulatory Template 1.	Templates 1	Complete
Capital base in the Current Access Arrangement Period				
4.9	Provide, in Regulatory Template 1, the capital base by asset class for each year specified in Regulatory Template 1.		Templates 1	Complete
Forecast conforming capital expenditure in the Next Access Arrangement Period Note: The opening capital base for the Next Access Arrangement Period is derived from the capital base for the Current Access Arrangement Period (refer to paragraph 4.9 of this Notice)				
4.10	Provide:			

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(a)	in Regulatory Template 1, amounts by asset class for each year specified in Regulatory Template 1 for forecast conforming capital expenditure; and	Template 1	Complete
	(b)	in Regulatory Template 10, the escalation rates, where applicable, used in deriving forecast conforming capital expenditure.	Template 10	Additional information provided in section 5.12: 'Labour and Material Escalators' of SP AusNet's submission. Labour escalation rates as per BIS Shrapnel report. Appendix 5F Materials escalation rates as per SKM. Appendix 5G
4.11	Provide the following information about forecast conforming capital expenditure:			
	(a)	a definition and explanation of any materiality threshold test that SP AusNet intends to apply to categorise forecast conforming capital expenditure projects;	None	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	the nature of forecast conforming capital expenditure projects or programmes material to an asset class, including a brief description of the capital expenditure and where relevant, the location of the expenditure on the distribution pipeline;	Chapter 5 and detailed plant strategies Appendices 5J	Summary information is provided within the AAI with detailed supporting information included within the plant strategies which are the technical internal documents used for planning gas network activity.
	(c)	any assumptions used in deriving the forecast conforming capital expenditure (see Rule 75), including:		Part i) The application of escalation rates has been done at a program / project level using SP AusNet's knowledge of the network and project types. Refer to SP AusNet's Capital Mapping spreadsheet for allocations.

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(i) in Regulatory Template 10, the specific escalation rate used in each year of the Next Access Arrangement Period;	Template 10	Labour escalation rates as per BIS Shrapnel report. Materials escalation rates as per SKM. The escalators have been applied on a program by program basis. Further clarity as to the particular build up is set out in the Capital Mapping spreadsheet Appendix.
	(ii) whether the rate is in real or nominal terms; and	AAI Section 5.12, and Section 6.7.1 and 6.7.2 identify that escalators are all real.	Template specifies real.
	(iii) how the derivation has been developed (including source material and any escalation used); Note: These may include: • the unit rates used for key items of expenditure, how these have been developed (including source material) and evidence that they reflect efficient costs • specific rates used to derive or extrapolate expenditure estimates (for example, labour and materials)	Appendices Labour escalation rates details in BIS Shrapnel report. Materials escalation rates details in SKM. Section 5.12 of AAI Capex model	SKM and BIS reports comply with respect to explaining the derivation of escalators.

RIN clause	Provision			Where information is provided in the regulatory proposal	Comments
	(d)	any relevant internal decision making documents relating to approval of the forecast capital expenditure and any other internal or external documentation or models that justify the forecast conforming capital expenditure, including but not limited to: (i) business cases;		Appendix	Business Cases are provided for all capital expenditure projects to be undertaken on the gas network for 2012 and, where approved, 2013
		(ii)	feasibility studies;	N/A	N/A
		(iii)	forecast demand studies and internal reports; and	Appendices	The CIE report underpins customer capital expenditure.
		(iv)	the date of any relevant internal decision making body/management decisions;	Appendix Business Cases with approval dates.	This appendix includes Asset Management Committee and SP AusNet board approval of the Asset Management Strategy and Plan.
	(e)	details as to whether the forecast conforming capital expenditure is to be funded by parties other than SP AusNet;		Chapter 5.5.3	Section 5.5.3 sets out the forecasts of expected customer contributions?
	(f)	details of contractual agreements with parties where capital contributions are made by users to new capital expenditure (see Rule 82);		N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(g)	an explanation of whether and how SP AusNet considers that the forecast capital expenditure conforms with the criteria listed in Rule 79(1); and	Chapter 5 and Appendices and RIN supporting materials	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices.
	(h)	whether and how SP AusNet considers that the forecast capital expenditure is justifiable under Rule 79(2) including any sub rule in 79(2) is relied on.	Chapter 5 and Appendices and RIN supporting materials	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices.
4.12	If Rule 79(2)(a) is relied on to justify new capital expenditure associated with projects above $1,000,000, provide:			
	(a)	the calculations of the economic value of the capital expenditure that directly accrues to the service provider, gas producers, users and end users	N/A	
	(b)	an explanation of the nature and quantification of the economic value that directly accrues to the service provider, gas producer, users and end users (see Rule 79(3)).	N/A	
4.13	If Rule 79(2)(b) is relied on to justify new capital expenditure associated with projects above $1,000,000, provide:			
	(a)	the information SP AusNet relied on to determine the expected incremental revenue to be generated as a result of the new capital expenditure;	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	a description of the incremental service or services (see Rule 79(4)(a));	N/A	
	(c)	the incremental revenue (see Rule 79(4)(b));	N/A	
	(d)	the incremental expenditure (see Rule 79(4)(b)); and	N/A	
	(e)	the discount rates that SP AusNet used to determine the present value of incremental revenue	N/A	
4.14	If Rule 79(2)(c)(i), (ii) or (iii) is relied on to justify new capital expenditure, provide:			
	(a)	an explanation of what item in Rule 79(2)(c)(i), (ii) or (iii) is relied on;	Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.
	(b)	the relevant regulatory obligation or requirement (if any) and the relevant authority or body enforcing it;	Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(c)	an explanation of whether and how SP AusNet considers that the forecast capital expenditure satisfies the item in Rule 79(2)(c)(i), (ii) or (iii) being relied on; and	Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.
	(d)	supporting technical or other external or internal reports about whether and how SP AusNet considers that the forecast capital expenditure addresses the relevant item in Rule 79(2)(c)(i), (ii) or (iii).	Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.
4.15	If Rule 79(2)(c)(iv) is relied on to justify new capital expenditure in SP AusNet's Access Arrangement Proposal, provide:			
	(a)	an explanation of the change in demand for existing services necessitating the new capital expenditure, including a measure of the change in demand; and	Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.

RIN clause	Provision			Where information is provided in the regulatory proposal	Comments
	(b)	reports or other information and documentation that supports whether and how SP AusNet considers that the forecast capital expenditure will meet the increase in demand for existing services.		Chapter 5 and Appendices	Chapter 5 outlines the reason why the capital expenditure is necessary, prudent and efficient. Further detail is provided within the appendices and RIN supporting materials.
Capital expenditure that is not conforming in the Next Access Arrangement Period					
4.16	Provide:				
	(a)	in Regulatory Template 1, the amount by asset class for each year specified in Regulatory Template 1 for forecast non conforming capital expenditure classified into:		Template 1	
		(i)	non conforming capital expenditure forecast to be recovered through surcharges;	N/A	
		(ii)	non conforming capital expenditure forecast to be added to the speculative capital expenditure account; and	N/A	
		(iii)	other non conforming capital expenditure;	N/A	
	(b)	in Regulatory Template 1, details of the forecast speculative capital expenditure account by asset class for each year specified in Regulatory Template 1;		N/A	

RIN clause		Provision	Where information is provided in the regulatory proposal	Comments
	(c)	a justification for the different rate of return, if the balance of the speculative capital expenditure account increases at a rate different to the rate of return implicit in a reference tariff (see Rule 84(2));	N/A	
	(d)	in Regulatory Template 1, the amount of forecast capital contributions by asset class for each year specified in Regulatory Template 1;	Template 1	
	(e)	in Regulatory Template 1, the amount of capital contributions by asset class for each year specified in Regulatory Template 1 proposed to be rolled into the capital base under Rule 82(3);	N/A	
	(f)	in Regulatory Template 10, (where relevant) the escalation rates used in deriving forecasts for capital expenditure other than conforming capital expenditure, if different from escalation rates provided paragraph in 4.10(b) of this Notice; and	Template 10 and explained in Chapter 5	
	(g)	details of the mechanism to prevent SP AusNet from benefiting, through increased revenue, from the capital contributions by a user in the Next Access Arrangement Period (see Rule 82(3));	N/A	

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(h) Provide the following information in respect of gas extension projects in the Next Access Arrangement Period: (i) General information (Regulatory Template 26): • customer information • revenue information • operations and maintenance expenditure information • capital expenditure information • capital expenditure information for tax purposes • actual and forecast Government contributions.	N/A	
	(ii) Tariff information for each band or category of volume and demand customers (Regulatory Template 28): • tariff components, including surcharge or premium • tariff component surcharge or premium.	N/A	
	(iii) Demand information including (Regulatory Template 27): • information on the quantity of gas used in the current access arrangement period • forecast information on gas use in the next and following access arrangement period.	N/A	

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(i) provide a description of each proposed gas extension project, including whether the project has been subject to previous review by an economic regulator.		
Capital expenditure by cost category in the Current Access Arrangement Period			
4.17	Provide: (a) in Regulatory Template 2, non-demand related actual and estimated capital expenditure disaggregated by cost category inclusive (template 2a) and exclusive (template 2b) of related party margins for each year specified in Regulatory Template 2;	Template 2	Further explanation is included in Chapter 2 and the Related Party Arrangements Appendix.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	in Regulatory Template 3, demand related actual and estimated capital expenditure disaggregated by cost category inclusive(template 3a) and exclusive (template 3b) of related party margins for each year specified in Regulatory Template 2; and	Template 3	**Template 3a -** Formulas in Template 3a Rows 34 and 83 have been modified to reflect the difference between customer numbers that are provided in Template 20 and those requested in Template 3a. Template 20 refers to Customer Numbers and Gross Customer Connections, this reported number includes sites which have previously been disconnected but not abolished being reconnected. This can be due to a customer moving into the premises or the customer requesting gas to be reconnected. Template 3a refers to New Connections which are sites which have not previously had gas that are connected to the network.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(c)	an explanation of any assumptions used in reporting capital expenditure by cost category in the current access arrangement period.	Capital Mapping Spreadsheet	Historical capital expenditure has been sourced from SP AusNet's regulatory accounts. Where a one-for-one mapping exists between the regulatory accounts and the RIN (low pressure mains replacement, for example), the source information has been reproduced in the RIN in the relevant asset categories. Where the RIN requires information that is not specifically reported in the regulatory accounts, the regulatory accounts source data has been allocated based on the forecast (2012-2017) breakdown of those categories. For example, to derive the historical split between replacement and refurbishment, SP AusNet has allocated the meter replacement capex in the regulatory accounts according to the 2012-17 forecast replacement/refurbishment capex in the AMP. This is also the case for labour/ contractor/ materials allocations within asset categories, which the RIN requires, but the regulatory accounts do not. The total direct expenditure has been allocated to labour/ contractor/ materials based on the bottom-up percentage splits obtained when preparing the 2012-2017 AMP.

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
Capital expenditure by cost category in the Next Access Arrangement Period				
4.18	Provide:			
	(a)	in Regulatory Template 2, non-demand related forecast capital expenditure disaggregated by cost category inclusive (template 2a) and exclusive (template 2b) of related party margins for each year specified in Regulatory Template 2;	Template 2	
	(b)	in Regulatory Template 3, demand related forecast capital expenditure disaggregated by cost category inclusive (template 3a) and exclusive (template 3b) of related party margins for each year specified in Regulatory Template 3; and	Template 3	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(c)	an explanation of any assumptions used in reporting forecast capital expenditure by cost category.	Capex mapping model Appendix	SP AusNet has mapped its forecast capital expenditure (for the most part) using a one to one match from its Asset Management Plan to the RIN templates. SP AusNet has provided a cross reference spreadsheet as an appendix to the submission which maps this relationship and others. Labour / material / contractor allocations have been completed at a project / program level based on SP AusNet's knowledge of the distribution network, project types and past projects of a similar scope.
Capital redundancy policy in the Next Access Arrangement Period				
4.19	If relevant, provide:			
	(a)	an explanation of the proposed mechanism to remove redundant assets from the capital base including:	N/A	
		(i) when the mechanism will take effect; and	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
		(ii) whether the mechanism includes a proposal for cost sharing between the service provider and users associated with a decline in demand for pipeline services;	N/A	
	(b)	a justification for the mechanism;	N/A	
	(c)	an explanation of what uncertainty the mechanism may cause; and	N/A	
	(d)	the effect of this uncertainty on the service provider.	N/A	
Forecast disposals in the Next Access Arrangement Period				
4.20	Provide in Regulatory Template 1, amounts by asset class for each year specified in Regulatory Template 1 for forecast disposals.		None forecast	
Rate of inflation and adjustment to the projected capital base in the Next Access Arrangement Period				
4.21	Provide:			
	(a)	in Regulatory Template 1, the adjustment to the capital base to take account of the effects of inflation for each year specified in Regulatory Template 1; and	Template 1	Complete
	(b)	in Regulatory Template 1, the rates of inflation used to adjust the capital base over the Next Access Arrangement Period.	Template 1	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
Projected capital base in the Next Access Arrangement Period				
4.22	Provide in Regulatory Template 1, the capital base by asset class for each year specified in Regulatory Template 1.		Template 1	Complete
Expenditure allocation to asset class				
4.23	If SP AusNet uses a post-tax revenue model to determine the total revenue, in Regulatory Template 5 and 6 allocate capital expenditure by providing the percentage of capital expenditure, for each category provided for each year, which is attributable to the relevant post-tax revenue model regulatory asset base and tax asset base class respectively.		Template 5 and 6	Complete
5.RATE OF RETURN FOR THE PROJECTED CAPITAL BASE				
Weighted average cost of capital and CAPM				
5.1	If SP AusNet intends to use the WACC methodology and CAPM methodology, provide:			
	(a)	in Regulatory Template 9, the values of each of the parameters that comprise the WACC methodology and CAPM methodology; and	Template 9 – WACC Inputs	Complete
	(b)	an explanation of how the values of each of the parameters used in the WACC were derived.	Chapter 8 and Appendices 8A-8G	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
Method other than weighted average cost of capital and CAPM				
5.2	If SP AusNet does not intend to use the WACC methodology and/or CAPM methodology, provide:			
	(a)	an explanation of the proposed methodology for the rate of return; and	Chapter 8	Complete
	(b)	a quantification of the rate of return using this methodology including any justification for the use of parameters in this methodology.	Chapter 8 and Appendices 8A-8G	Complete
Rate of return and taxation method				
5.3	Provide details of the proposed method for dealing with taxation and a demonstration of how the tax allowance is calculated.		Chapter 8	Complete
		Note: Refer also to paragraph 11 of this Notice for further information requirements relating to the treatment of taxation.		
6.FORECAST DEPRECIATION				
6.1		In Regulatory Template 8, provide:		

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(a)	amounts for forecast depreciation disaggregated for components by asset class for each year specified in Regulatory Template 8, including accounting for and identifying depreciation referable to: (i) the opening capital base; (ii) forecast conforming capital expenditure; (iii) other capital expenditure; (iv) forecast disposals; and (v) other amounts that may be added or deducted to the projected capital base under the NGR; and	Template 8	Net capital expenditure has been reported in Template 8. No disposals forecast.
	(b)	details of the asset lives for each asset.	Template 8 Chapter 7, table 7.5	Complete
6.2	Identify each instance where SP AusNet proposes to defer a substantial proportion of depreciation and explain why SP AusNet proposes to defer the depreciation.		N/A	
7.ESTIMATED COST OF CORPORATE INCOME TAXATION				
7.1		If applicable, provide:		
	(a)	in Regulatory Template 16, an estimate of the cost of corporate income tax for each year specified in Regulatory Template 16; and	Template 16	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	details of how the estimated cost of corporate income tax is calculated. Note: Refer also to paragraph 11 of this Notice for further information requirements in relation to the treatment of taxation.	Chapter 8	
8.PROPOSED INCENTIVE MECHANISM				
Existing incentive mechanism in the current access arrangement period				
8.1	If the Current Access Arrangement contains incentive mechanisms, provide for each incentive mechanism:			
	(a)	Provide, in Regulatory Template 17, for each incentive mechanism:	Template 17, Chapter 9.4	
		(i) the increments for efficiency gains and decrements for efficiency losses that have occurred in the Current Access Arrangement Period; and	Template 17	
		(ii) the revenue referable to increments for efficiency gains or decrements for efficiency losses from the Current Access Arrangement Period that is to be carried over (from the Current Access Arrangement Period) into the Next Access Arrangement Period for existing incentive mechanisms; and	Template 17	

RIN clause		Provision	Where information is provided in the regulatory proposal	Comments
	(b)	Provide, for each incentive mechanism: (i) an explanation of the incentive mechanism and its operation for the Current Access Arrangement Period; (ii) an explanation of the increments for efficiency gains and decrements for efficiency losses that have occurred in the Current Access Arrangement Period and the relevant carryover amounts for the Next Access Arrangement Period; and (iii) all relevant analyses or reports that support the operation of the existing incentive mechanism.	Chapter 9.4	
Proposed incentive mechanism in the Next Access Arrangement Period				
8.2		Note: this section [8.2 and 8.3] also applies to incentive mechanisms already in place in the Current Access Arrangement Period that are proposed to continue for the Next Access Arrangement Period. Provide, in Regulatory Template 17, for each incentive mechanism (including existing incentive mechanisms) details of the forecast revenue referable to increments for efficiency gains or decrements for efficiency losses for the Next Access Arrangement Period.	Template 17, Chapter 9.4	
8.3		Provide, for each proposed incentive mechanism:	Chapter 11	
	(a)	an explanation of the operation of the proposed incentive mechanism;	Part B, Section 6.4	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	an explanation of the rationale for the proposed incentive mechanisms;	Chapter 11	
	(c)	any relevant analyses or reports that support the proposed incentive mechanism.	N/A	
9.OPERATING EXPENDITURE				
Operating expenditure in the Current Access Arrangement Period				
9.1	Provide:			
	(a)	in Regulatory Template 13, actual and estimated operating expenditure by category for each year specified in Regulatory Template 13, including related party margins;	Template 13	Complete – with the exception, "Regulatory Costs –Access Arrangement Review." This is not a category in the regulatory accounts. Total regulatory costs are provided.
	(b)	in Regulatory Template 14, actual and estimated operating expenditure by category for each year specified in Regulatory Template 14, excluding related party margins;	Template 14	Same as Template 13
	(c)	details and an explanation of non-recurring expenditures in the Current Access Arrangement Period.	Chapter 6 (Section 6.5.2)	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
Forecast operating expenditure in the Next Access Arrangement Period				
9.2	Provide:			
	(a)	in Regulatory Template 13, forecast operating expenditure by category for each year specified in Regulatory Template 13, including related party margins.	Template 13	Complete - SP AusNet has applied a top-down forecasting methodology to operating expenditure, and has not forecast at a 'category' level. For transparency, forecast growth in operating expenditure is reported against the 'rate of change' category, and other categories are forecast to remain constant. No forecast has been made for the category non-reference services
	(b)	in Regulatory Template 14, forecast operating expenditure by category for each year specified in Regulatory Template 14, excluding related party margins.	Template 14	Same as Template 13
9.3	Provide			

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(a)	a description and explanation of the change in operating expenditure categories between the Current Access Arrangement Period and the Next Access Arrangement Period;	Chapter 6	Rate of change approach to forecasting means that there is no forecast of specific changes to categories of expenditure, but rather a forecast of the overall scale of expenditure growth. Step changes and zero based costs detail specific changes to expenditure that are not included in the rate of change forecast.
	(b)	whether there are changes to the operations of the pipeline from the Current Access Arrangement Period that have resulted in material changes to operating expenditure categories and total operating expenditure in the Next Access Arrangement Period, including a definition of the materiality threshold used by SP AusNet to identify such changes;	Chapter 6	Changes to operations are detailed in relation to step changes. Changes to operations that are due to volume/scale changes are forecast through the rate of change approach.
	(c)	an explanation of whether and how SP AusNet considers that the proposed operating expenditure complies with Rule 91, with particular reference to operating expenditure identified in paragraph 9.3(b);	Chapter 6	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(d)	details and an explanation of step changes to operating expenditures in the Next Access Arrangement Period; and	Chapter 6 Appendices Opex model	Have also explained what we have referred to as 'zero based' costs.
	(e)	any assumptions used in deriving the forecast operating expenditure.	Chapter 6 Opex model	Complete
9.4	Where relevant, provide:			
	(a)	in Regulatory Template 10 the specific escalation rate used in deriving operating expenditure forecasts for each year specified in Regulatory Template 10;	Template 10	Labour escalation rates as per BIS Shrapnel report. (Appendix 5F) Materials escalation rates as per SKM.(Appendix 5G) Productivity forecast as per Economic Insights (Appendix 6B) Growth forecast as per Economic Insights (Appendix 6B)
	(b)	whether the rate is in real or nominal terms; and	AAI Section 6.7.1 and 6.7.2 identify that escalators are all real.	Real

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(c)	how the derivation has been developed (including source material and any escalation used). Note these may include: • the unit rates used for key items of expenditure, how these have been developed (including source material) and evidence that they reflect efficient costs • specific rates used to derive or extrapolate expenditure estimates (for example, labour and materials)	Appendices and Chapter 6 Opex model Appendices 5F,5G, 6A-D,6E-G	Derivation of the weighted price escalator applied in SP AusNet's forecast is provided in the Opex Model. Reports by SKM, BIS Shrapnel, and Economic Insights explain the derivation of price escalators and rate of change parameters used in the forecasting of operating expenditure.
Self insurance				
9.5	For each self insurance event provide, in Regulatory Template 13 (including related party margins) and 14 (excluding related party margins), the forecast annual insurance premiums for each year specified in Regulatory Template 13 and Regulatory Template 14.		N/A	
9.6	Provide, the following information for each self insurance event:		N/A	
	(a)	the name and a description of the event;	N/A	
	(b)	whether the event is in relation to a particular asset or class of assets and, if so, identify those assets or classes;	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(c)	reasons for self insuring the event;	N/A	
	(d)	if the event has not previously been self insured, reasons why it is now being proposed to be self insured and how the risk of the event was treated in the Current Access Arrangement;	N/A	
	(e)	if a proposed self insurance event was previously insured externally, details of existing or previous insurance policies and reasons why external insurance is not being proposed for the Next Access Arrangement Period;	N/A	
	(f)	any quotes obtained from external insurers;	N/A	
	(g)	full details of how the premiums were calculated, including any underlying assumptions used to derive the premiums;	N/A	
	(h)	any consultant's report relied on by SP AusNet in deriving the estimates;	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(i)	a copy of SP AusNet's decision making body's resolution (including the date of the resolution) to self insure the event(s); and	N/A	
	(j)	details of the Procedures, Policies and Strategies that:	N/A	
		(i) explain how the self insurance risk is to be reported (if required under relevant accounting standards) in SP AusNet's audited financial statements; and Note: This may include relevant documents that were prepared or submitted for ASIC or other relevant government authority.	N/A N/A	
		(ii) explain the procedure for notification, and information that will be provided, to the AER if a self insurance event occurs.	N/A	
10.OUTSOURCED OPERATING AND CAPITAL EXPENDITURE				
10.1	For operating expenditure and capital expenditure forecast in amounts greater than $1,000,000 in aggregate to be incurred in a year of the Next Access Arrangement Period and to be provided by a party other than SP AusNet (i.e. outsourced), provide		Refer to Service Delivery Model in section 2.4 of submission.	
	(a)	the name of the party(ies) and the contract;	Confidential details provided in Appendices, RIN 10.1 and supporting contractual information. Related party Appendix 2A.	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	a description of the tendering process used to procure the service, and supporting tendering documentation (including but not limited to requests for tender, tender submissions, internal committee papers evaluating the tenders, contracts between SP AusNet and relevant providers);	As above	Explanation provided where no tendering process took place
	(c)	the commencement date and term of the arrangement or contract;	As above	Complete
	(d)	a copy of the arrangement or contract which sets out the obligations of both the external party and SP AusNet;	As above	Complete
	(e)	a breakdown of all services provided as part of the arrangement or contract;	As above	Complete
	(f)	details of the financial terms, including fees and charges, in the contract and a description of the goods or services provided;	As above	Complete
	(g)	reasons why the functions were outsourced;	As above	Complete
	(h)	if any of the services, or any component thereof, were further outsourced to another provider, details regarding such outsourcing; and	As above	Complete
	(i)	details of the relationships with the party or parties named in response to paragraph 10.1(a) including if a party to the contract is an associate of SP AusNet.	As above	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
11.TAXATION ASSET BASE				
11.1	Regardless of the methodology SP AusNet adopts for taxation, provide, in Regulatory Template 7, the following information by tax asset class for each year specified in Regulatory Template 7:			
	(a)	opening tax asset base;	Template 7	Complete
	(b)	amount of depreciation; and	Template 7	Complete
	(c)	the depreciation rate used.	Template 7	Complete
12. TARIFFS				
Revenue equalisation				
12.1	Provide, in Regulatory Template 18, details of the net present value of the proposed revenue stream for each reference service		Template 18	
Total revenue allocation				
12.2	Provide in Regulatory Template 19, the allocation of costs to services, including:			
	(a)	identify and quantify cost pools according to relevant asset classes and operating cost categories for: (i) the direct costs of reference services;	Template 19	
		(ii) the direct cost of pipeline services other than reference services; and	N/A	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
		(iii) other costs from building block revenue and rebateable services; and	Template 19	
	(b)	reconcile total revenue for pipeline services allocated to reference services and other services.	Template 19	
12.3	Provide:			
	(a)	an explanation, including any relevant calculations, of the methods or principles used to allocate relevant cost pools identified in paragraph 12.2(a);	AAI section 6.5.1 and 15.4	SP AusNet clearly identifies costs attributable to non-reference services and does not include these costs within the building block revenue.
	(b)	for rebateable services, a description of the mechanism that SP AusNet will use to apply an appropriate portion of the revenue generated from the sale of rebateable services to price rebates (or refunds) to users of reference services (see Rule 93).	N/A	SP AusNet charges for non-reference services on a cost recovery basis.
Tariffs – distribution pipelines (see Rule 94)				
12.4	If relevant, provide, in Regulatory Template 19, for each year specified in Regulatory Template 19 for each tariff class:			
	(a)	the upper bound representing the stand alone cost of providing the reference service to customers who belong to that class; and	Chapter 15.5.2 and Template 19	SP AusNet considers that its tariffs comply with the Rules, in particular, Rule 94 (3).

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	the lower bound representing the avoidable cost of not providing the reference service to those customers.	Chapter 15.5.2 and Template 19	SP AusNet considers that its tariffs comply with the Rules, in particular, Rule 94 (3).
12.5	For each tariff, and if it consists of two or more charging parameters, each charging parameter for a tariff class, provide:			
	(a)	a description of how SP AusNet has taken into account the long run marginal cost for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates;	Chapter 15 and Templates	Complete
	(b)	details of the transaction costs associated with the tariff or each charging parameter; and	N/A	Complete
	(c)	whether customers belonging to the relevant tariff class are able or likely to respond to price signals.	Chapter 15 and Templates	Complete
	(d)	an explanation of the methodology used to allocate costs for the information provided in response to paragraph 12.4.	Chapter 15 and Templates	Complete
Prudent discounts (see Rule 96)				
12.6	Identify all prudent discounts that SP AusNet proposes for the Next Access Arrangement Period and the users to whom they will apply and explain:		N/A	SP AusNet does not propose any prudent discounts
	(a)	how each prudent discount is necessary to respond to competition or maintain efficient use of the pipeline; and	N/A	SP AusNet does not propose any prudent discounts

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	whether, including relevant calculations, reference tariffs would be higher without the prudent discount than they would be with the prudent discount.	N/A	SP AusNet does not propose any prudent discounts
13.REFERENCE TARIFF VARIATIONS				
Tariff variation mechanism				
13.1	Provide an explanation of:			
	(a)	the proposed reference tariff variation mechanism and the basis for any parameters used in the mechanism; and	Chapter 14	SP AusNet proposes, minor amendments to the rebalancing control, a factor to account for wholesale gas price risk and the implementation of a tariff to recover the costs of the carbon tax.
	(b)	the administrative arrangements for periodic reviews of tariffs including the timing of notifications to the AER.	Chapter 14	SP AusNet proposes to retain the current administrative arrangements as set out in Part B of the Access Arrangement
13.2	Identify:			
	(a)	the possible effects of the proposed *reference tariff variation mechanism* on SP AusNet's administrative costs and, if known, the administrative costs of users or potential users; and	Chapter 14	

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
	(b)	all relevant regulatory arrangements SP AusNet considers applicable to the relevant reference services before the commencement of the proposed reference tariff variation mechanism.	Chapter 14	
Cost pass through mechanism				
13.3	Provide:			
	(a)	a definition and description of each cost pass through event;	Chapter 12	Chapter 12 sets out in detail SP AusNet's proposal in regard to pass through mechanisms
	(b)	an explanation of how each cost pass through event is uncontrollable	Chapter 12	As above
	(c)	an explanation of whether the costs of the cost pass through event are already provided for through the operational expenditure or capital expenditure forecasts, the WACC (events which affect the market generally and not just the provider are systemic risk and already compensated through the WACC), or any other mechanism or allowance; and	Chapter 12	As above
	(d)	an explanation of the administrative arrangements for cost pass through events and their relationship to other periodic reviews for other tariff variation mechanisms including the timing of notifications to the AER.	Chapter 12	As above
13.4	Identify:			

RIN clause	Provision	Where information is provided in the regulatory proposal	Comments
	(a) the materiality threshold SP AusNet proposes for cost pass through events;	Chapter 12	As above
	(b) the possible effects of the proposed cost pass through mechanism on SP AusNet 's administrative costs and, if known, the administrative costs of users or potential users; and	Chapter 12	As above
	(c) all relevant regulatory arrangements SP AusNet considers applicable to the relevant reference services prior to the commencement of the proposed cost pass through mechanism.	Chapter 12	As above
14.NON–TARIFF COMPONENTS			
Non-tariff terms and conditions			
14.1	Provide:		
	(a) details of any amendments to the non-tariff terms and conditions of the access arrangement that SP AusNet proposes for the ensuing access arrangement period; and	Attached marked up copy of Part C (Terms and Conditions) of the Access Arrangement	Complete
	(b) for each amendment identified in paragraph 14.1(a), explain the reasons for the proposed amendment.	Chapter 18, section 18.4	Complete
Queuing requirements			
14.2	Provide details of the process or mechanism for order of priority for spare or developable capacity, (for example, whether it is to be as a first-come-first-served basis or by auction)	Chapter 17, section 17.4 and clause 5.5 of Part A of the Access Arrangement	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
Capacity trading requirements				
14.3	Identify the rules or procedures SP AusNet must accord with under rule 105.		Chapter 17, section 17.5 and clause 5.7 of Part A of the Access Arrangement	Complete
Extension and expansion requirements (see Rule 104)				
14.4	Provide:			
	(a)	details of any extension and expansion requirements where that extension and expansion requirement states that the access arrangement will apply to incremental services to be provided as a result of the extension or expansion;	Chapter 17, section 17.6 and clause 5.6 of Part A of the Access Arrangement	Complete
	(b)	details of the effect of the extension or expansion requirements identified in paragraph 14.4(a) on tariffs.	Clause 5.6.2 of Part A of the Access Arrangement	Complete
Change of receipt or delivery point by user				
14.5	Explain:			
	(a)	how users may obtain consent, including identifying any relevant conditions, to change receipt or delivery points as contemplated under rule 106;	Chapter 17, section 17.7 and clause 5.8 of Part A of the Access Arrangement	Complete
	(b)	where relevant, the technical or commercial considerations and other relevant conditions in the event SP AusNet intends to withhold consent to a change in a receipt or delivery point.	Chapter 17, section 17.7 and clause 5.8 of Part A of the Access Arrangement	Complete

RIN clause	Provision		Where information is provided in the regulatory proposal	Comments
15.POLICIES AND PROCEDURES				
15.1	List and provide a brief description of key internal plans, policies, procedures or strategies that are used to plan and conduct SP AusNet's day to day operations and that have been relied upon in the development of the access arrangement proposal. This includes:			
	(a)	plans, policies, procedures or strategies applicable to the management, maintenance, and planning of networks, for example - augmentation and planning, cost estimation, asset management, condition monitoring and replacement, operations and maintenance, and demand, energy supply and customer growth forecasting	Templates and RIN supporting materials	All relevant documentation has been identified and listed in the Templates.
	(b)	plans, policies, procedures or strategies applicable to investment decision making and the allocation of costs, for example - risk assessment and management, investment evaluation, prioritisation and options analysis, corporate governance and investment approval, procurement, project management, and cost allocation.	Templates and RIN supporting materials	As above.
15.2	Identify any internal plans, policies, procedures and strategies that have changed in the current access arrangement period or that will change before the next access arrangement period where the change has had a material impact on forecast expenditures for the next access arrangement period.		N/A	