



Amended Access Arrangement Information

for Envestra's
South Australian Network

24 July 2006

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Attachments

1. WorleyParsons Report on AS2885 Impact
2. Regulatory Compliance Person – Job Description (confidential)

1. INTRODUCTION

1.1. Purpose of this Document

This document is the amended Access Arrangement Information in relation to the Access Arrangement revision for the Envestra Limited ('Envestra') South Australian Network ('the Network') and is submitted by Envestra (ABN 19 078 551 685) to the Essential Services Commission of South Australia (ESCOSA) ('the Regulator') in accordance with section 2 of the Code.

The purpose of this document is to set out such information as is necessary to enable Users and Prospective Users to understand the derivation of the elements of the Access Arrangement and to form an opinion as to the compliance of the Access Arrangement revisions with the provisions of the Code.

In this Access Arrangement Information, unless the context otherwise requires, where a word or meaning is capitalised it has:

- the meaning given to that word or phrase in the Code; or
- the meaning given to that word or phrase in the glossary contained in the Access Arrangement.

1.2. Background

The current Access Arrangement was approved by SAIPAR (the South Australian Independent Pricing and Access Regulator) in April 2003. By Act number 9 of 2003, *The Statutes Amendment (Gas and Electricity) Act 2003*, ESCOSA became the Relevant Regulator for South Australia under the Code on 1 July 2003.

Unlike SAIPAR, ESCOSA has a specific statutory scheme regulating its activities, being the *Essential Services Commission Act 2002*. Section 6 of that Act sets out objectives that ESCOSA is to have regard to, in performing its functions, Part 3 of the Act outlines how ESCOSA is to carry out certain price regulation functions and Part 5 of the Act deals with collection and use of information¹. However none of these parts of the *Essential Services Commission Act 2002* apply to ESCOSA when it is acting as the Relevant Regulator.

The application of section 6 and Part 5 of the *Essential Services Commission Act 2002* is excluded by section 32 of the *Gas Pipelines Access (South Australia) Act 1997* which provides:

"Section 6 and Part 5 of the Essential Services Commission Act 2002 do not apply to the Essential Services Commission when acting as the Relevant Regulator."

Nor does Part 3 of the *Essential Services Commission Act 2002* apply. Part 3 only applies where the Commission is making a price determination as authorized by a relevant industry regulation Act (or where authorized by a regulation under the *Essential Services Commission Act 2002*).

A relevant industry regulation Act is defined as *"another Act by which a regulated industry is declared for the purposes of this Act."* There is no such declaration in the *Gas Pipelines Access (South Australia) Act 1997*. It is therefore not a relevant industry regulation Act.

¹ Other parts of the Act deal with administration matters, development of industry codes and rules, appeals and public inquiries. These parts of the Act are clearly not relevant to the exercise of ESCOSA's powers under the Access Code.

Consequently, the powers and functions of ESCOSA in performing its statutory obligations under the Code are identical to those formerly possessed by SAIPAR.

On the 28 March 2006, ESCOSA released a Draft Decision which rejected elements of Envestra's revisions to the Access Arrangement. Following submissions by Envestra and other parties, ESCOSA released a Final Decision on 30 June 2006 which again rejected elements of Envestra's revisions to the Access Arrangement. Consequently Envestra is required to amend the proposed Access Arrangement and submit that amended Access Arrangement to ESCOSA for a further final decision.

1.3. The Network

The main centres served by the Network are Adelaide, Mt Gambier, Whyalla, Pt Pirie, Barossa Valley, Murray Bridge and Berri. Maps outlining the areas covered by the Network are available from Envestra's website "www.envestra.com.au". Statistics and further information relating to the Network are included in sections 16 and 17 of this Access Arrangement Information.

1.4. Interpretation

Terms used in this Access Arrangement Information have the same meaning as they have in the Access Arrangement (see clause 2 of the Access Arrangement).

Monetary values shown in tables are in nominal dollars unless indicated otherwise.

It should be noted that numerical values in tables may not add due to arithmetic rounding.

1.5. Contact Details

The contact person for further details in relation to this Access Arrangement Information and the Access Arrangement to which it relates is:

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2. SUMMARY AND OVERVIEW

2.1. Summary

Envestra submits this Access Arrangement Information under section 2.28 of the Code and believes that it meets the requirements of sections 2.6 and 2.7 of the Code.

Section 2.6 requires the Access Arrangement Information to contain such information as in the opinion of the Regulator would enable Users and Prospective Users to understand the derivation of the elements in the proposed Access Arrangement and to form an opinion as to the compliance of the Access Arrangement with the provisions of the Code.

Envestra believes it has provided sufficient information to allow Users and Prospective Users to understand both the derivation of elements of the Access Arrangement and how it complies with the Code. Envestra therefore believes that it meets section 2.6 of the Code.

The revisions to Envestra's Access Arrangement reflect an examination of the experience gained by Envestra of the way in which the Code applies to Envestra's assets and takes account of ESCOSA's Final Decision released on 30 June 2006.

Envestra engaged WorleyParsons to conduct a benchmarking study examining the performance of the business relative to other natural gas distribution businesses. The results concluded that Envestra's current Non-Capital Costs are within a reasonable range, while New Facilities Investment is currently below a reasonable range, with a degree of catch-up required in this area. WorleyParsons conclude that the forecasts provided in this submission are those that would be incurred by a prudent Service Provider, acting efficiently, in accordance with accepted and good industry practice, to achieve the lowest sustainable cost of delivering Reference Services.

2.2. Outcome of First Access Arrangement Period

There are two important points to be drawn from Envestra's revenue and expenditure over the First Access Arrangement Period:

- Envestra's actual revenue over the first Access Arrangement period has been less than that envisaged by SAIPAR; and
- Envestra has spent what it needed to spend, despite the building block approvals it received from SAIPAR in 2002. This has been demonstrated by actual capital and non-capital costs exceeding the Access Arrangement forecast amounts by around \$22m over the period. It is noted, however, that this position is not indefinitely sustainable.

The Access Arrangement approved by SAIPAR in April 2003 set out the tariffs, policies and terms and conditions to apply to third party access to the Network for the period 2001/02 to 2005/06. However, the proposed Access Arrangement originally submitted by Envestra in February 1999, was only intended to cover the 5-year period from 1999/00 to 2003/04. Due to the Access Arrangement approval process being much longer than originally anticipated, it became necessary to extrapolate the forecasts (during the approval process) to cover the period up to 2005/06.

A comparative overview of forecast versus actual outcomes for the First Access Arrangement Period is contained in Envestra's original Access Arrangement Information document submitted on 30 September 2005.

Envestra sought advice from WorleyParsons, engineering consultants with expertise in the gas industry, to provide an assessment of Envestra's current costs, which have been influenced by the parameters under which

Envestra has had to operate during the First Access Arrangement Period. Following an extensive review of Envestra's operations associated with the Network, WorleyParsons concluded that Envestra's capital costs are low compared with other gas distribution businesses. WorleyParsons has also concluded that Envestra has been operating the Network in an efficient and prudent manner.

Envestra's operations are also subject to annual auditing by the Office of the Technical Regulator, with a view to ensuring that the Network is appropriately maintained, and that Envestra adheres to internal and external standards. Those audits also confirm that Envestra has been operating the Network appropriately and in accordance with the numerous regulatory and industry standards.

2.3. Proposed Tariffs for Second Access Arrangement Period

Envestra is proposing:

- to retain the number and structure of its Reference Tariffs at the commencement of the Second Access Arrangement period;
- to reduce the number of tariff Zones in the Adelaide Region from four to three, as one of the Zones has only one customer;
- annual real increases in Reference Tariffs for each year of the Second Access Arrangement Period. The X factor (to be used in the CPI-X formula) is -0.0573 (i.e. 5.73%).

The increases in network tariffs are required to recover the prudent costs of operating the Network. Maintaining Past Service Levels

Envestra:

- provides a high quality distribution service, with:
 - less than 15 complaints referred to Envestra by the Ombudsman in 2004/05 where there were issues with quality of service. Furthermore, the issues were generally of a minor nature (dirt left behind after a job, damaged storm water pipe, etc) and in many cases the customer had not first made contact with Envestra to rectify the issue; and
 - a very low number of gas outages – network operations resulted in only 5 incidents of unplanned loss of gas supply to consumers in 2004/05. The rapid response to network problems that is required for safety reasons also ensures that impacts on consumers are minimised.
- reports to the Regulator on service quality in relation to gas outages and promptness of customer connections on a quarterly basis, and other parameters (including customer complaints) on an annual basis to the Regulator and to the Office of the Technical Regulator;
- joined the ombudsman scheme operated by the Energy Industry Ombudsman of South Australia in November 2003. This additional and independent avenue for the lodgement of complaints by consumers provides a valuable source of information concerning service levels and the performance of Envestra and energy retailers with respect to customer service; and
- intends to maintain its current service levels to customers over the Second Access Arrangement Period.

Envestra arranges an independent technical audit of various aspects of its operations on an annual basis, the results of which are provided to the Office of the Technical Regulator. In addition, the Office of the Technical Regulator also conducts a thorough technical audit of Envestra's operations annually. Those audits confirm that the Network is operated and managed safely, appropriately and in accordance with relevant standards and good industry practice.

3. REGULATORY FRAMEWORK

3.1. Introduction

This section provides a brief overview of the regulatory environment in which Envestra is submitting revisions to its Access Arrangement, in order to provide Users and Prospective Users with an understanding of the Access Arrangement revisions process under the Code.

3.2. Revisions Process under the Gas Code

Code Provisions

The revisions to Envestra's Access Arrangement are submitted pursuant to section 2.28 of the Code. That section provides that by the date provided for in the Access Arrangement, the Service Provider must *"submit to the Relevant Regulator proposed revisions to the Access Arrangement together with the applicable Access Arrangement Information."*

Under section 2.29 of the Code, the Access Arrangement as revised by the proposed revisions may *"include any relevant matter but must include at least the elements described in sections 3.1 to 3.20."*

Under section 2.46 of the Code, the Relevant Regulator:

- (a) is only entitled to approve revisions to an Access Arrangement if satisfied the revised Access Arrangement will contain the elements and satisfy the principles set out in sections 3.1 to 3.20; and
- (b) must not refuse to approve proposed revisions *"solely for the reason that the Access Arrangement as revised would not address a matter that sections 3.1 to 3.20 do not require an Access Arrangement to address."*

Section 2.46 then provides that in assessing proposed revisions to an Access Arrangement, *"the Relevant Regulator:*

- (a) *must take into account the factors described in section 2.24; and*
- (b) *must take into account the provisions of the Access Arrangement."*

That is, three fundamental principles emerge from clause 2.46:

- (i) a revised Access Arrangement must contain the elements and satisfy the principles set out in sections 3.1 to 3.20 but that failure to address additional matters is not grounds for rejection of a revised Access Arrangement;
- (ii) the Regulator's discretion to accept or reject revisions to an Access Arrangement is to be exercised taking into account the factors in section 2.24; and
- (iii) in assessing the revisions to an Access Arrangement, the Regulator must take into account the provisions of the existing Access Arrangement.

4. TOTAL REVENUE FORMULA

In accordance with section 8.4 of the Code, Envestra has adopted a Cost of Service approach in the calculation of the Total Revenue requirement. The Total Revenue requirement is made up of revenue from the provision of Reference Services and Non-Reference Services.

Reference Services revenue consists of:

- Haulage Reference Services revenue – this revenue requirement comprises a return on Network assets attributable to the provision of Demand, Commercial and Domestic Haulage Reference Services, depreciation on those assets, plus associated Non-Capital Costs;
- Ancillary Reference Services revenue – this revenue comprised the forecast revenue for each of the Ancillary Reference Services, based on
 - the forecast demand for each Service; and
 - the proposed tariff for each Service. The tariff for each service is based on the cost of providing the service. (It is proposed that the current tariffs roll forward.)

The Total Revenue Requirement (TR) is established using the formula below:

$$TR = (AV * WACC) + D + NC + E$$

where

AV = average Capital Base value

WACC = weighted average cost of capital

D = depreciation

NC = Non-Capital costs

E = efficiency carry-over

The revenue attributable to Ancillary Reference Services is then deducted from the Total Revenue Requirement in order to derive the revenue to be obtained from haulage Services.

The Total Revenue Requirement is calculated using:

- a Capital Base of \$838.39 as at 1 July 2006, adjusted each year for:
 - forecast New Facilities Investment (see section 7 of this Access Arrangement Information)
 - depreciation calculated on a straight-line basis (section 6)
 - forecast disposals (section 5.5)
 - inflation (Section 8.1)
- a real pre-tax rate of return of 7.30% (section 8.1)
- Non-Capital Costs (section 9)
- efficiency carryover (section 10).

Each of these matters is discussed in more detail in the referenced sections.

5. CAPITAL BASE

The approach for rolling forward the Capital Base is based on the following formula:

$$\begin{aligned} & \text{Opening Asset Value}_i \\ & + \text{Escalation}_i \\ & + \text{New Facilities Investment}_i \\ & - \text{Customer Contributions}_i \\ & - \text{Asset Disposals}_i \\ & - \text{Depreciation}_i \\ & = \text{Closing Asset Value}_i \end{aligned}$$

where:

All values are expressed in nominal terms

$\text{Escalation}_i = \text{inflation}_i \times \text{Opening Asset Value}_i$

Depreciation is expressed in current cost terms and calculated on a straight-line basis over the economic useful life of the asset.

The inputs used by Envestra to roll forward the Capital Base are described below.

5.1. Initial Capital Base

SAIPAR determined that the Initial Capital Base as at 30 June 1998 was \$617m². The roll-forward of the initial capital base to the commencement of the first Access Arrangement period (1 July 2003) is \$760.77m, as shown in the following table.

Capital Base \$m (nominal)	1998/99	1999/00	2000/01	2001/02	2002/03
Opening Asset Value	617.0	639.4	661.3	709.6	732.5
add Net Capital Expenditure	21.5	23.4	21.4	19.7	20.4
less Depreciation	12.3	12.8	13.6	14.7	15.6
add Inflation	13.2	11.2	40.5	17.9	23.5
Closing	639.4	661.3	709.6	732.5	760.8
Average Asset Value (\$m Dec 05)	771.9	784.0	795.0	802.3	807.6

Table 1 Opening Asset Base

5.2. New Facilities Investment over the First Access Arrangement Period

Gross New Facilities Investment over the First Access Arrangement Period is set out in the following table. Actual expenditure is provided for 2003/04 to 2004/05. New Facilities Investment for 2005/06 is set at a forecast prepared by the Commission based on Envestra's actual expenditure up until April 2006. Also shown is the value of customer contributions, with the forecast for 2005/06 being based on Envestra's latest information. Envestra believes that the forecast is reasonable and that it meets the requirements of the Code, i.e. that the forecast represents best estimates arrived at on a reasonable basis.

² p12, SAIPAR Final Approval of Access Arrangement for Envestra Limited's SA Natural Gas Distribution System, April 2003

The net New Facilities Investment is derived by subtracting the customer contributions from the Gross New Facilities Investment.

Net New Facilities Investment \$m (nominal)	2003/04	2004/05	2005/06f
Gross New Facilities Investment	20.9	20.9	26.1
Less: Customer Contributions	(0.5)	(0.3)	(0.4)
Net New Facilities Investment \$m (nominal)	20.4	20.6	25.7
Net New Facilities Investment \$m (31 Dec 2005)	21.3	21.1	25.7

Table 2 Net New Facilities Investment 2003/04- 2005/06

It is proposed that any difference between actual expenditure and forecast expenditure in 2005/06 be taken into consideration in setting the Capital Base at the commencement of the Third Access Arrangement Period.

For example, if actual expenditure in 2005/06 exceeds forecast expenditure by \$1m, then the equivalent of \$1m inflated annually would be added to the Capital Base on 30 June 2011.

A breakdown of the New Facilities Investment over the First Access Arrangement Period is shown in the following table.

New Facilities Investment \$m (nominal) (excluding FRC)	2003/04	2004/05	2005/06f
Mains	6.3	8.1	11.7
Inlets	6.0	6.8	6.6
Meters	4.4	4.0	7.1
SCADA	0.0	0.2	0.0
IT Systems	0.1	0.7	0.0
Other Distribution System Equipment	0.1	0.1	0.0
Other	3.6	0.7	0.3
New Facilities Investment \$m (nominal)	20.4	20.6	25.7
New Facilities Investment \$m (31 Dec 2005)	21.3	21.1	25.7

Table 3 Net New Facilities Investment 2003/04- 2005/06

In the latter half of the First Access Arrangement Period, Envestra spent considerable New Facilities Investment (and Non-Capital Costs) implementing FRC. Envestra subsequently received compensation for this cost from the South Australian government in the form of a lump sum payment in lieu of the revenue that Envestra would otherwise have had to recover from Users. Because Envestra was not required to adjust its revenue base in the First Access Arrangement Period for FRC, the New Facilities Investment associated with the government contribution has been excluded from the Regulatory Asset Base. The depreciated FRC New Facilities Investment not associated with the government contribution (i.e. FRC telemetry) has been added to the Regulatory Asset Base as at the start of the Second Access Arrangement Period.

Envestra submits that all of the New Facilities Investment undertaken or proposed to be undertaken during the First Access Arrangement Period meets the requirements of the Code. Envestra has commercial incentives to ensure that expenditure it undertakes is prudent, and more particularly has clear incentives to:

- minimise expenditure – under a price cap regime, lower expenditure implies higher returns, which means that a Service Provider is discouraged from “gold plating” or unnecessary expenditure;
- require a customer contribution where a project would be uneconomic –as a Service Provider is permitted to require a customer contribution for that part of capital expenditure that does not pass the Economic Feasibility Test, it is possible to infer that the remaining expenditure passes the Economic Feasibility Test, and can be included in the Capital Base. Envestra has been rigorous in its application of the Economic Feasibility Test, individually assessing each investment.

Accordingly, Envestra submits that the New Facilities Investment in the First Access Arrangement Period has satisfied the requirements of the Access Code (section 8.16) and should therefore be rolled in to the Asset Base. This is consistent with the approach adopted by the Essential Services Commission of Victoria, which stated in its 2002 Final Decision for Victorian gas distributors:

“Regarding capital expenditure, the Commission noted that it remained of the view that the most effective means of ensuring that the distributors’ capital expenditure meets the requirements of the Gas Code is to provide the distributors with the commercial incentives to achieve this outcome, which existed over the first regulatory period. Accordingly, the Commission concluded that it was appropriate for the distributors to include in their regulatory asset bases their actual capital expenditure”³.

It is also noted that the ACCC endorses the inclusion of actual capital expenditure in the regulatory asset base in its Statement of Principles for the Regulation of Transmission Revenues.

The above supports Envestra’s view that New Facilities Investment undertaken in the First Access Arrangement Period should be rolled in to the Capital Base. Where New Facilities Investment is yet to be undertaken (i.e. in 2005/06), Envestra has used best estimates arrived at on a reasonable basis.

5.3. Regulatory Depreciation over the First Access Arrangement Period

Regulatory depreciation over the First Access Arrangement Period has been set equal to the depreciation approved by SAIPAR (adjusted for actual inflation) and is as shown in the following table.

Depreciation \$m (nominal)	2003/04	2004/05	2005/06	TOTAL
SAIPAR Depreciation	16.5	17.2	17.9	51.6

Table 4 Regulatory Depreciation 2003/04- 2005/06

5.4. Redundant Capital

Detailed consideration was given to the issue of redundant assets during the 2002 review of gas distributors’ access arrangements in Victoria. It was concluded by the ESCV in that instance that “there are likely to be

³ p133, ESC Final Decision for the Review of Gas Access Arrangements (2002)

substantial benefits to both customers and distributors from a policy of minimising the risk to distributors associated with recovering the regulatory value of their assets" (p153 Final Decision) and consequently the ESCV undertook not to identify or remove redundant assets.

It is also noted that the above approach has been supported by the Western Australian regulator in the recent Final Decision for Alinta Gas Networks⁴.

As for the First Access Arrangement Period, Envestra is not forecasting any Redundant Capital for the Second Access Arrangement Period.

In accordance with the Final Decision, no adjustments have been made for any Redundant Capital.

5.5. Disposals

Envestra has few assets that do not form part of the gas distribution system. No disposals of assets have taken place to-date during the First Access Arrangement Period and no disposal of any material value is planned for the remainder of the First Access Arrangement Period, or for the Second Access Arrangement Period.

5.6. Inflation

For the purposes of rolling forward the regulatory asset base, Envestra has used the "actual percentage change in the CPI" as required under section 3.3.3.2 of the approved Access Arrangement. The Consumer Price Index is defined in the Access Arrangement as the "All Groups Weighted Average for the Eight Capital Cities, as published by the Australian Bureau of Statistics or its successor".

5.7. Opening Asset Values as at 1 July 2006

Using the inputs outlined above, the Initial Capital Base has been rolled forward to 1 July 2006 as follows:

Capital Base \$m (nominal)	2003/04	2004/05	2005/06
Opening Asset Value	760.8	784.4	806.1
add Net Capital Expenditure	20.4	20.6	25.7
less Depreciation	16.5	17.2	17.9
add Inflation	19.8	18.2	24.5
Closing	784.4	806.1	838.4
Average Asset Value (\$m Dec 05)	812.2	816.0	821.6

Table 5 Roll forward of the Capital Base 2003/04- 2005/06

⁴ paragraph 270, p51, Final Decision on the Proposed Revisions to the Access Arrangement for the Mid-West and South-West Gas Distribution Systems, Economic Regulation Authority, 12 July 2005

6. FORECAST DEPRECIATION

Envestra has used a straight-line approach to depreciation based on the asset lives adopted in deriving the Initial Capital Base. This is consistent with the requirements of the Code.

In particular, the straight-line approach ensures that:

- depreciation is allocated over the entire useful lives of the Network assets; and
- depreciation is consistent with the stable growth in demand that is forecast to occur over the Access Arrangement Period.

The straight-line approach also has the advantage of being:

- readily understandable;
- transparent; and
- easily capable of being replicated on an ongoing basis.

Envestra notes that the straight-line approach to depreciation has also been adopted by other regulated gas businesses and has been accepted by regulators throughout Australia.

The economic useful life (EUL) of each asset type is shown in the following table. For purposes of consistency, Envestra is using the asset lives as approved by SAIPAR for the First Access Arrangement Period.

Asset Categories	EUL (years)
Mains and Inlets	83
Meters	29
SCADA	50
Other Distribution Equipment	50
IT Systems	5
Other	10
FRC Telemetry	5
Equipment, Vehicle & Other	10

Table 6 Asset Lives (years) for Network Assets

6.1. Forecast Depreciation by Category

The following table shows the calculated depreciation over the Second Access Arrangement Period for each category of asset.

Total Depreciation \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
Mains and Inlets	9.2	9.8	10.4	10.9	11.5
Meters	3.2	3.6	4.0	4.4	4.8
Telemetry	0.0	0.1	0.1	0.1	0.1
IT Systems	0.7	1.4	2.6	3.3	3.3
Other Distribution Equipment	6.6	6.8	7.0	7.1	7.3
Other Assets	1.3	1.4	1.5	1.6	1.7
FRC Depreciation	0.4	0.4	0.4	0.1	0.1
Total \$m (nominal)	21.5	23.5	25.9	27.5	28.9
Total Depreciation \$m (31 Dec 2005)	20.8	22.2	23.9	24.8	25.4

Table 7 Forecast Depreciation

6.2. Code Compliance

Envestra's use of a straight-line approach to depreciation is consistent with the requirements of the Access Code. The asset lives adopted in deriving the Initial Capital Base are consistent with those used for the First Access Arrangement Period and were approved by SAIPAR.

7. NEW FACILITIES INVESTMENT

7.1. Summary

New Facilities Investment forecast to occur within the Second Access Arrangement Period is based on the forecast level of capital expenditure necessary to allow Envestra to meet the forecast growth in demand for Services, to meet system augmentation and replacement requirements and to generally deliver the Services.

Envestra's Asset Management Plan describes how Envestra maintains and operates the gas distribution system, and how it plans for future growth and expansion. This comprehensive document has been reviewed by WorleyParsons who have confirmed that the way Envestra operates and plans to operate its assets is of an appropriate standard, in keeping with good industry practice. The Asset Management Plan has also been submitted to the Office of the Technical Regulator.

New Facilities Investment for the Second Access Arrangement Period has been forecast as set out in the table below (and as set out in the Final Decision). Further detail is provided in sections 7.2 and 7.3.

Total New Facilities Investment \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
Mains	20.4	22.0	14.8	19.2	17.0
Inlets	7.6	8.2	7.9	8.9	9.4
Meters	8.3	8.3	8.6	8.8	8.6
Telemetry	1.3	1.3	0.7	1.2	0.8
IT Systems	3.7	4.4	7.2	0.0	3.5
Other Distribution System Equipment	1.4	1.4	0.8	0.8	0.8
Other	0.5	0.9	0.6	0.6	0.6
Net Capex	43.2	46.5	40.5	39.4	40.8
Net Capex (\$Dec 2005)	42.0	44.0	37.4	35.5	35.9

Table 8 Forecast New Facilities Investment

Where the above forecasts are dependent upon forecasts of gas demand and number of customers, the forecast expenditure is based on Envestra's demand forecasts for the Access Arrangement Period as contained in section 17 of this document.

As explained in the following sections, New Facilities Investment in the Second Access Arrangement Period is materially higher than in the First Access Arrangement Period. This is predominantly due to:

- Increased replacement of aging cast iron and unprotected steel mains;
- Security of supply projects that will provide consumers with a much higher degree of reliability of gas supply;
- Increased meter replacements, which will peak at about 36,000 per year in the next period, compared with about 24,000 in 2004/05; and
- Increased IT expenditure that will provide Envestra with a robust, long-term IT capability for the business.

7.2. Stay in Business Capital Expenditure

Mains Replacement

This category provides for the replacement of gas mains and inlet services on a planned basis. In the absence of mains replacement, the annual volume of UAFG will trend upwards as a result of deterioration in the condition of cast iron and unprotected steel mains.

A certain critical length of cast iron and unprotected steel must be replaced annually in order to offset the effect of this deterioration. If this critical length is not replaced the annual volume of UAFG will rise. If a greater length is replaced, the annual volume of UAFG will fall. It is difficult to assess this critical length because it depends upon many factors including the total length and overall condition of cast iron and unprotected steel mains within the Network. Further, UAFG volume cannot be measured directly, but is assessed in arrears, and is also affected by other factors.

Prior to the First Access Arrangement Period, Envestra had been replacing up to 200km/year under its Accelerated Mains Replacement Program. This established a downward trend in UAFG volume. As a result, Envestra reduced the length of mains replaced to around 50km in 02/03. Subsequently, UAFG volumes began to rise. Envestra then increased the length of mains replaced to around 60 km/year in 04/05. Envestra anticipates that replacement of about 75km per year is required to maintain existing UAFG volumes. However, it would be prudent to increase the length of mains replaced to 100 km/yr through the Second Access Arrangement Period, in the expectation that this will reduce rather than maintain UAFG volumes.

The prudence of undertaking the proposed level of replacement is underpinned by economic analysis. Before Envestra undertakes a mains replacement programme, it assesses a number of factors pertinent to the ability of the gas mains to continue to provide adequate service. Such factors include leak history and the age, condition and material type of the main concerned. Economic analysis is then used to compare the cost of replacing mains with the forecast cost of

- (a) continuing to repair leaks as they arise;
- (b) gas lost from leakage; and
- (c) ancillary tasks, such as attending to water ingress problems.

Where economic analysis indicates it is more prudent to replace a main, it is prioritised and scheduled for replacement, taking into account manpower/contractor resources and network planning considerations. All of the mains replacement forecast for the Second Access Arrangement Period passes Envestra's economic test for replacement.

The Network has one of the highest percentages of cast iron and unprotected steel mains in comparison to other networks in Australia. If the proposed rate of replacement is maintained, all cast iron pipe in the Network would be eliminated by the year 2023.

As explained above, the level of mains replacement is materially higher than the level undertaken in the First Access Arrangement Period, meaning that the associated cost for this activity is materially higher.

In accordance with the Final Decision, the forecast for mains replacement over the Access Arrangement Period does not include the renewal of mains in the CBD of Adelaide. However, the Access Arrangement provides for Envestra to apply for a cost pass-through in relation to this project upon the Regulator receiving confirmation that

Envestra will be proceeding with this project. The relevant trigger mechanism to accomplish this is contained in section 4.5 of the Access Arrangement.

Meter Changes

Envestra is required to periodically change gas meters in order to test them for metering accuracy. These periodical meter changes (PMCs) take place at intervals approved by the Technical Regulator. A continuous changeover and testing programme is in place to ensure that each gas meter continues to operate within prescribed tolerances.

About 24,000 meters were changed over in 2004/05. As set out in Envestra Asset Management Plan, this figure will reach 36,000/yr in the forecast period. The numbers are reflective of the age and types of meters in service. Due to the higher number of PMCs in the Second Access Arrangement Period, PMCs account for a correspondingly higher cost compared to the PMC cost for the First Access Arrangement Period.

In accordance with its Gas Measurement Management Plan, Envestra re-uses meters to the extent possible. Where meters cannot be repaired, they are replaced with new meters. The Office of the Technical Regulator undertakes audits of Envestra's activities, including its meter testing and refurbishment activities and processes.

Security of Supply

Gas networks are continually reviewed to ensure that the risk of gas outages are minimised, and that in the event a gas outage occurs, that the impact of any outage is minimised. The forecasts allow for reinforcement of those sections of the Network that are vulnerable to gas supply problems, as well as improvements to reduce the likelihood of outages occurring. A comprehensive plan has been compiled that will deliver a high level of reliability, consistent with good industry practice and with the expectations of consumers.

Envestra's Asset Management Plan provides details of the process undertaken that underpins the security of supply projects. A significant part of this plan entails the completion of the Eastern Ring Main (\$14.2m), reinforcement of supply to the northern Gawler region (\$7.4m) and completion of the Southern Loop (\$7.3m) that will ensure security of supply to the growing southern suburbs. It is noted, however, that, in accordance with the Final Decision, the Eastern Ring Main and the Southern Loop are not included in the forecasts for the Access Arrangement Period. Instead Envestra may apply for a pass-through of costs in relation to these projects when the Regulator receives confirmation that Envestra will be proceeding with these projects. The relevant trigger mechanism to accomplish this is contained in section 4.5 of the Access Arrangement.

The Adelaide network is elongated in nature due to its geography, with four gate stations clustered at the northern end of the network. This means that the network is unusually susceptible to supply problems in the central and southern areas of the network in the event of unforeseen damage to key transmission mains. The above projects will assist in minimising the possibility of interruptions to gas supply by providing looping of key mains, consistent with good industry practice.

Envestra has undertaken relatively little expenditure on such projects in recent years, and while the Network has been fortunate in not enduring significant incidents of disruption to supply, good industry practice dictates that risks of outages be minimised.

SCADA

Gas distributors rely on SCADA (Supervisory Control and Data Acquisition) systems for real-time monitoring of network conditions and for the remote control of gas flow and pressures to optimise system performance and

maximise safety. Envestra's SCADA system has relatively few features of a modern SCADA system, with a limited number of real-time pressure monitoring installations.

In addition, unlike its counterparts in other jurisdictions, Envestra's network has no remote control capability. In order to comply with good industry practice in this regard, Envestra's New Facility Investment forecast provides for the installation of

- remote control devices on key valves and installations, such that the emergency isolation of network sections is possible should the need arise; and
- pressure monitoring at key points throughout the network, so that routine and emergency planning capability is enhanced.

Regulator Stations and Valves

This category provides for on-going replacement and improvement of regulator stations and valve pits across the Network. There are over 350 district regulators and approximately 80 transmission regulator stations. Deterioration of underground pits over the years, coupled with current OH&S requirements, means that the physical nature of some installations is not consistent with current standards. In addition, the design configuration of some installations is outdated. The expenditure includes allowances for such stations to be upgraded in accordance with current design standards, such as twin stream active-monitor setups with over-pressure protection.

Information Technology

The introduction of FRC has seen Envestra expend considerable resources in the development and installation of IT systems to satisfy FRC requirements. Envestra has now turned its attention to developing a strategy to drive increased business performance from its suite of IT investments and to ensure that its IT program provides a robust, cost effective and service-oriented capability into the long term.

Due to the critical nature of IT and the significant costs involved in this area of the business, Envestra engaged IBM to develop and cost such a strategy. IBM identified a number of issues that needed to be addressed for Envestra to close key capability gaps. These issues and the associated IT programmes to address them are detailed in a report to Envestra titled "Envestra IT Strategy Planning (1 April 2005)". In developing the strategy, IBM conducted a thorough review of Envestra's IT requirements and took into consideration industry standards and practice (both in Australia and New Zealand) to ensure that the outcomes were prudent and efficient and in accordance with what would be expected of a utility business like Envestra's.

The IT forecasts in this section, which are as recommended by IBM, allow for the replacement and upgrade of current IT systems to enable continuation of the current service delivery of those systems.

While some aspects of the forecast expenditure represent a continuation of IT programmes undertaken during the First Access Arrangement Period, other aspects as described above relate to initiatives that will address capability gaps.

Other

This category includes:

- Odourising stations
Envestra ensures that natural gas entering the network is adequately odourised for safety reasons.

Envestra operates 14 odouring stations, which vary in design and capability. It is essential that odouring stations continue to operate safely and effectively on a 24/7 basis. The capital expenditure over the Second Access Arrangement Period will ensure that adequate spare parts and back-up systems are available should a malfunction occur at any of the odouring stations.

- Heating value measurement

Envestra has a responsibility to ensure that the heating value of natural gas (that is the basis on which customers are charged for gas consumption) is accurate and in accordance with regulatory requirements. The connection of the SEAGas pipeline to the Network has complicated the measurement of heating value, and the installation of additional monitoring equipment in the Second Access Arrangement Period will allow for a greater degree of confidence in consumer billing accuracy.

- Cathodic protection systems

Cathodic protection is an integral element of any network that utilises steel pipework. The forecast allows for replacement of cathodic protection transformer rectifier units that are necessary for the on-going operation of the cathodic protection system.

7.3. Growth Capital Expenditure

Mains/Inlets/Meters

This category provides for:

- growth of the network (mains) for the provision of Services to new Delivery Points. New mains (or mains extensions) range from large projects undertaken in order to provide gas to new housing estates, to small mains extensions in existing gas areas in order to connect a new customer. New large (Demand) customers sometimes also require significant mains extensions. Such extensions are evaluated on a case-by-case basis and in accordance with the Code, taking into consideration the forecast load demand for the customer.
- Inlets associated with growth of the network - the inlet service is the pipework that runs from the gas main to the gas meter. These can vary in length and size depending on the gas demand of the customer. The cost per service is also affected by the terrain and environmental characteristics of the site being connected, e.g. it is easier and cheaper to connect gas to a new home than to an existing home or to an existing building in the CBD;
- Meters associated with growth of the network - the cost associated with gas meters includes the cost of installation of the meter box, meter and gas regulator, and the subsequent commissioning that ensures that gas is supplied in a safe manner in accordance with Envestra's obligations as a gas distributor;
- Mains and associated facilities that are constructed on a routine basis to improve security of supply to consumers.

Extensions to Towns

The last major extension of the gas distribution infrastructure occurred in 1994 when gas was delivered to Murray Bridge and Berri. In preparing this Access Arrangement revision, Envestra reviewed population and development trends in areas adjacent to the Network to determine if there were any new extensions that would satisfy the criteria set out in section 8.16 of the Code. Envestra identified seven towns that it believed may be suitable for network extensions. These included Mt Barker (one of the fastest growing towns in Australia), McLaren Vale, Monarto, Tanunda, Renmark, Loxton and Waikerie.

Based on detailed economic analysis, Envestra determined that extensions to McLaren Vale, Tanunda and the Monarto Industrial Estate would pass the economic feasibility test in the Code. Envestra therefore has allowed for an extension of its network to these three towns in the Second Access Arrangement Period. Over the next 20 years, Envestra expects to connect around 2,250 new customers in these three towns to its network. The gas demand forecast and New Facilities Investment forecast for these towns have been included in this submission.

No such extensions were undertaken during the First Access Arrangement Period. Consequently, the forecast expenditure in this category represents a material change to the New Facilities Investment undertaken during the First Access Arrangement Period.

Other

A small amount of expenditure is required to enable Envestra to remove sub-meters from domestic premises. Such meters were historically installed as an economical means of connecting additional consumers. This practice is no longer undertaken and the expenditure allows for rectification of those connections.

An allowance has also been made for the additional cost that is expected to be incurred from increased use of high flow capacity meters on new connections, which are becoming increasingly necessary due to the needs of modern gas appliances.

8. COST OF CAPITAL

8.1. Envestra Approach

The regulatory rate of return, cost of capital or weighted average cost of capital ('WACC'), is a key input to the revenue determination. Envestra has used the CAPM formula as a basis for estimating WACC.

Envestra has elected to use a real pre-tax WACC formulation for regulatory rate of return. Envestra notes that the real pre-tax WACC methodology was also used by SAIPAR in the 2003 Final Decision and by ESOCSA in the 2005-2010 Electricity Price Determination. This methodology is therefore consistent with generally accepted industry practice. Envestra also believes that it is important for consistent practice to be applied throughout the energy industry in South Australia, i.e. the methodology applied in relation to electricity should also apply to gas.

Envestra has calculated the real pre-tax rate WACC from the nominal post-tax WACC formula below:

$$\text{WACC (nominal, post-tax)} = R_e \cdot \frac{E}{V} \cdot \frac{1 - t_c}{(1 - t_c(1 - \gamma))} + R_d \cdot \frac{D}{V} \cdot (1 - t_c)$$

Where:

R_e	Risk adjusted post-tax cost of equity required by investors derived from the CAPM
E	The benchmark level of equity expressed as a percentage
D	The benchmark level of debt expressed as a percentage
V	Sum of assumed debt level plus assumed equity level ($V = D + E$)
γ	Value of imputation credits
t_c	Statutory corporate tax rate
R_f	The nominal risk-free rate of return
D_m	Debt risk margin
R_d	Cost of debt ($R_f + D_m$)

The forward transformation methodology has been used to convert the post-tax nominal WACC to a pre-tax real WACC as set out below.

Step 1: convert the nominal post-tax rate of return ($\text{WACC}_{\text{nominal post-tax}}$) into a nominal pre-tax rate by dividing by the tax rate to get:

$$\text{WACC}_{\text{nominal pre-tax}} = \frac{\text{WACC}_{\text{nominal post-tax}}}{(1 - t_c)}$$

Step 2: convert the nominal pre-tax rate of return ($\text{WACC}_{\text{nominal pre-tax}}$) into a real pre-tax rate ($\text{WACC}_{\text{real pre-tax}}$) by dividing by the inflation rate (π) using the Fisher equation to get:

$$WACC_{real\ pre-tax} = \left(\frac{1 + WACC_{nominal\ pre-tax}}{(1 + \pi)} \right) - 1$$

This approach is consistent with that used previously by SAIPAR.

Implementation of Envestra's approach to forecasting WACC requires definition of ranges for the following critical parameters

- risk free rate;
- capital structure;
- cost of equity, calculated by the Capital Asset Pricing Model;
- cost of debt;
- gamma; and
- equity beta.

These ranges were defined having regard to extensive research that exists pertaining to the estimation of WACC parameters. The range of values for each WACC parameter is summarised in the following table. Details concerning the approach and assumptions used in deriving these ranges of parameters are provided in Attachment 1 to this document.

WACC Parameters	Value Range	
	High	Low
Risk Free Rate (nominal)	5.75%	5.75%
Risk Free Rate (real)	2.49%	2.49%
Debt Margin	1.42%	1.32%
Market Risk Premium	7.00%	5.00%
Equity Beta (β)	1.10	0.90
Gamma (γ)	0.00	0.35
Tax Rate	30.00%	30.00%
Forecast Inflation (π)	3.17%	3.17%
Real Pre-Tax WACC	8.67%	6.04%
Real Pre-Tax WACC	7.30%	

Table 9 WACC Parameters

On the basis of this analysis Envestra proposes a real pre-tax WACC of 7.3% for the Network. The analysis indicates a range for real pre-tax WACC of between 8.67% and 6.04%. Envestra has elected to use an estimate of WACC of 7.3% as the rate of return for determining revenue, being the estimate that falls within the 50th and 75th percentile of plausible ranges of WACC identified by Envestra. It is consistent with the 7.1% approved by ESCOSA for ETSA Utilities in 2005,

recognising the higher risk profile of a gas distribution business compared to an electricity business. A return of 7.3% is therefore consistent with the prevailing conditions for funds in the South Australian energy market, and the risk involved in delivering the Reference Service. Envestra believes this rate of return is sufficient to enable Envestra to continue to invest in the Covered Pipeline.

8.2. Code Compliance

In respect of Rate of Return clauses 8.30 and 8.31 of the Access Code provide:

"8.30 The Rate of Return used in determining a Reference Tariff should provide a return which is commensurate with prevailing conditions in the market for funds and the risk involved in delivering the Reference Service (as reflected in the terms and conditions on which the Reference Service is offered and any other risk associated with delivering the Reference Service).

8.31 By way of example, the Rate of Return may be set on the basis of a weighted average of the return applicable to each source of funds (equity, debt and any other relevant source of funds). Such returns may be determined on the basis of a well-accepted financial model, such as the Capital Asset Pricing Model. In general, the weighted average of the return on funds should be calculated by reference to a financing structure that reflects standard industry structures for a going concern and best practice. However, other approaches may be adopted where the Relevant Regulator is satisfied that to do so would be consistent with the objectives contained in section 8.1."

Envestra has calculated its cost of capital using the Capital Asset Pricing Model, being a model which is permitted by clause 8.31 of the Access Code. As noted in the *GasNet Australia (Operations) Pty Ltd* decision, this election must be given effect to by the Regulator. That is, provided Envestra employs a method of determining its cost of capital that meets the requirements of clauses 8.30 and 8.31, the Regulator cannot refuse to accept the methodology employed by Envestra.

Clause 8.30 requires the rate of return to be commensurate with prevailing conditions in the market for funds and the risks involved in delivering the reference service. The parameters set out in section 8.1 have been determined so as to meet this requirement.

9. NON-CAPITAL COSTS

9.1. Summary of Non-Capital Costs

Envestra's submitted forecasts of efficient non-capital costs for the Second Access Arrangement Period are shown in the following table. As indicated in the Final Decision, not all of these costs were accepted by the Regulator. In addition, since Envestra's original submission, the treatment of UAFG changed such that the cost of UAFG was included as a non-capital cost.

Non Capital Costs Summary Original submission \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
Operating & Maintenance	30.3	35.7	30.3	30.7	31.3
Administration and General	7.5	7.5	8.3	8.4	8.7
FRC	6.4	6.9	7.0	7.5	7.6
Network Development	6.6	6.8	7.0	7.3	7.5
IT Projects	0.7	1.3	1.8	1.8	1.9
TOTAL \$m (nominal)	51.5	58.2	54.4	55.7	57.0
TOTAL \$m (31 Dec 2004)	49.1	54.1	49.4	49.3	49.3

Table 10 Original Non-Capital Cost Forecast

The Regulator decided in the Final Decision that non-capital costs compliant with the Code are as shown in the first line of the following table. The subsequent lines in the table set out those additional non-capital costs that Envestra believes are compliant with the Code, and which should be incorporated in the forecasts. Consequently, Envestra submits that the non-capital costs are as shown in the last line of the table below. Further detail concerning the additional non-capital costs is set out in sections 9.9-9.13.

Amended Non Capital Costs Summary \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
ESCOSA app'd (excl UAFG)	44.8	46.3	47.4	49.2	50.5
NMF	3.9	4.1	4.3	4.3	4.5
UAFG	7.6	7.7	7.8	7.9	8.1
Osborne lease costs	0.1	0.2	0.3	0.3	0.4
AS2885 cost impact	0.2	0.2	0.1	0.1	0.1
IT Project opex	0.3	0.0	0.0	0.0	0.0
Increased compliance costs	0.1	0.1	0.1	0.1	0.1
Total	56.9	58.5	60.1	62.0	63.6
Total (\$Dec 2005)	53.9	54.1	54.2	54.5	54.6

Table 11 Amended Non-Capital Cost Forecast

Envestra considers that its 2004/05 expenditure on network operating costs represents a reasonable basis for forecasting for the Second Access Arrangement Period because:

- The cost drivers in 2004/05 were reflective of an average year in terms of service standards and general asset management costs; and
- 2004/05 included operating efficiencies which Envestra considers are maintainable.

In forecasting the network operating costs over the Second Access Arrangement Period, Envestra has used its actual 2004/05 costs as a baseline. The costs for the covered pipeline have been derived in accordance with the cost allocation principles set out in Envestra's annual ring fencing report to ESCOSA.

Envestra considers these costs are the most recent indicator of the prudent costs necessary to operate the Network. These costs have then been increased to allow for anticipated movements in labour, material and contract costs in the Second Access Arrangement Period. In relation to wages costs, BIS Shrapnel was engaged by Envestra to provide an expert opinion regarding the level of wages growth that Envestra should incorporate into its forecasts of costs over the period. For the purposes of estimating wage cost changes in Envestra's operating expenses, BIS Shrapnel recommended that movements in average weekly ordinary time earnings (AWOTE) for the electricity, gas and water sector should be used.

AWOTE forecasts provided by BIS Shrapnel are about 1.2 per cent higher than the national AWOTE average of 4.8 per cent per annum over the next six years to 2010/11. The faster wages growth in the electricity, gas and water sector of the market has been evident for the past 15 years. The expected wages growth in this sector is above the national average because of the relatively high levels of job vacancies in the sector and the current skills shortages. BIS Shrapnel's recommended AWOTE forecasts have been applied to the wages costs in the forecasts.

The resultant costs represent the 'base costs' to which variances are then applied. These variances account for:

- changes to expenditure to account for increases in the size of the network (number of customers as well as physical size) compared to 2004/05; and
- changes to the scope of work undertaken. Envestra has conducted a thorough analysis of its operations with a view to identifying material changes to its baseline expenditure over the next six years. In relation to network operating costs, Envestra has adjusted its forecasts to account for several material changes to the operating and commercial environment and which pose additional costs. Other increases reflect the need for additional expenditure in areas where Envestra has been constrained in its expenditure due to the benchmarks set by SAIPAR over the First Access Arrangement Period.

Details concerning the increased costs are set out in section 9.7.

Envestra believes that its forecast network operating costs over the Second Access Arrangement Period are efficient because it has a continuous improvement philosophy whereby costs are rigorously assessed, not only when budgets are formulated, but as opportunities arise. For example, where positions become vacant, recruitment is not undertaken if alternative and more efficient options are available. As a consequence of this and other prudent management measures, Envestra has been able to generate labour savings over the First Access Arrangement Period. Such prudent management is expected to continue to result in labour savings over the Second Access Arrangement Period, and it has been assumed that productivity gains resulting from additional IT infrastructure, the mains replacement programme and other initiatives proposed by Envestra for the Second Access Arrangement Period will result in productivity improvements increasing over the period to approximately \$1.7m per year by year 5 of the period.

A discussion of each component of Non-Capital Costs is set out below.

9.2. Operating & Maintenance Costs

Network operating costs are the costs of operating and maintaining the gas distribution system. These costs cover the following functions:

- Network management;
- Network maintenance;
- Meter reading and billing;
- Network planning;
- Facilities management; and
- ESCOSA licence fees.

9.3. Administration and General Costs

Envestra's administration and general costs include:

- Accounting and finance costs;
- Human Resource Management and Administration;
- Information Technology costs;
- Regulatory functions; and
- Insurance costs.

9.4. Network Development Costs

Network Development costs are those costs that are incurred to maintain and grow gas demand throughout the network and comprise:

- Gas Connection processing costs, such as processing connection orders and mains extension requests, site visits to determine gas meter locations, coordinating inlet and meter installation with customers and/or inlet contractors and delivering meter boxes to builders; and
- Market Development costs. This expenditure relates to activities and schemes that are necessary to maintain and improve gas penetration, such as:
 - Performance based incentives to encourage consumers to increase natural gas consumption. Envestra has developed programs under which it provides a financial incentive to consumers if they choose to connect to natural gas or increase gas load. The incentive payments are set at a level such that the cost of making the payments is less than the benefit consumers on the network receive through lower prices as a result of the additional load. In this way, these programs are performance based, where every dollar spent generates a benefit to all customers.
 - Representation to identify, build and maintain channels to market through customers and key influencers (e.g. working with appliance retailers to ensure that gas appliances are available for sale).
 - Strategic partnerships to optimise outcomes from key influencers over which Envestra has no direct control (e.g. with builders and housing developers to ensure that gas appliances are specified in their developments).

- Targeted marketing campaigns, aimed at specific segments.
- Generic marketing activity, to promote and position natural gas, which is essential because all houses and businesses are connected to electricity, whereas the decision to connect to natural gas is discretionary.

The gas connection operating costs account for approximately 25% of Network Development costs. The activities associated with this expenditure are essential to connect new customer to the Network.

Detailed supporting information and costs on Network Development are contained in a report provided to the Commission. In summary, the report details:

- each key activity and why it is undertaken, i.e. a description of the qualitative benefits and why it is prudent for Envestra to undertake such activities;
- the forecasts costs for each key activity; and
- the financial/quantitative benefits forecast for each activity

In deriving the cost benefits of Market Development activities, Envestra has set out clearly the assumptions and factors underpinning the additional customers and loads anticipated as a result of the programmes it will be undertaking. The increased customer numbers and consumption has been factored into Envestra's forecasts for the Second Access Arrangement Period.

Envestra believes the Market Development costs are efficient because:

- it has been demonstrated that each of the relevant activities provides a benefit to all customers, by lowering unit transportation costs. This is consistent with section 8.37 of the Code in that the expenditure is necessary in order to obtain the "lowest sustainable cost of providing the Reference Service"; and
- a review of Envestra's Network Development programme by CRA International has concluded that Envestra's programme and expenditure is reasonable.

It is noted that average consumption of gas is reducing for a number of reasons, including climatic warming and increasing appliance efficiency. If this was to continue, and Envestra were not to actively embark on programs designed to efficiently increase average consumption, customers would experience gradual increases in reference tariffs over time as load reduced. Envestra has consequently considered the implementation of a market development program that would see a significant increase in expenditure in Network Development, which in turn would represent a considerable increase in Non Capital Costs over the Second Access Arrangement Period. However, for the purposes of this submission Envestra has opted for a conservative approach, i.e. lower Network Development expenditure and hence lower increases in reference tariffs. The lower than justified level of Network Development expenditure is proposed after taking into account the need to balance long term needs of customers in terms of pricing impact, access to natural gas services, security of supply considerations and the operational needs of the Network.

9.5. FRC Operating Costs

The introduction of FRC has been a significant project over the latter half of the First Access Arrangement Period, and has been the subject of intense scrutiny by the Regulator due to the significant costs that have been incurred in rolling out contestability to all consumers in South Australia. In addition, the State government has been actively involved in ensuring that the cost impact to consumers is minimised. As discussed in section 5.2, the government made a contribution to Envestra to off-set the cost of introduction of FRC, including the Non-Capital costs associated with FRC up to June 2009.

Given the importance of this portion of Non-Capital Costs and to provide transparency, Envestra has identified FRC Non-Capital Costs as a separate item. The government contribution is then deducted from these costs in the revenue derivation calculation (as set out in section 11.2).

9.6. 'Unaccounted For Gas' Costs

The level of UAFG in the Network is impacted mostly by leakage arising from aging cast iron and unprotected steel mains. As discussed in section 7.2, the rate of replacement of old mains has varied over the First Access Arrangement Period in response to changes in the level of UAFG. The current rate of mains replacement is expected to keep the level of UAFG at the current level of about [confidential] TJ/yr. However, with the higher rate of mains replacement over the Second Access Arrangement Period, the level of UAFG is expected to decrease, with an expected level of about [confidential] TJ by the end of the period. The forecast level has been calculated according to an average rate of gas leakage per km of cast iron and unprotected steel main. This rate is applied to determine the reduction in UAFG volume for each year of the Access Arrangement Period. Based on the proposed mains replacement of 100 km/yr, this results in an annual reduction in UAFG volume of [confidential] TJ.

Given that the higher rate of mains replacement will not commence until 06/07, the full reduction in UAFG volume will not be realised until 2007/08. Due to the expiry of the previous contract for supply of gas for UAFG, and the market now containing a number of participants that could potentially supply that gas, Envestra has tendered for the supply of gas for UAFG for the Access Arrangement Period. This has ensured an efficient cost in relation to this key component of Non-Capital Cost. The following table sets out the forecast cost of UAFG.

Year	06/07	07/08	08/09	09/10	10/11
UAFG (\$m nominal)	7.6	7.7	7.8	7.9	8.1

Table 12 UAFG forecast

9.7. Cost Increases

As described in section 9.1, there are a number of areas where costs identified for the Second Access Arrangement Period are materially higher than incurred in those areas during the First Access Arrangement Period:

- (1) Information Technology New Projects – as discussed in section 7.2, Envestra engaged IBM to develop and cost a strategy that would enable Envestra to keep pace with good industry practice for the duration of the Second Access Arrangement Period. The operating cost associated with the implementation of the projects identified in the plan represents a material new cost relative to 2004/05 Non-Capital Costs.
- (2) Regulatory governance and service requirements - Envestra considers that there are elements of its regulatory, governance and service requirements which will differ significantly from the base 2004/05 year.
- (3) Ageing Workforce - The South Australian gas industry has undergone fundamental changes over the last ten years in terms of both service delivery method and the skill sets required from employees. A decade ago, over 200 field and supervisory workers were involved in operating the Network with steady intakes of new employees being used to offset the impacts of retirement and natural attrition. Prior to the current Access Arrangement Period, significant restructuring occurred and this, together with downsizing, has resulted in there being less than 100 employees in field operations. With the retention of the more

experienced staff and the low rate of employment of new staff, the average age of operational staff has increased materially. Consequently, a strategy needs to be implemented that will provide an age profile that is sustainable in the medium to long term.

(4) Other

- Risk Management Activity Costs - Ensuring the safety of the community and the continuity of gas supply are two paramount objectives of the gas distribution business. The most frequent cause of interruption to consumers' gas supply arises from damage to gas mains from other service suppliers and excavation activity. To reduce the incidence of gas supply interruptions additional resources in the form of promotion and field staff support will be required for the Dial Before You Dig service. However, Envestra's proposed costs in this area have been rejected by the Regulator, hence those costs are not included in the forecasts and service levels in this area will consequently not be improved. In the current global political environment, gas distribution networks are more vulnerable to malicious attack. Terrorist management systems will be further strengthened with periodic security reviews, in addition to existing annual emergency exercises. Another source of risk to consumers' gas supply is the current uncertainty regarding the location of gas supply pipes in many industrial and commercial consumers' premises. Where location is uncertain, maintenance and access may be unsatisfactory, increasing the risk of gas supply interruption. Resolution of these uncertainties and enhanced risk management practices is required.
- Miscellaneous costs - In recent years significant downward pressure on costs in all areas of operations has been applied and substantial productivity gains have been achieved. In addition, there has been some deferral of expenditure. Over the next few years, additional costs will be incurred in several areas of the business, and include:
 - upward movement in (real terms) in contractor charge rates after many years of below CPI charge rate increases;
 - relocation of depot facilities.

9.8. Fixed versus Variable Costs

Envestra has examined the cost drivers of the business at a departmental activity level. The results indicate that in the short-term the majority of Non-Capital Costs are fixed and do not vary with incremental usage or throughput. However, some costs (meter reading, maintenance, etc) vary with incremental network expansion and increasing number of customers.

In order to adjust its cost base to account for forecast growth, Envestra has used an estimate of \$11/customer. Based on experience, this may be a conservative estimate.

9.9. Network Management Fee

Envestra has contracted various aspects of the operation and management of the Network to Origin Energy Asset Management Limited (OEAM) under an Operating and Management Agreement. Under the Operating and Management Agreement, OEAM is contracted to perform a range of activities on behalf of Envestra, including:

- design and construction of networks;
- operation and maintenance of networks;
- network marketing; and

- management of the haulage of gas through each network.

Envestra reimburses OEAM for its costs and expenses in relation to the provision of these services and pays OEAM a management fee. The Agreement is structured so that OEAM has the incentive to reduce its operating and capital costs in a prudent and efficient manner. The management fee, being a cost which would be incurred by a prudent Service Provider, acting efficiently, in accordance with accepted and good industry practice, and to achieve the lowest sustainable cost of delivering the Reference Service, is included in Envestra's Non-Capital Costs.

9.10. Osborne Lease Costs

The Non Capital Costs approved by the Commission did not include all costs that are necessary for Envestra to operate the Network, in that the costs associated with the lease of a site at Osborne (which is used in the delivery of Haulage Reference Services) were not included or were excluded in the analysis previously undertaken by the Commission. The lease costs have been included as a separate line item.

9.11. AS 2885 Costs

In the Final Decision, the Commission did not accept Envestra's forecast of increased costs due to impending amendments to AS2885 on the basis of advice that suggested that there may be opportunities for cost savings as opposed to cost increases. However, that advice was of a general nature with no consideration of

- (a) the application of those aspects of the Code that are currently being changed to the characteristics of Envestra's network. For example, while the amendments may result in some cost savings in the construction or operation of rural pipelines, this is of little relevance to the covered pipeline, the majority of which is in suburban areas; and
- (b) the base from which Envestra is operating in relation to AS2885 – the content of the Code is being expanded considerably, and a number of areas will clarify and impose additional requirements on operators. Where interpretations of the Code may have previously led to more cost effective solutions, owners will now be required to conduct and document procedures to a degree that was previously not required. The Commission's advice does not take account of how AS2885 has been applied to-date in the operation of the covered pipeline.

Envestra has received advice from WorleyParsons (see Attachment 1) which, after taking into consideration the specific covered pipeline, confirms that Envestra will be subjected to increased costs arising from the amended AS2885. Envestra therefore confirms that its forecasts in this area are reasonable and those that a prudent operator would incur to ensure the safe and reliable operation of its infrastructure.

9.12. IT Projects Opex

In the Final Decision, the Commission did not accept Envestra's assumption that forecast IT capital costs and Non Capital costs would be incurred in the same year as each other. Based on advice from ECG, the Commission decided that it is appropriate to assume a 12-month lag between IT capital and Non Capital costs, which effectively decreased the amount of Non Capital costs for IT over the period.

While Envestra acknowledged that it may be appropriate to allow for a nominal lag, Envestra proposed that a reasonable assumption would be that 50% of the projects would have a lag less than 12 months, and that the Non Capital costs should reflect this. In the Final Decision, however, the Commission stated that "no information to substantiate this claim has been presented " (section 10.1.4.3).

Envestra advises that an examination of the 6 IT projects (allowed in the Final Decision) has been carried out, and IT staff have ascertained that 3 of the 6 projects (Asset Management Optimisation, Data Integrity and Management, Field Data Capture) would be completed within a 6-month timeframe. This supports Envestra's earlier assumption, and consequently Envestra has included 6 months of Non Capital Costs (the Non Capital Costs being those approved by the Commission, which were lower than those submitted by Envestra) for each of those projects in the same year as the capital costs.

9.13. Increased Compliance Costs

In the Final Decision, the Commission did not accept Envestra's increased regulatory compliance costs, despite Envestra notifying the Commission that it had already recruited an additional person in this area, that that cost was not incorporated into baseline Non Capital Costs. The Commission's noted that "there does not appear to be any well founded basis for assuming an increase in regulatory costs" and retained the view that "the proposed increase in regulatory costs is speculative".

Envestra does not accept the Commission's decision in this area, since the confirmed recruitment of a person to assist in regulatory compliance (that person's job description is contained in confidential Attachment 2) is evidence that

- (a) no assumption has been made in relation to determining a reasonable forecast in this aspect of the Non Capital Costs; and that
- (b) the proposed increase in costs is not speculative.

Envestra therefore reaffirms that its forecast of Non Capital Cost is reasonable as the level of cost has already been established and is irrefutable. If this cost were to be disallowed, Envestra would not be able to fulfil its obligations of operating the network in a prudent manner.

10. EFFICIENCY CARRYOVER – FIRST ACCESS ARRANGEMENT PERIOD

The incentive mechanism approved by SAIPAR in the first Access Arrangement allowed Envestra to retain the full value of any efficiency gains, including reductions in the costs of providing Reference Services and any revenue from the sale of Reference Services greater than forecast, for two Access Arrangement Periods. As discussed in section 2.1, Envestra's actual expenditure on Non-Capital Costs and New Facilities Investment exceeded the benchmarks set by SAIPAR. Therefore, under the incentive mechanism approved by SAIPAR, no incentive payment is payable.

Furthermore gas volumes transported have been lower than forecast by SAIPAR (section 2.1). Envestra has therefore not qualified for an incentive payment arising from the sale of Reference Services being greater than forecast.

11. TOTAL REVENUE REQUIREMENT

11.1. Derivation of Total Revenue Requirement

The derivation of the RAB element required for the Total Revenue calculation is shown in the following table.

Capital Base \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
Opening Asset Value	840.0	884.4	929.8	967.9	1,004.1
Net Capital Expenditure	43.2	46.5	40.5	39.4	40.8
less Depreciation	21.5	23.5	25.9	27.5	28.9
Inflation	22.6	22.4	23.4	24.3	25.3
Closing	884.4	929.8	967.9	1,004.1	1,041.3
Average Asset Value \$m	861.9	906.9	948.7	985.9	1,022.6
Average Asset Value (\$m Dec 05)	836.9	859.2	876.9	889.0	899.6

Table 13 RAB roll forward – Second Period

The revenue requirement for each year of the Second Access Arrangement Period is shown in the following table.

Cost Reflective Revenue Derivation \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11	TOTAL
Average Regulatory Asset Base	861.9	906.9	948.7	985.9	1,022.6	
WACC	7.30%	7.30%	7.30%	7.30%	7.30%	
Return on Assets	62.9	66.2	69.3	72.0	74.7	345.0
Return on Working Capital ⁵	0.1	0.1	0.1	0.1	0.1	0.6
Regulatory Depreciation	21.4	23.4	25.9	27.5	28.9	127.1
Non-capital Costs	55.5	57.1	58.6	60.5	62.1	293.8
Efficiency Carry-over	0.0	0.0	0.0	0.0	0.0	0.0
2006/07 under-recovery	1.1					1.1
Total \$m	141.1	146.9	153.8	160.1	165.7	767.7
Total \$m (31 Dec 2005)	137.0	139.2	142.2	144.4	145.8	708.5

NB: rounded to nearest \$0.1m

Table 14 Derivation of Total Revenue Requirement

11.2. Components of Total Revenue Requirement

The Total Revenue Requirement will be sourced from:

⁵ as per Final Decision, except modified to reflect Envestra's proposed rate of return.

- Haulage Reference Services; and
- Ancillary Reference Services.

As the revenue from Ancillary Reference Services is easily forecast, the forecast revenue for those Services is first established in order to determine the revenue to be sourced from the provision of Haulage Reference Services.

Ancillary Reference Service Revenue

The forecast revenue from the provision of Ancillary Reference Services is determined from the forecast demand for those Services and the cost for the provision of each of those Services. The forecast demand has been held constant with current levels over the regulatory period while charges are forecast to increase by the CPI. This yields a total revenue from Ancillary Reference Services of \$0.9m per year (expressed in \$Dec 2005).

Haulage Reference Services Revenue

The revenue to be obtained from the provision of Haulage Reference Services is derived by subtracting from the Total Revenue Requirement, the revenue forecast for the provision of Ancillary Reference Services, as set out in the following table.

In addition, it is necessary to subtract the amount that Envestra is not required to recover due to the contribution made from the State government to Envestra for the purposes of FRC. (In June 2004 the government made a one-off contribution to Envestra to off-set what it determined to be historical FRC costs and forecast FRC costs up to the period ending June 2009). The amounts that equate to the government's contribution are subtracted as shown in the following table.

Derivation of Haulage Reference Services Revenue \$m (nominal)	2006/07	2007/08	2008/09	2009/10	2010/11
Total Revenue Requirement	141.1	146.9	153.8	160.1	165.7
Less Ancillary Reference Services Revenue	0.9	0.9	1.0	1.0	1.0
Less FRC Opex offset	5.1	5.2	5.3	0.0	0.0
= Haulage Reference Services Revenue	135.1	140.7	147.6	159.1	164.7
Revenue \$m (31 Dec 2005)	131.2	133.3	136.4	143.5	144.9

NB: rounded to nearest \$0.1m

Table 15 Haulage Reference Services Cost Reflective Revenue Requirement

11.3. Haulage Revenue Requirement Price Path

The haulage revenue requirement calculated above was then adjusted to provide a smooth price path over the period. The price path for the haulage revenue requirement takes into account forecasts of demand. The price path equates the net present value of the cost reflective revenue stream and the forecast tariff revenue stream.

Smoothing of revenue provides customers with constant price adjustments throughout the Access Arrangement Period rather than varying prices according to the specific operating programs undertaken by Envestra. Envestra believes that a smooth price path would be preferred by most Users and customers.

Price Path Haulage Revenue	2006/07	2007/08	2008/09	2009/10	2010/11
\$m nominal	125.6	137.2	149.1	162.7	177.5
\$m 31 Dec 2005	122.0	130.0	137.8	146.7	156.2

Table 16 Price Path Revenue

12. SERVICES

12.1. Haulage Reference Services

Envestra is proposing to continue to provide three Haulage Reference Services:

- Demand Haulage Reference Service – this service provides for the forward haulage of Gas to Delivery Points (DPs) with an annual consumption that exceeds 10TJ per year;
- Commercial Haulage Reference Service – this service applies to all DPs that are not Demand DPs or Domestic DPs; and
- Domestic Haulage Reference Service – this service provides for the haulage of Gas to DPs where Gas is used primarily for domestic purposes.

The Haulage Reference Services will continue to include:

- receiving Gas injected at a Receipt Point;
- odourisation of Gas where gas is not already odourised;
- haulage of Gas from a Receipt Point to a DP;
- allowing the withdrawal of Gas at a DP;
- provision of UAFG;
- provision and maintenance of Metering Equipment;
- meter reading on a quarterly basis for Domestic and Commercial DPs, and on a monthly basis for Demand DPs; and
- provision of metering data and other information in accordance with the Retail Market Rules (RMR).

It is noted that gas balancing (the reconciliation of gas injections into the network and gas withdrawals at DPs) is managed through the Retail Market Rules.

Envestra believes that the proposed Haulage Reference Services are the haulage Services that are likely to be sought by a significant part of the market during the Second Access Arrangement Period. These Services are essentially identical to those currently being provided to Users.

Envestra has consulted with Users to determine if there is a need for other Reference Services, and Users have not indicated any such requirement. Envestra is unaware of any changes in circumstances or future developments that are likely to materially affect this situation during the Second Access Arrangement Period.

12.2. Ancillary Reference Services

In addition to the Haulage Reference Services, Envestra recognises that additional services may be requested by a significant part of the market. There are also a small number of services which a User may request at some point in time. However, some of these services, e.g. disconnection in the street (at the junction of the gas main and gas service) are not frequently requested (Envestra receives less than 50 requests for this service per year) and therefore do not qualify as Reference Services, despite such a service being classified as a Reference Service for the first Access Arrangement Period.

Following a review of Ancillary Reference Services, Envestra is proposing to continue with the Special Meter Read Service as an Ancillary Reference Service, as it is commonly demanded by Users, but will discontinue providing (as Reference Services) the two Ancillary Reference Services relating to disconnection in the street for non-payment and the associated reconnection service, due to their low demand.

Envestra is proposing to replace the above services with the service of disconnection at the meter and reconnection at the meter, as these services are commonly requested by Users.

Accordingly, the proposed Ancillary Reference Services are:

- Special Meter Reading Service – meter reading of a DP that is in addition to scheduled meter readings that form part of the Haulage Reference Service;
- Disconnection Service and Reconnection Service in relation to Domestic DPs – these services are required by Retailers as part of their debt management process. Disconnection involves taking whatever action is necessary at the location of the Metering Equipment to prevent the flow of Gas. This includes one or more of the following:
 - turning off the service valve at the Metering Equipment, with or without a locking device;
 - inserting a wad in pipework downstream of the isolation valve;
 - removal of the Meter.

The Reconnection service involves reversing the actions taken to perform a Disconnection plus actions necessary to restore supply safely to the Customer. This involves purging of the outlet service and relighting appliances where applicable.

12.3. Non-Reference Services

Users may require services that are different from the Reference Services and Envestra will negotiate such services on a case-by-case basis.

The tariff for a Reference Service takes into account the corresponding service levels and business risks associated with providing the service in accordance with the agreed terms and conditions. Users are able to negotiate different service levels or different terms and conditions, and the delivery of such a service will be priced accordingly (as a Negotiated Service).

12.4. Service Standards and Quality

In addition to the terms and conditions applicable to the provision of a Service (Part D of the Access Arrangement), Envestra will provide Services in accordance with certain service standards and quality levels.

Envestra supplies the Regulator and the Office of the Technical Regulator with a number of performance indicators and data, including:

- The number of connections not completed within regulatory timeframes;
- Number of planned and unplanned interruptions to consumers' supply;
- Number of major supply interruptions;
- Number of over-pressurisations;
- Data on gas leakage;
- Data on accuracy of gas meters;
- Number of requested meter tests not performed within the specified timeframe; and
- Number and type of complaints made to Envestra.

In addition, Envestra must comply with a host of service standards set out in relevant regulatory instruments, these being predominantly:

- The Gas Distribution System Code;

- The Gas Metering Code; and
- The Retail Market Rules

Many of the service standards relate to timeframes within which Envestra must deliver a service, respond to User requests or provide notification to consumers. For example, for planned maintenance activities, Envestra must provide consumers with 5 business days notification before interrupting their gas supply (Gas Distribution Code section 6.2).

Apart from those areas where Envestra interacts with consumers and Users, Envestra must comply with numerous standards that pertain to the operation and maintenance of the Network. Such standards ensure that gas consumers receive a high level of service and reliability. The safety issues associated with the distribution of a gaseous and flammable hydrocarbon mean that maintenance practices and response times to maintenance issues must be of a high standard.

For example, Envestra is required to:

- odourise gas to prescribed levels;
- maintain gas pressure within the Network above a set level;
- survey the Network regularly for gas leakage; and
- respond to reports of gas leakage within certain timeframes, and repair gas leaks within certain timeframes.

All of the above standards contribute to a safe and uninterrupted gas transportation service to consumers. As reported in section 2.3 of this Access Arrangement Information, the number of gas outages is low, as is the number of complaints from consumers.

As outlined above, the applicable service standards result in an inherent high level of reliability and high level of service. Envestra is aware that in some jurisdictions, notably in relation to electricity distribution, that sophisticated reporting systems have been implemented to record and report on detailed aspects of service delivery. Envestra is of the view that, given the current high levels of service, the introduction of more onerous reporting systems is not warranted.

Should Envestra be required, for example through licence requirements or other Regulatory Instruments (such as the Gas Distribution Code), to implement systems to collect and monitor information for a more rigorous set of reliability indicators or to provide a higher level of service, it is expected that such costs will be 'passed through' in accordance with section 8 of Part B of the Access Arrangement.

13. REFERENCE TARIFFS

13.1. Derivation of Haulage Reference Tariffs

Envestra has adopted a CPI-X approach to determining Haulage Reference Tariffs, adopting a tariff basket approach to price control. Tariffs, and the Po and X factors that underlie them have been derived using the principles set out below.

Tariff Structure

Envestra has elected to essentially maintain the same structure of Haulage Reference Service Tariffs as in the First Access Arrangement Period.

Therefore, the Domestic Tariff will be the same for all Regions and will continue to be charged on the basis of:

- a daily fixed charge; and
- two separate volumetric bands with declining block tariffs.

The Commercial Tariff will be the same for all Regions and will continue to be charged on the basis of:

- a daily fixed charge; and
- four separate volumetric bands with declining block tariffs.

The Demand Tariffs will continue to be based on the same regional and a modified zonal structure, and on a Maximum Daily Quantity (MDQ) basis. A minimum charge plus three declining block tariffs for the Adelaide Region and four declining block tariffs for other Regions will continue to apply.

Envestra believes there is support from Users for continuation of the existing tariff structure. However, Envestra is proposing to change the zonal structure such that the number of zones is reduced from four to three.

The zonal approach was adopted for the First Access Arrangement Period because of the elongated nature of the network in Adelaide. Because the city is constrained on the west by the coast and to the east by the Mount Lofty Ranges, development has taken place along a north-south axis. The two transmission pipelines that provide gas to the Adelaide Region terminate at the northern suburbs. Consequently the distance over which gas is transported to Delivery Points varies considerably, with Delivery Points at the southern end of the Network situated up to 40 kilometres from the Receipt Points. As a result, applying a postage-stamp approach to pricing for Demand Delivery Points within the Region was not considered to be cost-reflective in the circumstances.

A zonal approach was therefore selected as providing an appropriate balance, with price increments between Zones determined on the basis of the average length of mains required to transport gas from the Receipt Points. However, the North Western Zone only contains one customer. Envestra proposes to eliminate that Zone and continue to levy the same tariff to that customer, with the tariff representing a negotiated tariff (for a Negotiated Service). As the North Western Zone was established purely to serve this one customer, the purpose for the existence of the North Western Zone can be effectively eliminated. While this change will have a neutral effect on revenue, the elimination of the North Western Zone will simplify administration and the tariff structure.

A map showing the Zone boundaries is contained in Annexure D of the Access Arrangement.

The Reference Tariffs for Demand Haulage Services are established on a '\$/GJ of MDQ' declining block basis. This approach supports the concept of efficient pricing signals by providing the incentive for Network Users to flatten load profiles, thereby promoting more cost-effective utilisation of the Network. Reference Tariffs for the

Demand Haulage Service have also been designed to achieve simplicity in the Tariff design, using the minimum number of rate blocks, while maintaining sufficient resolution to manage bypass risk.

In order to promote an efficient use of the Network, daily overrun charges apply to Demand Delivery Points. The daily overrun charge applies where a Network User's MDQ is exceeded. In cases where the MDQ is exceeded on more than four days in a month or eight times in a year, the MDQ will be adjusted upwards to the highest MDQ on any of those days.

The current Access Arrangement has provisions for hourly overrun charges and misclassification charges. As there has been no need to levy such charges to-date, Envestra has decided to abolish these charges for the Second Access Arrangement Period.

Cost Allocation

Envestra has decided not to amend the allocation of revenue between its reference tariffs over the Second Access Arrangement period. This implies that the share of revenue recovered from each haulage service has been held constant. This decision reflects Envestra's belief that the current reference tariffs provide for the recovery of revenue on a cost reflective basis, as required by the Code.

Envestra has undertaken two separate (but related) assessments of the allocation of costs to Users by Region.

The first assessment is a fully distributed cost analysis of the Network, and compares the allocated revenue with that forecast to be recovered from Reference Tariffs. This analysis allocates the aggregate building block parameters (i.e. operating expenditure, return on capital and depreciation) firstly to Regions on the Network (including the Demand Regions within the Adelaide metropolitan area) and then to customer type.

As a result, Envestra's analysis calculates cost reflective building blocks for each Region and customer type, where each parameter allocation is based on a detailed set of cost drivers. For example, the model determines the cost reflective building block revenue for a Demand customer operating in the Northern Region. The derived revenue is then compared with the tariff revenue forecast to be recovered from Demand customers in the Northern Region.

The principal drivers used in the model relate to customer numbers and volume, from which a comprehensive series of allocators are derived. The allocators for operating expenditure are based on a 90% weighting to customer numbers and a 10% weighting to gas throughput, which reflects the nature of the operating costs incurred by Envestra (such as meter reading, billing, call centre operations, general maintenance, operation of IT systems and marketing). The allocators for capital related costs (capital expenditure, depreciation and the ICB) are based on a 50% weighting of customer numbers and gas throughput, given that capital costs are partly driven by customer numbers (i.e. network extension) and gas throughput (network augmentation).

The broad outcomes of the model are as follows:

- the recovery of revenue from all Regions is broadly in-line with the costs attributable to each Region;
- the recovery of revenue from Volume customers (particularly in the Adelaide Region) is higher than required to recover costs;
- the recovery of revenue from all Demand customers in the Adelaide Region is lower than required to recover costs, particularly for Northern Zone customers.

The second analysis undertaken by Envestra related to an assessment of the cost reflectivity of all Reference Tariffs. This analysis calculates the incremental cost and the stand-alone cost of servicing different customer types. These cost concepts can be broadly defined as follows:

- stand-alone cost: which reflects the cost to service a market segment on the basis that no other customers are connected to that network (that is, a 100% allocation of relevant costs to a particular market segment); and

- incremental cost: which reflects the additional cost to service a market segment.

The incremental cost therefore reflects the lower bound of efficient costs and the stand-alone cost the upper bound of efficient cost. According to economic theory, prices charged outside of these bounds will result in cross-subsidies, or inefficiencies. For example, prices above stand-alone cost would provide a signal for a new entrant to enter the market and serve a customer.

Envestra has defined incremental cost as the cost of connecting a new customer that has access to the gas distribution system. The costs include the cost of providing the new customer with a meter and the service from the gas mains to the customer's meter. The stand-alone cost adds to the incremental cost an amount for the use of the upstream gas distribution assets. This was undertaken by allocating a share of the capital cost components of the building block based on the share of total consumption in each customer group. A stand-alone network cost is determined by dividing the allocated capital costs by total customer numbers in each group in order to put reasonable bounds on the measured cost (i.e. it is not reasonable to assume the whole network would be built to serve one customer).

In terms of Demand customers, the analysis shows that all customers lie within incremental and stand-alone costs.

Overall, the analysis shows that all tariffs lie within the band set by incremental and stand-alone cost. The Domestic tariffs are closer to stand-alone costs while Demand tariffs are closer to incremental costs, supporting the findings from the cost allocation model. Overall, both the cost allocation model and cost reflectivity analysis suggest that Envestra's tariffs are cost reflective, although an argument could be mounted to rebalance tariffs in the Adelaide Region away from Volume customers towards Demand customers.

Envestra will consider such issues in setting future tariffs over the second Access Arrangement period.

Tariff Basket Approach

In this Access Arrangement revision, Envestra has proposed a tariff basket form of price control, consistent with the requirements of the Code.

Under a tariff basket, the limit on allowed price increases is expressed in terms of a ratio of 'notional revenues', taking into account all of the components of a service providers tariffs:

- The first notional revenue is the revenue implied by the quantities of each tariff component sold in the previous year and the service provider's current tariffs. This becomes the denominator in the price control formula;
- The second notional revenue is the revenue that would result if the same Quantity was sold at the Service Provider's proposed (new) prices. This becomes the numerator in the price control formula.

The cap is $(1+CPI) \times (1-X)$

Where:

- CPI is as defined in the Access Arrangement; and
- X is the 'X' factor.

Envestra has adopted a tariff basket price-cap approach to Reference Tariff variation on the grounds of economic efficiency and compliance with the Code. A separate tariff basket will apply to the reference tariffs applying to each haulage reference service.

Section 8 of the Code sets out the principles to be followed in Tariff variation and section 8.3 provides that as long

as a variation policy is consistent with the objectives contained in section 8.1, then this falls within 'the discretion of the service provider'. Envestra believes that a tariff basket approach is consistent with section 8.1 and notes that such an approach has been accepted by Regulators and applied in other jurisdictions including Victoria and Western Australia.

13.2. Haulage Reference Tariffs

The resultant X factor in the $(1+CPI)^*(1-X)$ price path that results from implementing the above approach is shown in the following table.

Price Path for Haulage Reference Tariffs	2006/07	2007/08	2008/09	2009/10	2010/11
X factor	-0.0573	-0.0573	-0.0573	-0.0573	-0.0573

Table 17 Price Path X-Factor

14. REFERENCE TARIFF POLICY

14.1. General

Sections 4 and 5 of the Access Arrangement contain the Reference Tariff Policy and include details of how Reference Tariffs are amended from year to year and procedures for withdrawing or introducing new Tariffs. The Reference Tariff Policy generally reflects provisions from the First Access Arrangement Period.

The structure of tariffs for the Haulage Reference services is the same as that applying in the First Access Arrangement Period, i.e. fixed and variable charges, with decreasing tariff bands. The relative prices of the bands and relative zonal charges are unchanged (except in relation to the reduced number of Zones), thus reflecting the basis on which costs were originally allocated. A tariff basket approach to price control has been adopted.

The above provides for continuity of existing practice, with which Users are familiar, and therefore a smooth transition to the Second Access Arrangement Period.

14.2. Efficiency Sharing Mechanism – Second Access Arrangement Period

Envestra's incentive mechanism must comply with section 8.44 of the Code, which states:

The Reference Tariff Policy should, where the Relevant Regulator considers appropriate, contain a mechanism that permits the Service Provider to retain all, or any share of, any returns to the Service Provider from the sale of the Reference Service:

- (a) during an Access Arrangement Period, that exceed the level of returns expected for that Access Arrangement Period; or*
- (b) during a period (commencing at the start of an Access Arrangement and including two or more Access Arrangement Periods) approved by the Relevant Regulator, that exceed the level of returns expected for that period,*

particularly where the Relevant Regulator is of the view that the additional returns are attributable (at least in part), to the efforts of the Service Provider. Such additional returns may result, amongst other things, from lower Non Capital Costs or greater sales of Services than forecast.

Envestra is cognisant of incentive mechanisms adopted by regulators in Victorian and Western Australia, and by the Commission in South Australia in relation to electricity, whereby service providers are provided with incentives to outperform benchmarks, no matter in which year of the regulatory period the incentive is achieved. This "rolling carryover" aspect is supported by Envestra, as it is important that the incentive for efficiency gains is not diminished towards the end of a regulatory period. However, those mechanisms also restrict the sharing of efficiency gains such that the Service Provider only receives an estimated 30% of the benefits of any gains, while consumers receive 70% of the benefits (on a net present value basis). This is as a result of restricting the term over which benefits are retained by the Service Provider to 5 years.

Envestra believes that such an incentive is insufficient in that it does not comply with section 8.46 of the Code, which requires that an Incentive Mechanism should be designed with a view to providing an incentive to the Service Provider to increase sales and minimise costs. Envestra believes that a mechanism that provides a 50:50 sharing of gains achieves the objectives of the Code. This is achieved by the Service Provider's retention of efficiency gains for a period of 10 years, as proposed by Envestra (consistent with section 8.44(b) of the Code) rather than 5 years. However, the Regulator has not approved Envestra's proposal, so the mechanism only allows a retention of efficiency gains for 5 years, as set out in section 5 of the Access Arrangement.

In addition to the aspects described above, Envestra proposes an Incentive Mechanism that is based on the

following properties:

- (a) No retrospective claw back - Total Revenue requirement for any future Access Arrangement Period will not be adjusted (apart from the carryover mechanism) to recover the amount of any gains or provide compensation for any losses achieved by Envestra as a result of any differences between actual and forecast amounts for New Facilities Investment, Non-Capital Cost of Gas Delivery in the Access Arrangement Period
- (b) Efficiency gains to be accrued where:
 - i. a reduction in Non-Capital Cost is achieved;
 - ii. capex savings are made relative to regulator approved benchmarks - to be measured based on annual changes in expenditure relevant to the benchmark multiplied by real pre-tax WACC; and
- (c) No carryover of negative gains from one Access Arrangement period to the next, unless the Regulator specifically requires otherwise.
- (d) Recognition of one-off efficiency gains - Code incentive mechanism relates to efficiency gains only (not losses). This implies that the evaluation of gains/losses should be asymmetrical. ESCOSA has previously pointed out that if gains/losses are not treated symmetrically, there is an incentive for the business to defer expenditure from one year to the next in a 2-year pattern. Envestra acknowledges this but notes that if one-off efficiency gains are realised, the service provided should benefit. Envestra proposes that where there is a negative efficiency gain within an Access Arrangement Period, Envestra is able to put a case to ESCOSA at the next price review that demonstrates why the overspend was justified and why it should be excluded from the efficiency calculations.
- (e) Envestra will have an opportunity at the next review to propose a case to the regulator demonstrating why it might be necessary for the Regulator to adjust actual costs/sales to account for exogenously determined material changes in the scope of activities when calculating efficiency gains.
- (f) Non-Capital Costs and New Facilities Investment in the last year of the access arrangement will be assumed to be equal to Non-Capital Costs and New Facilities Investment in the penultimate year of the access arrangement.

15. TERMS AND CONDITIONS

15.1. Overview of Terms and Conditions

The terms and conditions (T&C) applicable to the provision of Reference Services are dealt with in section 6 and Annexure G of the Access Arrangement.

Due to the recent introduction of FRC (mid 2004), most Users have only recently entered into haulage agreements with Envestra. In that process, Envestra took into consideration a number of requests from Users and amended the terms and conditions accordingly. Those refinements to the terms and conditions are reflected in the T&C that are proposed for the Second Access Arrangement Period.

As expected, the terms and conditions applying to the First Access Arrangement Period have been updated to account for changes that have occurred since those terms and conditions were first developed. Examples of such changes are:

- introduction of FRC and the Retail Market Rules;
- new regulatory instruments (Gas Distribution System Code and Gas Metering Code);
- injection of gas from the SEAGas pipeline; and
- installation of telemetry on all Demand DPs.

In summary:

- pursuant to section 6 of the Access Arrangement, it is a condition that a Prospective Network User enter into an Agreement with Envestra for the provision of any Network Service. The term 'Agreement' is defined in the Access Arrangement and means the entering into of a binding contractual arrangement between Envestra and a Network User. Prior to entering into an Agreement, a Prospective Network User must satisfy Envestra that it:
 - has the necessary financial capacity to meet its obligations to Envestra; and
 - has adequate arrangements in place to ensure it can keep Gas deliveries into and out of the Network in balance.
- Annexure F allows for the details pertaining to the specific circumstances of the parties entering into the agreement;
- Annexure G sets out the terms and conditions that are to apply, as a minimum, to the provision of each Reference Service. It describes terms and conditions which are applicable to both Haulage and Ancillary Reference Services (Part IV of the terms and conditions), as well as those terms and conditions which apply specifically to each type of Reference Service (Part II – Haulage Reference Services; and Part III – Ancillary Reference Services).

The terms and conditions are structured so that:

- clauses 2 to 16 (Part II) apply only to the Haulage Reference Services. These clauses address matters including:
 - procedures for classifying Delivery Points;
 - meter accuracy and reading;
 - minimum Gas quality and delivery pressures;
 - possession of Gas and responsibility;
 - warranties and title to Gas; and

- supply curtailment;
- clauses 17 and 18 (Part III) apply only to the Ancillary Reference Services;
- clauses 19 to 39 (Part IV) apply both to Haulage Reference Services and Ancillary Reference Services. These clauses address matters including:
 - invoices and payment arrangements;
 - procedures for determining delivered quantities;
 - termination;
 - liability and indemnities;
 - relationship to the *Trade Practices Act 1974*;
 - Force Majeure;
 - assistance;
 - access to premises;
 - confidentiality;
 - notices;
 - assignment by the Network User;
 - amendment of the Agreement; and
 - other miscellaneous provisions.

The obligations, duties and responsibilities of Envestra and any Network User described in the T&C are in addition to those established in law or by any relevant regulatory documents.

Where the terms and conditions described in Annexure G are amended, the default position is that the terms and conditions applying to an existing Agreement will also change accordingly.

However, a Network User and Envestra may agree that all or some of the terms and conditions applicable to their Agreement will not change during the Term of an Agreement, regardless of any amendments to Annexure G. Both parties are therefore free to agree to arrangements that reflect their preferred risk profile at a point in time.

The terms and conditions applying to provision of the Haulage Reference Services and the Ancillary Reference Services are consistent with good industry practice and are 'reasonable' in that they:

- are sufficiently well defined, so that the likelihood of a dispute over the terms and conditions of access is minimised; and
- are designed to protect the legitimate business interests of Envestra, as well as Network Users and Prospective Network Users.

15.2. Code Compliance

Clause 3.6 of the Code provides:

"An Access Arrangement must include the terms and conditions on which the Service Provider will supply each Reference Service. The terms and conditions included must, in the Relevant Regulator's opinion, be reasonable."

As determined in the *GasNet Australia (Operations) Pty Ltd* decision, the terms and conditions of an Access

Arrangement are those developed by the Service Provider. The role for the Relevant Regulator is to determine whether those terms are reasonable. If the terms are reasonable they must be approved, irrespective of whether the Regulator may have preferred the terms to be designed in an alternative manner.

The T&C applying to provision of the Haulage Reference Services and the Ancillary Reference Services are consistent with good industry practice and are 'reasonable' in that they:

- are essentially the same as those currently applying to Users (which terms have previously been approved as reasonable);
- are sufficiently well defined, so that the likelihood of a dispute over the terms and conditions of access is minimised; and
- are designed to protect and balance the legitimate business interests of Envestra, as well as Users and Prospective Users.

Envestra believes that the proposed T&C meet the criteria of reasonableness and that they therefore should be approved.

16. SYSTEM DESCRIPTION & CAPACITY

The Network has been constructed over a period of more than 100 years and consequently consists of a variety of pipe materials. Up until the 1970s, cast iron was predominantly used for gas mains, with unprotected steel also being used for a period of time. Subsequent to this, polyethylene has been used as the predominant pipe material, with polyethylene pipes up to 100mm diameter being commonly used. With recent advances in polyethylene technology, it is now also being used in sizes above 100mm diameter and in higher pressure applications.

The type of pipe material dictates the maximum operating pressure of the constituent parts of the Network. Since cast iron can only be operated at relatively low pressures compared to polyethylene, the continual replacement of cast iron pipe with polyethylene pipe means that the capacity of the Network is improving with time in many areas.

System capacity and operating conditions are monitored via a telemetry system, which records pressures at various locations in the Network and relays information back to a central station. This information is used in an annual review of the capacity of the Adelaide trunk system. This review is an important tool in identifying system improvements and facilitating long term planning.

The table below describes the composition of the Network by Region with respect to length of mains. As indicated below, the assets used to service metropolitan Adelaide constitute the major part of the Network.

Region	Kilometres	%
Adelaide	6,739	93.6
South East	180	2.5
Whyalla	86	1.2
Port Pirie	121	1.7
Riverland	73	1.0
Peterborough	4	0.1
Total	7,203	100

Table 18 Summary of Network Composition by Region as at 30 June 2005

The Network is characterised by four pressure tiers - low, medium, high and transmission. It should be noted that the term 'transmission' in this context refers to distribution mains operating in the pressure range of 1,050 kPa to 1,750 kPa.

The following table sets out the Network length by pressure tier.

	Length (km)				Total
	Low Pressure	Medium Pressure	High Pressure	Transmission Pressure	
Total	2,334	2,003	2,665	201	7,203

Table 19 Summary of Network Composition by Pressure Tier at 30 June 2005

The capacity of the Network is analysed on annual basis through computerised network analysis programmes. Pressures and flows are simulated in order to ensure that all sections of the Network are able to provide adequate pressures and flows for consumer needs. Where modelling or field data (e.g. telemetry or pressure recorders) indicate that potential capacity or pressure problems exist, mains reinforcement projects or other required actions

are instigated to address the issue.

The capacity of the Network is continually being increased through the replacement of low pressure cast iron mains with high pressure polyethylene mains. In addition, the ability of the Network to maintain supply in instances of failure is being enhanced through security of supply projects (see section 7.2). These typically ensure that redundant supply options exist for all major parts of the network.

17. FORECASTS OF DEMAND

17.1. Envestra Approach

The forecasting of gas demand from a network perspective is a specialised field, with a number of drivers coming into play. As experts in the field of forecasting, and also in recognition of their recent experience in the preparation of forecasts used in relation to the Gas Standing Contract Price Path, Envestra requested NIEIR (National Institute of Economic and Industry Research) to provide gas demand forecasts.

Envestra has prepared forecasts for the domestic market that are based on the approach to weather normalisation used by NIEIR as meeting the requirements of the Code. Envestra has derived total domestic consumption by multiplying the NIEIR estimate of average consumption of domestic consumption (22.1 GJ per annum in 2006/07 decreasing to 20.31 GJ per annum in 2010/11) to the Commission's estimate of total customer numbers.

Envestra has accepted the forecasts used by the Commission in relation to the commercial and industrial market and the demand market, except for the inclusion of an assumed expansion of a customer in the Northern Zone. Work undertaken on a confidential basis for the Commission suggests that there is potential for an existing Tariff D customer in the Northern Zone to increase their MDQ by 2.5TJ, potentially from 2008. However the timing and extent of this increase in load, and the likelihood that it will proceed, is uncertain.

Envestra does not have details of the identity of the relevant customer nor of the change to their plant or processes generating the increase in load.

Such proposed increase in load is substantial in network terms. It is likely that such an increase would require substantial reinforcement of the network upstream of the relevant delivery point, as well as upgrading of the metering installation servicing the customer concerned. While it is difficult to ascertain, without details of the location and customer concerned, the exact nature of the New Facilities Investment required, Envestra reasonably estimates that the required New Facilities Investment may be in the range of \$0.5m-\$1.5m.

Therefore, if Envestra were to include the estimate of 2.5 TJ MDQ in its demand forecast, it would also be necessary to include an estimate of \$1m for associated New Facilities Investment.

Given the uncertainty in relation to the timing and extent of the expansion in load, Envestra considers that it is not consistent with the requirements of the Code to include the uncertain gas load and New Facilities Investment in its forecasts, but rather to deal with the matter by means of a Trigger Adjustment Mechanism. (This is consistent with the approach taken by the Commission concerning New Facilities Investments relating to the Eastern Ring Main and the Southern Loop. Given the uncertainty as to the timing of these latter projects, they have been made the subject of a trigger mechanism).

The gas demand forecasts are summarised in the following tables.⁶

⁶ in the tables, references to Users should be interpreted as references to customers.

	2006/07	2007/08	2008/09	2009/10	2010/11
Forecasts of Demand (TJ)					
< 10 TJ p.a. Users					
<i>Consumption by Category (TJ)</i>					
Domestic	7,980	7,989	7,937	7,915	7,913
Commercial & Industrial	2,903	2,935	2,961	2,995	3,031
Total (TJ)	10,883	10,924	10,898	10,910	10,944
<i>Number of users by region</i>					
Domestic	361,742	368,843	375,265	382,348	389,618
Commercial & Industrial	8,724	8,843	8,958	9,091	9,204
Total (TJ)	370,466	377,686	384,223	391,439	398,822

Table 20 Gas Demand Forecast for Volume Market

	2006/07	2007/08	2008/09	2009/10	2010/11
Forecasts of Demand (TJ)					
Large Industrial Users					
<i>Maximum Daily Quantity (TJ)</i>					
Adelaide	64.9	65.1	66.5	66.8	65.8
Peterborough	0.1	0.1	0.1	0.1	0.1
Port Pirie	3.6	3.6	3.6	3.6	3.6
Riverland/Murray Bridge	0.8	0.8	0.8	0.8	0.8
South East	0.9	0.9	1.0	1.0	1.1
Whyalla	0.1	0.1	0.1	0.1	0.1
New Towns	-	-	0.3	0.4	0.5
Total (TJ)	70	71	72	73	72
<i>Number of users by region</i>					
Adelaide	138	139	140	142	143
Peterborough	1	1	1	1	1
Port Pirie	2	2	2	2	2
Riverland/Murray Bridge	2	2	2	2	3
South East	5	5	5	5	5
Whyalla	1	1	1	1	1
New Towns	-	-	3	4	5
Total (TJ)	149	150	154	157	160

Table 21 Gas Demand Forecast for Demand Market

ATTACHMENTS

(PROVIDED SEPARATELY)