

# Draft Decision



## GasNet Australia Major System Augmentation – Corio Loop

5 April 2006

**File No:**  
S2005/68

**Commissioners:**  
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# Glossary

<b>ACCC</b>	Australian Competition and Consumer Commission
<b>access arrangement</b>	an arrangement for third party access to a covered pipeline provided by a service provider and approved by the relevant regulator in accordance with the Code
<b>access arrangement period</b>	the period from when an access arrangement or revisions to an access arrangement takes effect (by virtue of a decision pursuant to section 2) until the next revisions commencement date
<b>AMDQ</b>	authorised maximum daily quantity
<b>Code</b>	National Third Party Access Code for Natural Gas Pipeline Systems
<b>Commission</b>	Australian Competition and Consumer Commission
<b>covered pipeline</b>	a pipeline to which the provisions of the Code apply
<b>CPI</b>	Consumer Price Index
<b>GasNet</b>	GasNet Australia (Operations) Pty Limited
<b>GJ</b>	Gigajoule (one thousand million joules)
<b>GNS</b>	GasNet System, also referred to as Principal Transmission System (PTS)
<b>km</b>	kilometre
<b>linepack</b>	refers to the amount of gas in a pipeline. Linepack is a function of pipeline size, length and diameter.
<b>LNG</b>	Liquefied Natural Gas
<b>NPV</b>	net present value
<b>PJ</b>	Petajoule (one thousand terajoules)
<b>PTS</b>	Principal Transmission System, also referred to as GasNet System
<b>reference service</b>	a service which is specified in an access arrangement

	and in respect of which a reference tariff has been specified in that access arrangement
<b>reference tariff</b>	a tariff specified in an access arrangement as corresponding to a reference service.
<b>reference tariff policy</b>	a policy describing the principles that are to be used to determine a reference tariff
<b>service provider</b>	a person who is the owner or operator of the whole or any part of the pipeline or proposed pipeline
<b>TJ</b>	Terajoule (one thousand gigajoules)
<b>Value of Unserved Energy</b>	the value placed by consumers on energy foregone in the event of an involuntary load curtailment
<b>VENCorp</b>	Victorian Energy Networks Corporation
<b>WACC</b>	weighted average cost of capital

# 1 Executive Summary

## Background and section 8.21 of the Code

This document sets out the Australian Competition and Consumer Commission's (ACCC) draft decision on the request by GasNet Australia (Operations) Pty Ltd (GasNet) for an agreement under section 8.21 of the *National Third Party Access Code for Natural Gas Pipeline Systems* (the Code) in respect of a proposed augmentation to the Victorian gas transmission network between Corio and Brooklyn (the Corio Loop).

Section 8.21 of the Code recognises that circumstances may necessitate investment in a covered pipeline within an Access Arrangement period that was not contemplated at the time the Access Arrangement was approved, and provides a mechanism through which such investment can be accommodated consistently with the objectives of the Code. As the new facilities investment for the Corio Loop is not included in GasNet's current access arrangement, before it commits funding to this project, GasNet seeks the ACCC's agreement under section 8.21 of the Code that its forecast new facilities investment in the Corio Loop meets the requirements for roll-in into GasNet's capital base. The effect of such an agreement would be to bind the regulator's decision when it considers future revisions to GasNet's access arrangement.

The ACCC's consideration of GasNet's application in this draft decision is limited to whether the forecast new facilities investment in the Corio Loop augmentation meets the requirements set out in section 8.16(a) of the Code for roll-in to GasNet's capital base. It does not extend to how new facilities investment will be rolled in to GasNet's capital base at the commencement of future access arrangement periods.

The ACCC in contemplating an agreement under section 8.21 of the Code has considered:

- whether GasNet's proposed new facility and forecast new facilities investment meet the requirements of section 8.16(a)(i) of the Code; and
- whether the new facility generates system-wide benefits that justify a higher reference tariff for all users in accordance with section 8.16(a)(ii)(B) of the Code.

## Prudent forecast new facilities investment

The proposed Corio Loop augmentation is an expansion of the principal transmission system (PTS). The new pipeline will be 500 mm in diameter, and 57 km in length. Preliminary design indicates that the pipeline will commence at the Brooklyn Compressor Station and proceed in a westerly direction for 12 km in or close to the existing Brooklyn to Ballan pipeline easement, then head in a south-westerly direction

along a greenfields route to tie into the Lara to Iona pipeline near Elcho Road, Lara West.<sup>1</sup>

GasNet submits that the proposed new facility is an appropriate option for achieving the additional service or service standard supported by the investment, taking into account the availability of other options.

The ACCC has assessed whether GasNet's forecast new facilities investment represents the most efficient investment to meet the identified need. GasNet has relied on VENCORP's *Major System Augmentation Report for the Victorian Principal Transmission System, November 2005* (the VENCORP Report) to identify the need for investment and the most appropriate network augmentation to address that need. The ACCC has examined VENCORP's planning processes and reviewed the modelling assumptions and sensitivity analysis, and has found these to be sound.

Based on the above evidence the ACCC concludes that Corio Loop is the best option to address the identified network constraint. In particular, the ACCC is satisfied with VENCORP's assessment that the Corio Loop maximises the market benefits, and that it provides the best cost-benefit ratio and optimal timing to match the identified network need of winter 2008. The ACCC is satisfied that the 500 mm pipeline is appropriately sized, and will provide sufficient capacity to meet forecast sales of services.<sup>2</sup> GasNet's proposal also demonstrates due consideration of the necessary increments in which capacity can be added going forward.

The Code requires the ACCC to assess whether the amount of the relevant new facilities investment exceeds the amount that would be invested by a prudent service provider, acting efficiently, in accordance with good industry practice, and to achieve the lowest sustainable cost of providing services.<sup>3</sup>

To demonstrate that the Corio Loop augmentation meets section 8.16(a)(i) of the Code, GasNet submits that the level of investment forecast is prudent in a technical and engineering sense, such that the construction and engineering costs associated with the new facility are reasonable.

GasNet's application seeks the ACCC's agreement that the following amounts meet the requirements of section 8.16(a)(i):

- forecast construction costs of \$61.7 million;
- capitalised return on construction costs of \$2.2 million;
- a contingency of \$6.4 million against the risk of unforeseen events.

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<sup>1</sup> GasNet Australia, *Application under section 21 of the Gas Code in relation to forecast New Facilities Investment*, 21 December 2005, annexure B (GasNet Application).

<sup>2</sup> Code, s. 8.17(b).

<sup>3</sup> Code, s. 8.16(a)(i).

### *New facilities investment*

The ACCC engaged Sleeman Consulting to undertake an independent assessment of GasNet's forecast new facilities investment. The consultant assessed the likely construction costs to be \$58.4 million. This estimate is sufficiently close to GasNet's forecast construction costs to support GasNet's application that the amount of \$61.7 million meets the prudence test in the Code.

### *Capitalisation of a return on construction costs*

GasNet has included in its application an estimate of \$2.2 million for expected financing costs over the construction period of the project. The ACCC agrees that the inclusion of financing costs on investments during construction is appropriate to provide GasNet with sufficient revenue to fund the project. The principles set out in sections 2.24 and 8.1 of the Code would not be satisfied if GasNet is unable to recover sufficient revenue to meet the costs of delivering Reference Services.

Construction of the Corio Loop will commence in the current access arrangement period, and continue in the next. However, while there will be construction costs associated with the Corio Loop in the next access arrangement period, capitalisation of these costs over the construction period does not need to be included in the section 8.21 agreement, as GasNet will earn a rate of return on these costs from 1 January 2008 when they are included as forecast expenditure in the 2008-2012 access arrangement period. The ACCC therefore proposes to provide an amount of \$0.84 million for the capitalisation of construction costs for forecast new facilities investment expected to be incurred in the current access arrangement period (i.e. – before the end of 2007).

### *Contingency allowance*

GasNet's application includes a 10 per cent contingency allowance of \$6.4 million in addition to its proposed costs of \$61.7m and its proposed capitalisation of \$2.2m.

The ACCC is not satisfied the additional 10 per cent would be invested by a prudent service provider acting as contemplated by section 8.16(a)(i) of the Code. As GasNet states, its best estimate of the cost of the project is \$61.7 million. While actual costs may ultimately be higher or lower than this, GasNet's stated desire to avoid returning to the ACCC if the actual costs exceed its current best estimate does not provide a foundation for inflating the amount in respect of which agreement under section 8.21 of the Code is sought.

The ACCC considers that the approval of an additional contingency amount would reduce the incentive for GasNet to mitigate the risks associated with general cost uncertainty through risk management strategies that might be adopted by a prudent service provider acting efficiently, and in accordance with accepted good industry practice (for example, by contracting forward to avoid uncertainty in steel prices).



If GasNet does experience cost over-runs, it will have the opportunity to apply for the inclusion of any cost overruns that it can demonstrate meet the requirements of section 8.16(a) of the Code when it submits revisions to its access arrangement in 2007 or at any other time. In the event that GasNet experiences cost overruns, these cost overruns will be assessed under the same provisions of the Code as have applied to this application.

### **System-wide benefits**

GasNet's application relies on the system-wide benefits of the Corio Loop under section 8.16(a)(ii)(B) of the Code. In particular, the ACCC must be satisfied that the new facility has system-wide benefits that justify the approval of a higher reference tariff for all users.

In assessing whether system-wide benefits exist the ACCC has considered the nature of the benefits which the augmentation will bring and is satisfied that the benefits stated in GasNet's application exist and arise from:

- addressing load curtailments caused by inadequacies due to a constrained network through increasing system capacity;
- providing extra supply insurance in the event that there is an outage affecting flows into the PTS should an outage occur on the Longford side of the PTS; and
- providing significant competition benefits both from enhanced intra and inter-basin competition facilitated by stronger flows of gas from the Otway Basin.

The ACCC considers the nature of these benefits to be system-wide

*Do these system-wide benefits justify an increase in reference tariffs to all users?*

GasNet acknowledges that the benefits of the Corio Loop may not always be enjoyed equally by all PTS users. GasNet notes that because of the way the gas curtailment regime operates in Victoria, the proposed augmentation will provide a more direct benefit to those who are first to be curtailed under the Curtailment Guidelines. GasNet points out however, that the ACCC has previously recognised that benefits need not accrue equally to all users to be considered system-wide.

The benefits in GasNet's application do not accrue to all users equally and simultaneously. As a consequence of the Curtailment Guidelines, large end users will benefit more than smaller users. Large users are likely to benefit from winter 2008 from reduced curtailment where the Corio Loop acts to prevent intra-day network constraints arising. The ACCC notes that the Corio Loop augmentation is modelled to make available an extra 84.7 TJ for each day that a supply outage occurs and continues to occur. A significant supply outage, such as that resulting from the Longford explosion in 1998, could cause curtailment down to small users. VENCORP has advised that for all modelled supply outage scenarios, over all days, curtailment on average would be split

between industrial and commercial customers (70 to 80 per cent) and residential customers (20 to 30 per cent). The ACCC considers therefore that the level of curtailment of all users could be reduced significantly should supply outages occur.

Furthermore, the Corio Loop will provide competition benefits in the upstream gas market that will accrue to all users. The regulator is directed specifically under section 2.24(e) of the Code to consider public benefits from having competition in markets. The Corio Loop augmentation will facilitate basin to basin competition and also has the potential to allow for significant intra-basin competition in the Otway Basin, where there a number of different fields either developed or under development.

#### *Distribution of costs and tariff impact*

The ACCC considers that the appropriate tariff structure for recovering the cost of this project is a matter to be determined in considering the next proposed revisions to GasNet's Access Arrangement.

#### **Draft Decision**

Pursuant to section 8.21 of the Code, the ACCC proposes to agree that forecast new facilities investment in the amount of \$62.5 million (\$2005) relating to GasNet's proposal of 21 December 2005 to build a 500mm diameter loop pipeline from Lara to Brooklyn will meet the requirements of section 8.16(a) of the Code. This amount is comprised of \$61.7 million in construction costs, and an allowance of \$0.84 for capitalisation of costs incurred in the current Access Arrangement period.

The new facilities investment will be escalated by the annual All Capital Cities Consumer Price Index (CPI) from December 2005 to the point in time when the new facility enters the capital base.

## 2 Introduction

### 2.1 Background

GasNet Australia (Operations) Pty Ltd (GasNet) is the owner of the Gas Network System (GNS, also referred to as the Principal Transmission System or PTS), which is the primary transmission system for the delivery of gas throughout Victoria. A diagram of the current PTS is shown in Appendix A to this draft decision.

VENCorp, the independent system operator of the PTS, identified in its 2004 Gas Annual Planning Review a major system capacity constraint facing the PTS in winter 2008, and recommended that GasNet undertake a major system augmentation to ensure that the PTS has sufficient useable system linepack to cover supply-demand imbalances at that time.

VENCorp identified a number of ways to achieve the required augmentation, and on the basis of cost-benefit analysis recommended the extension of the Southwest Pipeline from Lara to Brooklyn (Corio Loop). The proposed project involves construction of a 57 km, 500 mm diameter pipeline, running from the Brooklyn compressor station for 12 km using an existing easement, and then along a greenfields route to meet the Southwest Pipeline in Lara.

Before it commits funding to this project, GasNet seeks the Australian Competition and Consumer Commission's (ACCC) agreement under section 8.21 of the *National Third Party Access Code for Natural Gas Pipeline Systems* (the Code) that its forecast new facilities investment in the Corio Loop meets the requirements for roll-in to GasNet's capital base. The agreement would bind the regulator's decision when it considers future revisions to GasNet's access arrangement.

GasNet considers that the effect of such an agreement would be that:

- in relation to the 2008–2012 Access Arrangement, total project costs up to the forecast amount will be deemed to satisfy the tests in Chapter 8 of the Code for determining tariffs on the basis of actual and forecast capital expenditure; and
- in relation to the 2013–2017 Access Arrangement, the actual costs incurred during the 2008–2012 regulatory period will be deemed to satisfy the tests in section 8.16(a) of the Code for rolling those costs into GasNet's capital base, provided that they do not result in total project costs (i.e. the sum of costs incurred during both the 2003–2007 and 2008–2012 regulatory periods) exceeding the forecast.<sup>4</sup>

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<sup>4</sup> *ibid.*

## 2.2 Consultation Process

The ACCC is currently the regulator of the Victorian transmission network under the Code. However, it is anticipated that from January 2007 this function will pass to the Australian Energy Regulator (AER). In making this draft decision, the ACCC has been assisted by advice from the AER.

The ACCC is required to conduct a public consultation process before giving any agreement under section 8.21 of the Code.

The ACCC notified interested parties that it had received GasNet's application on 10 January 2006 through an advertisement in the *Australian Financial Review*, and invited submissions on the application.

Three submissions were received, including one which was expressed to be confidential. These submissions have been taken into account in preparing this draft decision.

The ACCC invites further submissions in response to this draft decision by Friday 28 April 2006.

**Table 2.2.1 ACCC's proposed timeframe for consultation**

<b>Phase</b>	<b>Action/event</b>	<b>Date</b>
<b>Lodgement</b>	GasNet submits application to ACCC	23 December 2005
<b>Notice</b>	ACCC issues public notice requesting submissions from interested parties	10 January 2006
<b>Submissions</b>	Submissions due on GasNet's application.	10 February 2006
<b>Draft decision</b>	ACCC Draft Decision released	5 April 2006
<b>Submissions</b>	Submissions due on draft decision	28 April 2006
<b>Final decision</b>	ACCC Final Decision released	June 2006

## 2.3 Documentation

GasNet's application is available on the website of the Australian Energy Regulator (AER) at <<http://www.aer.gov.au/content/index.phtml/itemId/691317>>.<sup>5</sup>

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<sup>5</sup> The enabling legislation to transfer the ACCC's current functions in gas to the AER has yet to be enacted. For administrative simplicity, all ACCC documents relating to the gas transmission regulation function have been included on the AER website.

The application references VENCORP's *Major System Augmentation Report for the Victorian Principal Transmission System* (VENCORP Report),<sup>6</sup> which is also available on the AER's website.

Public submissions in response to GasNet's application are available on the AER's website at <<http://www.aer.gov.au/content/index.phtml/itemId/692103>>.

## **2.4 Assessment under the Code**

The Code establishes a national access regime for natural gas pipeline systems. The framework established by the Code is intended to:

- facilitate the development and operation of a national market for natural gas
- prevent abuse of monopoly power;
- promote a competitive market for natural gas in which customers may choose suppliers, including producers, retailers and traders;
- provide rights of access to natural gas pipelines on conditions that are fair and reasonable for both service providers and users; and
- provide for resolution of disputes.

The PTS is a covered pipeline, to which the Code applies. GasNet is required by the Code to submit a proposed Access Arrangement for the PTS to the ACCC for approval, setting out the policies and basic terms and conditions for third party access to the PTS. The current Access Arrangement for the PTS applies to 31 December 2007. The next revisions to the Access Arrangement are due to be submitted on 31 March 2007.

The Code recognises that circumstances may necessitate investment in a covered pipeline within an Access Arrangement period that was not contemplated at the time the Access Arrangement was approved, and provides mechanisms through which such investment can be accommodated consistently with the objectives of the Code.

## **2.5 Relevant provisions of the Code**

GasNet's current application relies on section 8.21 of the Code, which provides that the ACCC, as the relevant regulator, may at any time at its discretion agree (with or without conditions or limitations) that forecast new facilities investment proposed by a service provider will meet the requirements of section 8.16(a) of the Code. The effect of such an agreement is to bind the regulator's decision when the regulator considers revisions to the Access Arrangement submitted by the service provider.

The following discussion outlines the elements of section 8.21 of the Code, the matters the ACCC is required to consider in deciding whether or not to enter in to an agreement under section 8.21 of the Code, and what the scope of any such agreement should be.

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<sup>6</sup> VENCORP, *Major System Augmentation Report for the Victorian Principal Transmission System*, November 2005.

GasNet's detailed submissions in relation to each of these requirements are considered later in this draft decision.

### ***New facilities investment***

The Code defines a new facility as:

- an extension to, or expansion of the capacity of, a covered pipeline which is to be treated as part of the covered pipeline in accordance with the Extensions/Expansions Policy<sup>7</sup> contained in the access arrangement for that covered pipeline;
- an expansion of the capacity of a covered pipeline required to be installed under section 6.22 of the Code; or
- a capital asset constructed, developed or acquired to enable the service provider to provide services including, but not limited to, assets required for the purposes of facilitating competition in retail markets for natural gas.<sup>8</sup>

New facilities investment is the additional capital cost incurred in constructing, developing or acquiring new facilities for the purpose of providing services.<sup>9</sup>

### ***Treatment of new facilities investment in an access arrangement***

The Code provides for recognition of new facilities investment in two ways:

- section 8.15 of the Code provides that the capital base for a covered pipeline may be increased from the commencement of a new access arrangement period to recognise additional capital costs incurred in constructing, developing or acquiring new facilities for the purpose of providing services. The increase may reflect the actual cost provided that the actual new facilities investment in the immediately preceding access arrangement period passes the requirements of section 8.16(a) of the Code.<sup>10</sup>
- section 8.20 of the Code provides that reference tariffs may be determined on the basis of new facilities investment that is forecast to occur within the access arrangement period, provided that the new facilities investment is reasonably expected to pass the requirements in section 8.16(a) of the Code when the new facilities investment is forecast to occur.<sup>11</sup>

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<sup>7</sup> An access arrangement must include an extensions/expansions policy, which sets out a method for determining whether an extension or expansion to the covered pipeline is or is not to be treated as part of the covered pipeline for the purposes of the Code. See Code, s. 3.16.

<sup>8</sup> Code, s. 10.8.

<sup>9</sup> Code, ss. 10.8 and 8.15.

<sup>10</sup> Code, ss. 8.15 and 8.16.

<sup>11</sup> Code, s. 8.20.

The requirements of section 8.16(a) of the Code provide the test for recognition of new facilities investment under both section 8.15 and section 8.20.

The ACCC's consideration of GasNet's application in this draft decision is limited to whether the forecast new facilities investment in the Corio Loop augmentation meets the requirements set out in section 8.16(a) of the Code for roll-in to the capital base. It does not extend to how the new facilities investment will be rolled in to GasNet's capital base at the commencement of future access arrangement periods.

***Prudency test (section 8.16(a)(i) of the Code)***

The first limb of section 8.16(a) of the Code requires the ACCC to assess whether the amount of the relevant new facilities investment exceeds the amount that would be invested by a prudent service provider, acting efficiently, in accordance with good industry practice, and to achieve the lowest sustainable cost of providing services.<sup>12</sup>

In making this assessment, the ACCC is required to consider:

- whether the new facility exhibits economies of scale or scope and the increments in which capacity can be added; and<sup>13</sup>
- whether the lowest sustainable cost of delivering services over a reasonable timeframe may require the installation of a new facility with capacity sufficient to meet forecast sales of services over that timeframe.<sup>14</sup>

***System-wide benefits test (section 8.16(a)(ii) of the Code)***

The second limb of section 8.16(a) of the Code requires satisfaction of at least one of three alternative conditions. GasNet must satisfy the ACCC:

- A. that the anticipated incremental revenue generated by the new facility exceeds the new facilities investment; or
- B. that the new facility has system-wide benefits that, in the ACCC's opinion, justify the approval of a higher reference tariff for all users; or
- C. that the new facility is necessary to maintain the safety, integrity or contracted capacity of services.<sup>15</sup>

GasNet's application relies on the system-wide benefits test set out in section 8.16(a)(ii)(B) of the Code.

It is not necessary to consider whether the proposed new facility meets the other conditions specified under section 8.16(a)(ii) of the Code.

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<sup>12</sup> Code, s. 8.16(a)(i).

<sup>13</sup> Code, s. 8.17(a).

<sup>14</sup> Code, s. 8.17(b).

<sup>15</sup> Code, s. 8.16(a)(ii).

***Other provisions***

The ACCC has had regard to section 8.1 of the Code, which states that the reference tariffs and reference tariff policy in an access arrangement should be designed with a view to achieving certain key objectives.

Consideration of these requirements is informed by section 2.24 of the Code, which must be taken into account in assessing any proposed revisions to an access arrangement.



## 3 Prudence of forecast new facilities

### 3.1 Relevant provisions of the Code

The first limb of section 8.16(a) of the Code requires the ACCC to assess whether the amount of the new facilities investment exceeds the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing services.<sup>16</sup>

In making this assessment, the ACCC is required to consider:

- whether the new facility exhibits economies of scale or scope and the increments in which capacity can be added; and<sup>17</sup>
- whether the lowest sustainable cost of delivering services over a reasonable timeframe may require the installation of a new facility with capacity sufficient to meet forecast sales of services over that timeframe.<sup>18</sup>

In practical terms, the test outlined in section 8.16(a)(i) of the Code invites consideration of the following issues:

- First, whether the installation of a new facility is required to meet forecast sales of services and whether the Corio Loop project is the most appropriate option for delivering the additional services required, taking into account the availability of other options (prudence of forecast new facilities); and
- Second, whether the forecast cost of the Corio Loop project exceeds the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering services (prudence of new facilities investment).

### 3.2 GasNet's application

The proposed Corio Loop augmentation is an expansion of the PTS. GasNet's application relies on the extensions and expansions policy in its current access arrangement, which provides that an extension to or expansion of the PTS will be covered by the access arrangement unless GasNet gives notice in writing, before an extension comes into service, that the extension will not be covered.<sup>19</sup>

GasNet considers the proposed new facilities investment to be prudent, taking into account relevant engineering, technical and economic considerations.<sup>20</sup> As such,

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<sup>16</sup> Code, s. 8.16(a)(i).

<sup>17</sup> Code, s. 8.17(a).

<sup>18</sup> Code, s. 8.17(b).

<sup>19</sup> *id.*, *Access Arrangement 2003–2007*, 17 January 2003, cl. 5.1.

<sup>20</sup> GasNet Australia, *GasNet Application*, *op. cit.*, p. 3.

GasNet submits that the proposed new facility is an appropriate option for achieving the additional service or standard of service supported by the investment, taking into account the availability of other options.

To support this, GasNet refers to the VENCORP Report, which identifies the Corio Loop as the most appropriate investment to address the identified system capability issues. GasNet relies upon VENCORP's analysis to identify the investment need, timing and most cost beneficial augmentation investment option.

VENCORP has explored the options available to address the network need and has made conclusions on the best investment option available in view of Code and planning requirements. VENCORP plays a significant role as the independent system planner for the development and planning of the gas market in Victoria and has an obligation under the *Gas Industry Act 2001 (Vic)* to monitor and review the capacity of the gas transmission system in Victoria.<sup>21</sup>

The ACCC has reviewed this analysis as to the reasonableness of the assumptions, the process followed and the reasoning behind the conclusions so as to satisfy itself that the Corio Loop meets this aspect of section 8.16(a)(i) of the Code. VENCORP's analysis and conclusions are detailed below.

### **3.3 VENCORP's assessment of network augmentation requirements**

#### ***VENCORP's identification of the need for investment***

GasNet's proposal to build the Corio Loop relies upon findings set out in VENCORP's 2004 *Gas Annual Planning Report* (the 2004 GAPR)<sup>22</sup> and the VENCORP Report. The 2004 GAPR identifies a network limitation likely to emerge within the next five years and the VENCORP Report identifies the Corio Loop as the best option to address this limitation.

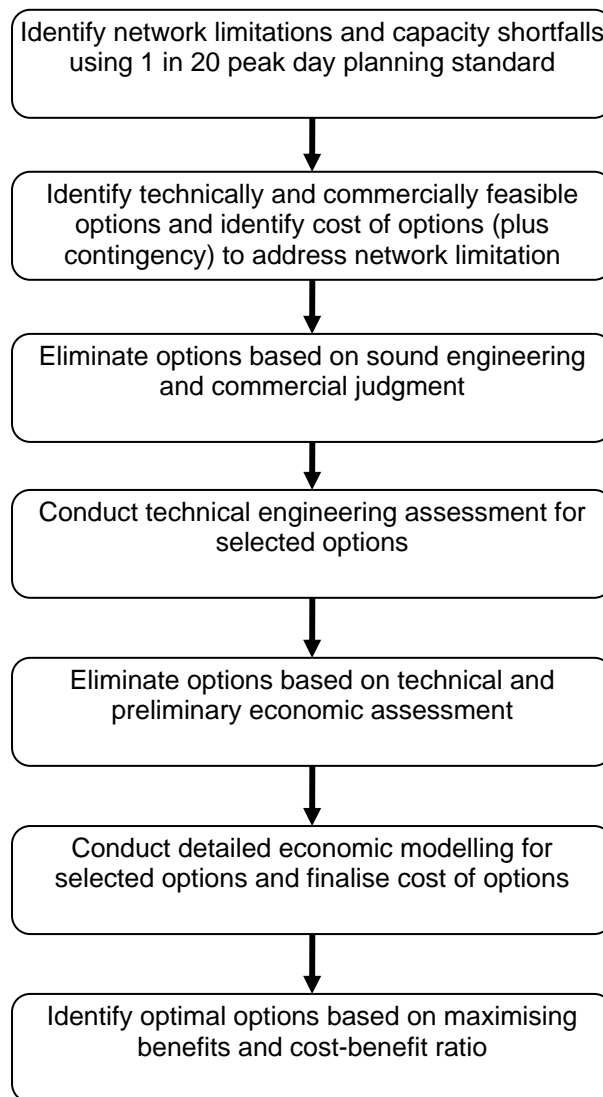
VENCORP's assessment of the investment augmentation requirements on the PTS adopts a probabilistic approach to network planning similar to that adopted for electricity transmission networks. This approach adopts a balance between the cost of providing additional network capacity to remove constraints and the cost of some exposure to loading levels beyond the network's capability. VENCORP's planning process is outlined in Figure 3.3.1 below:

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<sup>21</sup> See *Gas Industry Act 2001 (Vic)* s. 160(1)(e).

<sup>22</sup> VENCORP, *Gas Annual Planning Review 2005 to 2009*, November 2004 (the 2004 GAPR).

**Figure 3.3.1 VENCORP Planning Process<sup>23</sup>**



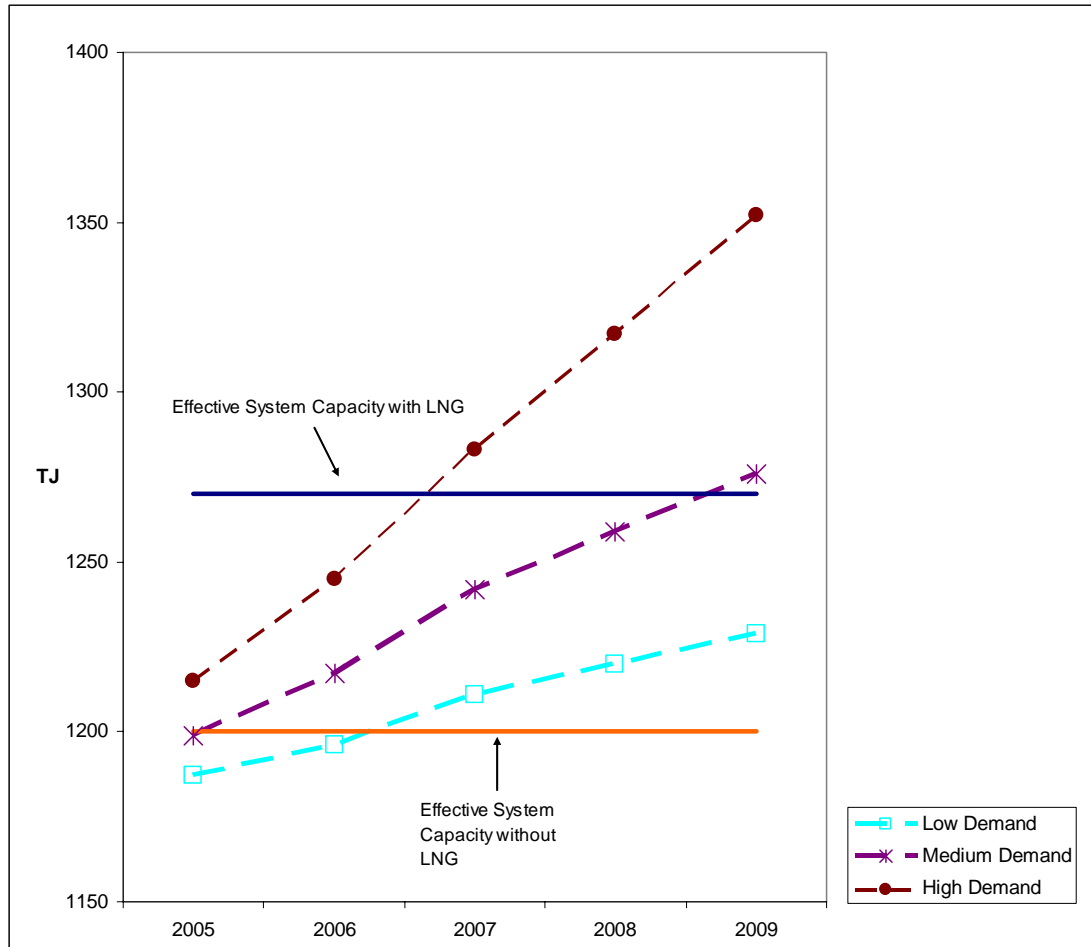
VENCORP's annual GAPR is an independent study on forecast trends in gas demand and supply which VENCORP publishes each year. VENCORP has determined forecasts which in theory balance demand and supply over the next five years.

VENCORP's assessment indicates that the deliverable gas supply through the PTS is constrained by pipeline capacity and available system linepack. VENCORP's modelling suggests that total system capacity is effectively 1,270 TJ and total capacity without recourse to liquefied natural gas (LNG) is approximately 1,200 TJ, depending on operating conditions and the limited availability of system linepack for within-day supply and demand balancing. VENCORP's medium growth demand forecast indicates that network capacity will be insufficient to meet demand by winter 2008. This is shown in Figure 3.3.2 below.

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<sup>23</sup> VENCORP, *VENCORP Report*, op. cit., p. 8.

**Figure 3.3.2 Forecast system capacity and demand**



VENCorp has concluded that LNG injections are required to meet a supply shortfall. VENCorp estimates that based on peak day planning, LNG can provide 60 TJ for within-day demand and supply balancing. This is shown in Table 3.3.3 below:

**Table 3.3.3 Peak day supply-demand base case<sup>24</sup>**

<b>Injection point</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Capacity limit</b>
1 in 20 Peak Day Demand (medium)	1,199	1,217	1,242	1,259	1,276	
Total scheduled quantity	1,219	1,237	1,262	1,279	1,295	
Longford, VicHub, BassGas	1,030	1,030	1,030	1,030	1,030	1,030
Iona (marginal supply)	128	137	154	165	176	220
Culcairn	20	20	20	20	20	20
<b>LNG</b>	41	50	58	<b>64</b>	<b>69</b>	<b>60</b>
Spare LNG Capacity	46	37	29	23	18	

VENCorp's forecasting indicates that LNG will be increasingly required in larger quantities because useable system linepack will be insufficient to meet within-day supply demand balances. However, as shown in Table 3.3.3, from 2008, the LNG required on the PTS will exceed VENCorp's planning assumption of 60 TJ. VENCorp predicts that from 2008 there is likely to be a shortfall in LNG which would result in involuntary curtailment to network users in the event of a network outage. VENCorp concluded that a major system pipeline augmentation is required before winter 2008.<sup>25</sup>

*VENCorp's identification of options to address the identified network need*

The VENCorp Report identified seven possible options as technically and commercially feasible to address the network need.<sup>26</sup> These alternatives were assessed against one another in terms of cost and practicality and VENCorp concluded that the Longford Loop and the Corio Loop were the most feasible options available.

VENCorp also identified a number of sub-options associated with the Corio Loop and Longford Loop projects. VENCorp identified two preferred sub-options and focused its Report on the costs and benefits of those two options.<sup>27</sup>

<sup>24</sup> VENCorp, 2004 GAPR, op. cit., p. 27.

<sup>25</sup> VENCorp, 2004 GAPR, op. cit., p. 29.

<sup>26</sup> VENCorp, VENCorp Report, op. cit., p. 19.

<sup>27</sup> ibid., pp. 17–27.

### *VENCorp modelling of preferred options and conclusions*

VENCorp has undertaken economic assessments of the benefits in 2008 to 2011 based on the medium economic growth scenario for the Longford Loop and the Corio Loop.<sup>28</sup> The ACCC has reviewed the supporting analysis on the network benefits expected to flow from the proposed Longford and Corio Loop augmentations to ascertain whether the new facilities investment exhibits economies of scale or scope and the increments in which capacity can be added.

### *System capacity and useable system linepack*

VENCorp's estimates of the increase in system capacity and useable linepack that would be expected to flow from the construction of each of the Longford Loop and the Corio Loop are shown in Table 3.3.4 below.

**Table 3.3.4 Modelled increases in system capacity and useable system linepack<sup>29</sup>**

<b>Options</b>	<b>Increase in system capacity (TJ/day)</b>	<b>Increase in system linepack (TJ over 6am–10pm pd)</b>
Longford Loop augmentation	41	20
Corio Loop augmentation	87	20–40

VENCorp's modelling indicates that the Corio Loop would provide greater system capacity and useable linepack than the Longford Loop. Furthermore, VENCorp indicates that the Corio Loop provides an additional system benefit by allowing gas flows to bypass the existing Lara-Brooklyn bottleneck thus freeing up 20–40 TJ of existing linepack for within-day demand and supply balancing.

### *Net market benefits of preferred options*

VENCorp has considered what it terms the market benefits associated with the preferred options. In calculating market benefits, VENCorp's consideration was limited to benefits that are financially quantifiable and can be attributed to producers, consumers and transporters of gas in Victoria's primary transmission system. VENCorp has identified three main benefits of proceeding with the Longford Loop and Corio Loop. These are:

- reductions in involuntary load curtailment arising from network capacity inadequacy (network);
- reductions in involuntary load curtailments arising from supply outages (supply); and
- competition benefits.

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<sup>28</sup> *ibid.* VENCorp indicates that the cost benefit analysis assumes the same benefits each year after 2011 for both the Longford Loop and the Corio Loop options and therefore for the purpose of assessing each option it is not necessary to consider the benefits after 2011.

<sup>29</sup> VENCorp, *VENCorp Report*, op. cit., pp. 25–27.

*Reductions in involuntary load curtailment due to insufficient network*

VENCorp assessed the benefits of reductions in involuntary curtailment associated with increased network capacity. VENCorp stated that the frequency and magnitude of involuntary curtailments has been determined based on modelling of within-day demand and supply imbalances under a range of conditions. This modelling simulates curtailment scenarios where necessary to ensure that demand and supply are in balance over a ‘gas day’ for a range of conditions (e.g. weather, demand, time-of-year). The frequency and magnitude of these network curtailment events and the value customers place on the loss of supply is used to determine the benefits of reduced network curtailment.

VENCorp’s analysis compares the relative reductions in curtailment from the Longford and Corio augmentations with the assumed level of curtailment if there was no augmentation.

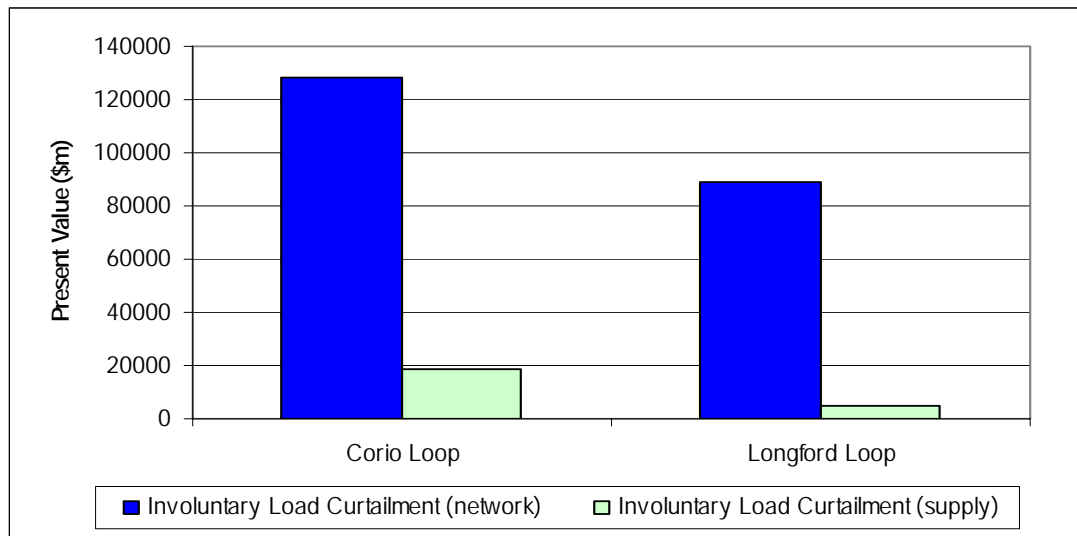
*Reductions in involuntary load curtailments arising from supply outages*

VENCorp assessed the benefits of involuntary load curtailment to customers as a result of insufficient supply to meet demand due to plant or pipeline failure. These benefits were assessed by estimating the probability of an event occurring and the magnitude of that event by the value customers place on the loss of supply.

VENCorp’s analysis compared the relative reductions in curtailment due to network outages with the Longford and Corio augmentations to the situation where there is no augmentation.

The estimated relative reductions in network curtailment and curtailment due to network supply outages, for the Longford option and the Corio option are provided in Figure 3.3.5 below.

**Figure 3.3.5 VENCorp’s estimated reduction in curtailment**



### *Competition benefits*

VENCorp has calculated the competition benefits associated with each option.<sup>30</sup> Competition benefits can be defined as an increase in economic welfare. VENCorp considers that the Corio Loop provides greater network access to the developments of new gas supplies in the Otway Basin. This will stimulate greater competition between gas suppliers. Following modelling of the effects of each option, VENCorp has concluded that the Corio Loop provides greater competition benefits. VENCorp has not included competition benefits in its base case analysis. However, in assessing the costs and benefits of each option it has included competition benefits in the sensitivity analysis.

### *Cost-benefit outcome*

VENCorp concluded that in the base case scenario the Longford Loop is expected to provide a net market benefit (in NPV terms) of \$47.2 million (\$2005), while the Corio Loop is expected to yield a net market benefit (in NPV terms) of \$93.1 million (\$2005).<sup>31</sup> VENCorp's analysis found that the Corio Loop yields a more favourable cost-benefit ratio of 2.9, compared to the Longford Loop's 2.1. These cost-benefit ratios were calculated by dividing the present value of the benefits by the present value of the costs over the life of the asset.

These cost-benefit ratios were calculated on the basis of construction costs totalling \$61.7 million.

VENCorp applied sensitivity analysis incorporating risk factors, timing and varying discount rates to both the Longford Loop and the Corio Loop. This sensitivity analysis indicates that under all scenarios, the Corio Loop provides considerably greater net market benefits than the Longford Loop.

## **3.4 Submissions from interested parties**

Submissions generally supported the prudence of the proposed investment, and considered the Corio Loop project to be the most appropriate augmentation to address the identified network need as it provides the greatest net market benefits. Origin Energy submitted that it had reviewed VENCorp's analysis and broadly agrees with its

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<sup>30</sup> This method includes wealth transfers and efficiency gains. However, the use of wealth transfers and efficiency gains has been limited to the sensitivity analysis only and has not been included in analysis for the base case.

<sup>31</sup> The net market benefits of \$93.1 million and \$47.2 million for the Corio Loop and the Longford Loop respectively are the differences between the present values of the benefits and costs. The present value of the benefits for Corio Loop is \$143.5 million and the present value of the costs is \$50.4 million.



conclusions.<sup>32</sup> TRUenergy submitted that it agrees the Corio Loop is the most appropriate option for achieving additional services.<sup>33</sup>

The ACCC received a confidential submission which proposed an alternative pipeline investment between the Otway basin gas producers and Melbourne. The submission argued that this investment will provide a more efficient solution to the current and forecast constraints on the Southwest pipeline. It also claimed that the costs of the alternative proposal would be broadly equivalent (taking the cost of the compression at Stonehaven into account) to the proposal advocated by GasNet.

The submission argued that the roll-in of the cost of GasNet's proposed expansion into its regulated capital base would discourage competing proposals that provide better long term solutions to Victoria's gas supply needs. The submission considered that the costs of the alternative proposal would not be prohibitive for users that would benefit from the investment, and that any markets risks would be borne by the proponents of the alternative investment and its contracted users.

### **3.5 ACCC's considerations**

The ACCC considers that GasNet's forecast new facilities investment represents the most efficient investment to meet the identified need. GasNet has relied on the VENCORP Report to identify the need for investment and the most appropriate network augmentation to address that need. The ACCC has examined VENCORP's planning processes and reviewed the modelling assumptions and sensitivity analysis, and is satisfied that VENCORP has identified the most viable options for addressing the projected system constraint.

The ACCC has considered the arguments made in the confidential submission but notes that they have not been supported with detailed information and it has not been possible to assess or test the new investment proposal raised by the submission. The investment proposal involves a substantially different project so that it is not possible to draw inferences about project costs from the material provided by GasNet and VENCORP.

In these circumstances the ACCC concludes that Corio Loop is the best option to address the identified network constraint. In particular, the ACCC is satisfied with VENCORP's assessment that the Corio Loop maximises the market benefits and provides the best cost-benefit ratio and optimal timing to meet the identified network need of winter 2008.

The ACCC notes that the Corio Loop would exhibit economies of scale. The ACCC is satisfied that the 500 mm pipeline is appropriately sized, and will provide sufficient capacity to meet forecast sales of services.<sup>34</sup> GasNet's proposal also demonstrates due

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<sup>32</sup> Origin Energy, *Submission re: GasNet Application under section 21 of the Gas Code in relation to forecast new facilities investment*, 14 February 2006, p. 1.

<sup>33</sup> TRUenergy Australia Pty Ltd, *Submission re: GasNet Australia—Application under section 21 of the Gas Code in relation to forecast new facilities investment*, 10 February 2006, p. 3.

<sup>34</sup> Code, s. 8.17(b).

consideration of the necessary increments in which capacity can be added going forward. This is supported by the detailed analysis in the VENCORP Report.

## 4 Prudence of new facilities investment

This section focuses on the prudence of the forecast costs outlined in GasNet's application.

### 4.1 Relevant provisions of the Code

Section 8.16(a)(i) of the Code requires the ACCC to consider whether GasNet's forecast new facilities investment in constructing the Corio Loop exceeds the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing services.

### 4.2 GasNet's application

GasNet's application seeks approval of forecast new facilities investment of \$70.3 million. This forecast comprises:

- \$61.7 million in construction costs;
- \$2.2 million representing a capitalised return on the asset over an efficient construction period; and
- \$6.4 million representing a 10 per cent contingency on construction and financing costs.

The components of GasNet's forecast costs are summarised in Table 4.2.1 below.

**Table 4.2.1 Cost summary: GasNet's Corio Loop application**

<b>Component</b>	<b>\$2005 million</b>
Pipeline materials	15.8
Pipeline construction	32.0
EPCM (Engineering, Procurement and Construction Management)	3.7
Licences, Easements etc	3.4
Facilities	6.8
<b>Total estimated cost (excluding financing costs)</b>	<b>61.7</b>
Capitalisation of return over construction period	2.2
<b>Subtotal (including financing costs)</b>	<b>63.9</b>
10% contingency (\$63.9 million x 10%)	6.4
<b>Total amount for which approval is sought</b>	<b>70.3</b>

A summary of each of the components of GasNet's forecast costs is set out below.

### ***Pipeline Materials and Pipeline Construction***

GasNet's application describes the project as the construction of a 500 mm diameter pipeline, with an overall length of 57 km, along a route from the existing facilities at Brooklyn to existing facilities at Lara West. A 12 km section of the pipeline will be constructed along existing easements, but, for a substantial length of the pipeline, new easements will be required.<sup>35</sup>

GasNet indicates that the first 3.5 km of the pipeline route is subject to urban encroachment through built-up street areas, requiring more expensive construction methods. The next 2.5 km of the pipeline could use standard mainline techniques but at a significantly slower production rate due to the likely environmental restrictions. The rest of the pipeline route traverses semi-rural land used predominantly for grazing and cropping. The main restriction to the rate of pipeline laying for the remainder of the pipeline will be the extent of rock and excavation and associated works required to provide for the laying of the pipeline.<sup>36</sup>

GasNet proposes to construct the pipeline from API5LX70 grade steel, which is the highest grade steel with proven operational experience. Light wall construction is proposed to be used along 45 km of the pipeline. The remaining 12 km of the pipeline will be heavy or extra-heavy wall constructed. GasNet proposes that the pipeline be internally and externally lined for corrosion protection.<sup>37</sup>

GasNet proposes minimum cover on the pipeline of 900 mm (1.2 m in the metropolitan area). GasNet notes that a significant length (approximately 45 km) of the pipeline is expected to be constructed in rocky terrain. For these sections, it proposes 150 mm bedding and padding to protect the pipeline and its coating from long-term rock damage.<sup>38</sup>

### ***Engineering, Procurement and Construction Management (EPCM)***

GasNet has considered a number of alternatives for implementing the project including consideration of the available engineering skill set and resources, and the workload and availability of suitable construction contractors at the time of building the pipeline. GasNet's preferred implementation method at this time is for GasNet to Engineer, Purchase and Construction Manage (EPCM) the project based on the availability of engineering and construction management expertise, on the basis this will produce the best outcome.<sup>39</sup>

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<sup>35</sup> GasNet Australia, *GasNet Application*, op. cit., p. 5

<sup>36</sup> *ibid.*, p. 3.

<sup>37</sup> *ibid.*, pp. 1–2.

<sup>38</sup> *ibid.*

<sup>39</sup> GasNet Australia, Email submission of further information, 22 February 2006 (Email submission).

GasNet states that competitive tenders will be sought for the major cost items including pipe supply and pipeline and facilities construction. GasNet argues that its tender evaluation process takes into account cost, experience, safety and environmental and quality performance of suppliers and construction contractors.<sup>40</sup>

### ***Licences and easements and other costs***

The pipeline will be constructed in a 20 metre wide easement with a 10 metre temporary working width abutting the easement, to be acquired for this purpose. In some locations working space due to environmental restrictions will be limited to a width less than 20 metres.<sup>41</sup>

GasNet divides its forecast licensing and easements costs into three categories:

- regulatory requirements including environmental studies (\$0.4 million);
- negotiating new easements (\$2.2 million); and
- addressing native title issues (\$0.7 million).<sup>42</sup>

To own and operate the pipeline, GasNet must secure a pipeline permit and a pipeline licence from the Department of Primary Industries. The Minister for Planning and Resources may require an Environmental Effects Statement to be completed, although GasNet considers that such a statement will not be required in this instance.<sup>43</sup> GasNet's forecast of regulatory costs also includes an amount for consultation with relevant stakeholders to secure the pipeline permit.<sup>44</sup>

GasNet submits that approximately 65 new easements will need to be negotiated as part of construction of the pipeline, and that it must secure land access agreements with relevant land owners, crown land managers and native title groups. GasNet notes that it is under an obligation to follow processes set down in the *Native Title Act 1994* and to secure, or make best efforts to secure, agreement for land use with any native title claimants.<sup>45</sup>

### ***Facilities***

GasNet indicates that the Corio Loop project involves the construction of associated control facilities, including city gate connection, metering, heating, regulator runs and valve stations. Facilities will also include connection to the existing Brooklyn City Gate, installing an additional regulator on that gate, together with necessary control, instrumentation and communication works. GasNet's costing for these facilities has

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<sup>40</sup> *ibid.*

<sup>41</sup> GasNet Australia, *GasNet Application*, loc cit.

<sup>42</sup> GasNet Australia, Email submission, 22 February 2006 .

<sup>43</sup> GasNet Australia, *GasNet Application*, loc cit.

<sup>44</sup> GasNet Australia, Email submission, 22 February 2006. 2006

<sup>45</sup> *ibid.*

been based on current cost data obtained from designing, constructing and operating similar regulator stations.<sup>46</sup>

### ***Capitalisation of return over construction period***

GasNet submits that the prudent costs of the Corio Loop should also include an allowance for the capitalisation of a reasonable return on construction costs over an efficient construction period.

GasNet proposes that the cost be calculated on the basis of applying the weighted average cost of capital (WACC) applicable under GasNet's current access arrangement<sup>47</sup> to the total estimated monthly construction costs, until the forecast commissioning date of March 2008. GasNet acknowledges that this estimate will depend on the date that GasNet begins earning revenue on the Corio Loop investment. In particular, in the event that GasNet begins earning revenue on a portion of the investment from the beginning of the 2008-2012 access arrangement period, the financing costs associated with this portion of investment may only be capitalised up to the beginning of 2008.<sup>48</sup>

### ***Contingency on forecast new facilities investment***

In its application, GasNet forecasts construction costs of \$61.7 million and adds \$2.2 million for financing costs, combining to give projected costs of \$63.9 million for the project. In addition, GasNet requests approval under section 8.16(a)(i) of the Code of a contingency of 10 per cent on this figure, amounting to \$6.4 million. GasNet indicates that this amount is to cater for the possibility that costs might exceed estimates for reasons beyond GasNet's control, such as escalation of the steel price, changes to the quantity of rock required to be excavated during the project, potential shortages of contractors to undertake construction, route changes identified during the approval process, and changes identified during the detailed design process.<sup>49</sup> GasNet believes that a 10 per cent margin on its forecast costs represents a reasonable contingency based on its knowledge of the route, experience in the approval process and recent experience in management of pipeline construction.<sup>50</sup>

GasNet submits that it would be desirable to secure against the risk of these costs now, so that further applications to the ACCC if costs were to exceed any pre-approved amount could be avoided.<sup>51</sup>

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<sup>46</sup> *ibid.*

<sup>47</sup> In its application, GasNet has applied a real vanilla WACC of 6.63 per cent.

<sup>48</sup> GasNet Australia, *GasNet Application*, *op. cit.*, p. 16.

<sup>49</sup> GasNet Australia, Email submission, 22 February 2006.

<sup>50</sup> *ibid.*

<sup>51</sup> *ibid.*

### *Treatment of new facilities investment in an access arrangement*

The construction of the Corio Loop augmentation will be spread across two access arrangement periods: the current 2003–2007 period, and the 2008–2012 period.

**Table 4.2.2 GasNet’s proposed construction timetable<sup>52</sup>**

<b>Date</b>	<b>Activity</b>
<b>January 2006–December 2007</b>	Detailed engineering, design, easement and licence acquisition, and procurement
<b>September 2007</b>	Commence construction of pipeline
<b>March 2008</b>	Commission pipeline

It is therefore likely that the new facilities investment in the Corio Loop will be recognised in part under section 8.15 of the Code and in part under section 8.20 of the Code.

GasNet’s application puts forward three options for addressing how, and when, the new facilities investment in the Corio Loop will be recognised:

- (a) **Option 1**—apply to have 100 per cent of the costs of the Corio Loop included as forecast new facilities investment in GasNet’s access arrangement for the period 2008-2012, and then seek to roll the actual costs, as adjusted for depreciation and inflation, into the capital base at the start of the 2013-2017 regulatory period; or
- (b) **Option 2**—apply in 2007 to have the portion of project costs incurred up to the end of 2007 recognised as actual new facilities investment incurred during the 2003-2007 regulatory period and rolled into the capital base at the commencement of the 2008-2012 regulatory period, and then have the remainder included as forecast new facilities investment for the 2008-2012 regulatory period; or
- (c) **Option 3**—apply to have 100 per cent of the project costs rolled into the capital base once the facility is commissioned in 2008 by seeking an intra-period amendment to GasNet’s 2008-2012 access arrangement.<sup>53</sup>

GasNet considers Option 2 to be the most straightforward approach, and has indicated that, when it submits its proposed revisions to the access arrangement in March 2007, it will seek to:

- have the Corio Loop costs it incurs in the 2003–2007 regulatory period recognised as actual new facilities investment which will be rolled into its capital base from the commencement of the 2008–2012 regulatory period; and

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<sup>52</sup> *ibid.*, p. 5.

<sup>53</sup> *ibid.*, p. 7.

- have the costs it expects to incur in 2008 treated as forecast new facilities investment for the purposes of setting tariffs for the 2008–2012 access arrangement.<sup>54</sup>

On that basis, when it submits revisions to the 2008–2012 access arrangement, GasNet will seek to have the project costs incurred in 2008 treated as actual new facilities investment and rolled into its capital base for the 2013–2017 access arrangement period.<sup>55</sup>

### **4.3 Submissions from interested parties**

Origin Energy’s submission<sup>56</sup> queried the inclusion of capitalised costs during construction within GasNet’s proposed allowance. Origin Energy expressed concern that inclusion of capitalised costs in an approved allowance could set an undesirable precedent for recovery of capital investment projects under any access arrangement. Origin Energy suggested that the ACCC clarify the circumstances in which the recovery for capitalised costs might or might not apply, and provide clear guidance with respect to an acceptable construction period, such that users do not bear the additional risk from any inefficiencies on GasNet’s construction program.

TRUenergy’s submission<sup>57</sup> did not express a view as to GasNet’s forecast of efficient and prudent costs for constructing the project.

### **4.4 ACCC considerations**

#### **4.4.1 New facilities investment**

The ACCC engaged Sleeman Consulting to provide an independent assessment of GasNet’s forecast costs.

GasNet’s forecast costs and Sleeman Consulting’s corresponding estimate of costs are summarised in Table 4.4.1 below:

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<sup>54</sup> *ibid.*, p. 12.

<sup>55</sup> *ibid.*

<sup>56</sup> Origin Energy, *op. cit.*, pp. 1–2.

<sup>57</sup> TRUenergy, *op. cit.*, p. 3.



**Table 4.4.1 Comparison: GasNet’s forecast costs and Sleeman Consulting estimate of costs**

<b>Estimated costs (\$2005 million)</b>	<b>GasNet</b>	<b>Sleeman Consulting</b>
Pipeline Materials	15.8	13.4
Pipeline Construction	32.0	28.8
EPCM (Engineering, Procurement and Construction Management)	3.7	3.7
Owners’ Costs	-	1.0*
Licenses, Easements, etc	3.4	1.8**
Facilities	6.8	5.6
Provision for unidentified costs	-	4.1
<b>Total estimated cost (excluding financing costs)</b>	<b>61.7</b>	<b>58.4</b>

(\*) Sleeman Consulting’s estimate of Owner’s Costs includes costs (such as commercial, contracting, internal monitoring and reporting) that will be incurred by the owner/developer of a pipeline, but which are not included under other cost items.

(\*\*) Sleeman Consulting’s estimate of these costs covers environmental approvals (including cultural heritage), surveying and geotechnical input and land access, without provision for unforeseen complications.

The ACCC’s consideration of these cost components is set out below.

### ***Pipeline Materials and Pipeline Construction***

#### *Pipeline material*

GasNet’s application states that its cost estimates for pipeline materials are based on current conditions in the steel market.<sup>58</sup> Sleeman Consulting reviewed the proposed construction design for the pipeline provided by GasNet and considers that the selection of API5LX70 standard steel for the construction of the pipeline is appropriate. While the use of lower grade steel in the construction process would lead to a requirement for increased pipeline wall thicknesses, and in turn to increased steel tonnages and costs, the use of higher grade steel could lead to technical challenges and offset any savings from reduced tonnages.<sup>59</sup>

The ACCC is therefore satisfied that GasNet’s proposed selection of steel type is appropriate.

#### *Pipeline wall thickness*

Sleeman Consulting has suggested that it may be appropriate to consider a reduction in the wall thicknesses proposed by GasNet for the majority of the length of the pipeline.<sup>60</sup> GasNet’s proposals are compared to Sleeman Consulting’s in the Table 4.4.2 below.

<sup>58</sup> GasNet Australia, *GasNet Application*, op. cit., p. 15.

<sup>59</sup> Sleeman Consulting, *Estimate of Capital Cost of Corio Loop*, 1 March 2006, p. 2.

<sup>60</sup> *ibid.*, p. 3.

**Table 4.4.2 Pipeline wall thicknesses**

Pipeline Classification	Wall thickness (mm) and design factor (%) <sup>61</sup>		
	GasNet estimated length (km)	GasNet's proposal	Sleeman Consulting's proposed alternative
Light wall	45	7.9 mm (72%)	7.6 mm (72%)
Heavy wall	10	11.1 mm (50%)	9.2 mm (60%)
Extra heavy wall	2	12.7 mm (40%)	13.5 mm (30%)

GasNet's proposed wall thickness assumes a lighter thickness for the 'extra heavy' wall and a heavier thickness for the 'heavy' and 'light' wall classifications. The differences in the wall thickness proposed by GasNet and the alternative thickness proposed by Sleeman Consulting result in a cost difference of an estimated \$0.9 million. However, Sleeman Consulting has indicated that a precise estimate of pipeline material costs cannot be determined until the detailed design process is completed.<sup>62</sup>

The ACCC considers that given the relatively small difference in the estimated cost of pipeline materials provided by GasNet and Sleeman Consulting, and the qualification placed on Sleeman Consulting's analysis, it is appropriate to accept GasNet's estimate of pipeline materials costs.

#### *Pipeline lining*

In examining GasNet's proposal that the Corio Loop pipeline be both externally and internally lined to protect the pipeline against corrosion, Sleeman Consulting observed that internal lining of the pipeline for corrosion purposes would be of questionable value. Pipeline-quality natural gas is not corrosive to steel, and possible concerns regarding drop-out of liquids at pressure-regulating stations have been addressed through the inclusion in GasNet's proposal of gas heating facilities.<sup>63</sup> However, noting that a definitive conclusion on this issue would require flow analyses having regard for predicted throughputs and operating pressures, Sleeman Consulting observes that internal lining may provide the pipeline with enhanced flow characteristics and increase operating efficiency.<sup>64</sup>

Sleeman Consulting estimates that the additional cost of internally coating the pipeline to be \$1.1 million, and that the incremental cost of internally coating pipeline joints for corrosion protection is \$2.3 million.<sup>65</sup>

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<sup>61</sup> *ibid.* The design factor is the pipeline hoop stress, expressed as a percentage of the minimum yield stress of the specified pipeline material, when operating at Maximum Allowable Operating Pressure (MAOP).

<sup>62</sup> *ibid.*, p. 3.

<sup>63</sup> *ibid.*, p. 3.

<sup>64</sup> *ibid.*, p.3.

<sup>65</sup> *ibid.*, p. 6.

The ACCC notes that although GasNet states that the internal lining of the pipeline is for the purposes of corrosion protection, Sleeman Consulting considers that internal lining will enhance the pipeline's operating efficiency. The ACCC therefore considers that internal lining of the pipeline is justified, and GasNet's forecasts costs for the lining of the pipeline should be accepted.

### *Pipeline depth*

GasNet proposes a minimum depth of cover for the Corio Loop pipeline of 900 mm.<sup>66</sup> Sleeman Consulting advises that GasNet's proposal exceeds Australian pipeline design code (AS 2883) requirements for semi-rural land, across which much of the pipeline route will pass, and has advised that the need for a minimum cover of 900 mm (rather than the standard 750 mm) requires further scrutiny during the detailed design process.<sup>67</sup>

The incremental cost of 900 mm minimum cover compared to 750 mm cover is estimated to be \$0.4 million.<sup>68</sup> However, while GasNet's proposed minimum cover may exceed the minimum requirements, the lower depth of 900 mm may be appropriate depending on the terrain encountered during the construction phase.

Given the small cost differential between the two estimates, and the uncertainty surrounding this aspect of GasNet's forecast costs, the ACCC therefore considers a forecast based on a minimum depth of 900 mm to be appropriate.

### ***EPCM (Engineering, Procurement and Construction Management)***

Sleeman Consulting has considered the costs involved in providing engineering, procurement and construction management services to complete the Corio Loop project and has arrived at an estimate of these costs equal to the estimate of costs for this category put forward by GasNet in its application.<sup>69</sup>

On this basis the ACCC accepts GasNet's cost estimate of \$3.7 million.

### ***Licenses and Easements***

The cost estimates provided by Sleeman Consulting are not directly comparable to the forecast of licensing and easement costs provided by GasNet.

The consultant's estimate of costs includes an amount of \$1.8 million for 'Services', including environmental approvals (including cultural heritage), surveying and geotechnical input and land access.<sup>70</sup>

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<sup>66</sup> GasNet Australia, *GasNet Application*, loc cit.

<sup>67</sup> Sleeman Consulting, op. cit. p. 5.

<sup>68</sup> *ibid.*, p. 6.

<sup>69</sup> Sleeman Consulting, op. cit., pp. 5–6.

<sup>70</sup> *ibid.*, p. 5.

The consultant considers that some of the \$3.4 million in costs included by GasNet as costs of licences and easements may relate to items that are included in the consultant's forecast as 'Owner's Costs', which include commercial and contracting costs and costs of internal monitoring and reporting likely to be incurred by GasNet as the owner/developer of the pipeline, but which the consultant has not included under other cost items, and for which the consultant has estimated costs of \$1.0 million.<sup>71</sup>

The ACCC recognises that there is likely to be considerable variability in between forecast and actual costs of licences and easements. For example, GasNet has forecast an amount of \$0.7 million for the negotiation of native title claims, and this category of funding may extend to providing funding for compulsory acquisition of easements where commercial agreements cannot be negotiated. Accordingly, in light of the difficulty in accurately forecasting these costs, the ACCC is satisfied that GasNet's forecast of licence and easement costs is appropriate.

### ***Facilities***

Sleeman Consulting considers that the construction of a new city gate station, comprising heaters, pressure regulation and metering facilities, as proposed by GasNet, is appropriate. To ensure reliability of gas supply, the consultant has also confirmed that this new facility should be designed to incorporate multiple runs, and that the installation of an additional regulator run at the Brooklyn city gate station to expand the capacity of that gate is required. This analysis supports GasNet's application. The consultant considers that the inclusion of pipeline pigging facilities, and GasNet's proposal to include two mid-line isolation valves, consistent with the provisions of the relevant Australian standard (AS 2885), will provide for ongoing, prudent pipeline operations and management.<sup>72</sup>

The ACCC therefore accepts GasNet's forecast costs for constructing service facilities associated with the pipeline. The uncertainty surrounding the formalisation of connection arrangements between the Corio Loop pipeline and existing facilities at Brooklyn highlighted by the consultant,<sup>73</sup> suggests that GasNet's forecast of facilities costs is likely to be appropriate.

#### **4.4.2 Capitalisation of return over construction period**

GasNet's application seeks a \$2.2 million allowance for financing costs incurred during construction. GasNet's proposed capitalisation is based on the forecast new facilities investment of \$61.7 million.

GasNet claims the provision of this allowance is consistent with the ACCC's past practice and makes specific reference to the Victorian Gas Transmission Access

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<sup>71</sup> *ibid.*, p. 6.

<sup>72</sup> *ibid.*, pp. 3–4.

<sup>73</sup> Sleeman Consulting, *op. cit.*, p. 4.

Arrangements of 6 October 1998 (the Victorian Access Arrangements).<sup>74</sup> The ACCC notes the Code does not refer to allowance for the capitalisation of a reasonable return on construction costs for inclusion in the capital base. However, in assessing GasNet's application, the ACCC considers that sections 8.1(a), 8.1(b), 2.24(a) and 2.24(e) of the Code are relevant to this issue. The ACCC's consideration of the Code requirements in relation to the capitalisation of a reasonable return on construction costs is set out below.

In the Victorian Access Arrangements, the ACCC recognised that sections 8.12 and 8.15 of the Victorian Access Code required new pipelines and additions to an existing pipeline to be valued at their actual cost.<sup>75</sup> In particular, the ACCC considered that where a facility takes a number of years to construct, the discretion provided by the Victorian Access Code allowed the regulator to determine whether the costs should be included in the capital base as they are incurred or when the facility enters into service.<sup>76</sup> The ACCC considered that although costs should enter the capital base from when the facility enters into service, the inclusion of an allowance which reflects the capitalisation of a reasonable return on construction costs incurred for an efficient construction period was appropriate.<sup>77</sup>

The ACCC considers that the principles set out in sections 2.24 and 8.1 of the Code would not be satisfied if GasNet is unable to recover sufficient revenue to meet the costs of delivering reference services. The ACCC also considers that the inclusion of an allowance for capitalising prudent construction by providing sufficient revenue to meet costs incurred in constructing the new facilities is in the long term interests of users and prospective users consistent with section 2.24(f) of the Code.

As previously noted Origin Energy has expressed concern that the capitalisation of construction costs would set an undesirable precedent.<sup>78</sup> As discussed above, this issue has been considered previously and the ACCC has recognised the capitalisation of construction costs in the Victorian Access Arrangements, the Amadeus Basin to Darwin Pipeline (ABDP) and the Central West Pipeline (CWP) access arrangements.

Origin Energy also submitted that the ACCC should clarify the circumstances in which the recovery of capitalised costs applies, and provide clear guidance with respect to an

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<sup>74</sup> Further in the Amadeus Basin to Darwin Pipeline Access Arrangement (ABDP), the ACCC recognised that the return on actual capital costs incurred during the construction of the ADBP represented legitimate costs to NT Gas and the failure to include them in the calculation of total revenue may result in cash flows insufficient to cover NT Gas' actual costs. In this case the ACCC considered it appropriate to include the NPV of these costs, in addition to the lease payments, in undertaking the Optimised Deprival Value valuation methodology. In the Central West Pipeline 2000–2010 Access Arrangement (CWP) also accepted AGLP's proposed valuation for the capital base which includes a capitalisation of construction costs. See ACCC, *Victorian Gas Transmission Access Arrangements Final Decision*, 6 October 1998, pp. 27, 101–3; ACCC, *Central West Pipeline Access Arrangement Final Decision*, June 2000, pp. 58, 64; fn. 121.

<sup>75</sup> Sections 8.12 and 8.15 of the Victorian Access Code are equivalent to their corresponding sections in the Code.

<sup>76</sup> The Victorian Access Code does not explicitly provide this discretion.

<sup>77</sup> ACCC, *Victorian Gas Transmission Access Arrangements Final Decision*, 6 October 1998, p. 27.

<sup>78</sup> Origin Energy, op. cit., p. 2.

acceptable construction period, such that users do not bear the additional risk from any inefficiencies as a result of GasNet's construction program.<sup>79</sup> In assessing GasNet's forecast construction period in terms of an efficient construction period, the ACCC notes that the commissioning date proposed by GasNet for the Corio Loop has been driven by the need to address an emerging network constraint identified by VENCORP as part of its network planning function. The ACCC accepts GasNet's proposed construction period from 1 January 2006 to 31 March 2008 and GasNet's proposed monthly expenditure profile of forecast new facilities investment.

### ***Treatment of capitalised construction costs between access arrangement periods***

As discussed above, GasNet's application submits that a reasonable method for calculating this component is to apply the WACC in GasNet's 2003–2007 access arrangement to the total estimated construction costs, until the forecast commissioning date of March 2008.<sup>80</sup> GasNet estimates this component to be \$2.2 million, which will vary depending on the option adopted for the roll-in of capital expenditure to the capital base.<sup>81</sup>

GasNet's option 2—the inclusion of new facilities investment in the next access arrangement period—seeks to have the portion of construction costs incurred up until the end of 2007 regarded as actual new facilities investment incurred during the 2003–2007 regulatory period and rolled into the capital base at the commencement of the 2008–2012 regulatory period. GasNet proposes that the remainder be included as forecast new facilities investment for the 2008–2012 regulatory period.<sup>82</sup>

In view of this roll-in mechanism it is necessary to distinguish between:

- the allowance for that portion of capitalised construction costs which relates to expenditure forecast to be incurred on or before 31 December 2007; and
- the allowance for that portion of capitalised construction costs which relates to expenditure forecast to be incurred after 31 December 2007.

The ACCC considers that the pre-2008 allowance should be included in the approved forecast new facilities investment that is added to the capital base at the beginning of 2008 but that the post-2007 allowance should not. This is because provision will be made in the 2008–2012 access arrangement for expenditure forecast to be incurred in that period. It would amount to double counting if the ACCC also allowed capitalised construction costs in respect of the post-2007 expenditure to be reflected in the approved new facilities investment.

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<sup>79</sup> *ibid.*

<sup>80</sup> GasNet Australia, *GasNet Application*, p. 16.

<sup>81</sup> *ibid.*

<sup>82</sup> *ibid.*, p. 7.

### *Capitalisation amount to be approved*

GasNet has provided supplementary information to the ACCC which estimates the forecast monthly expenditure profile on the Corio Loop. This expenditure profile is consistent with the project timing in GasNet's application as shown in Table 4.2.2.

The ACCC has also assessed GasNet's methodology to determine the capitalised return on forecast new facilities investment.

GasNet's calculation of the monthly capitalised return on construction costs is as follows:

- The monthly forecast new facilities investment is inflated by a forecast rate of inflation and then the real vanilla monthly WACC is converted to a nominal monthly WACC to derive a nominal monthly return on construction costs;
- The next step is to deflate the nominal monthly return on construction costs by the forecast monthly inflation rate to derive the real (\$2005) capitalised monthly construction costs.

In contrast, the ACCC has calculated the capitalised monthly return on construction costs by applying the real monthly costs to the real vanilla monthly WACC. This approach does not provide the same amount of real capitalised construction costs derived by GasNet.<sup>83</sup>

A review of GasNet's calculation concludes that the formula GasNet applies to capitalise forecast new facilities investment systematically biases the calculation in GasNet's favour. The source of this systematic bias arises from the conversion of real costs to nominal costs which are capitalised by the monthly nominal WACC before being converted back to real capitalised costs. Appendix B provides a derivation of this bias.

The ACCC concludes that calculation of the capitalised return on construction costs should be an unbiased estimate of these costs.

The ACCC has applied the real vanilla WACC of 6.62 per cent from GasNet's 2003–2007 access arrangement to GasNet's forecast monthly expenditure profile up until 31 December 2007 and removed the bias in GasNet's calculation by directly calculating the real capitalised costs for determining the total capitalised return on construction costs.<sup>84</sup> Once this bias is corrected, the appropriate capitalised return on construction costs is \$0.84 million. The ACCC proposes to approve \$0.84 million in the forecast new facilities investment for capitalisation.

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<sup>83</sup> The ACCC has accepted GasNet's construction costs and the time profile of those costs and therefore the capitalisation of a return on construction costs in real terms should be the same under either GasNet's or the ACCC's methodology.

<sup>84</sup> The real vanilla monthly WACC is applied to the real monthly costs to determine the real monthly capitalised return on construction costs.

#### 4.4.2 Contingency for cost uncertainty (10 per cent of construction and financing costs)

GasNet describes the basis for its proposed contingency allowance as follows:

GasNet has made a best estimate of the cost of the project of \$61.7m (excluding capitalised interest). However, GasNet is not proposing to include this amount in the [capital base], but instead has proposed to roll-in the actual expenditure incurred. The cost may be higher or lower than our estimate due to factors that are outside our control, such as escalation of the steel price, changes to the quantity of rock included in the estimate, shortage of suitable pipeline contractors due to involvement in other projects, route changes identified during the approval process and changes identified during the detailed design process.

In order to proceed with the project, GasNet requires an *ex ante* assurance that the costs of the project, prudently incurred, will be included in the [capital base]. **GasNet does not want to have to return to the ACCC after the project has been completed if, due to circumstances beyond our control, the actual (prudently incurred) cost exceeds our current best estimate, as this would introduce unacceptable uncertainty.** GasNet believes that a 10% margin represents a reasonable contingency based in GasNet's knowledge of the route, experience in the approval process and recent experience in management of pipeline construction, and on this margin we are willing to take the risk of an *ex post* approval on any over-runs above this level.<sup>85</sup>

The ACCC is not satisfied the additional 10 per cent would be required by a prudent service provider acting as contemplated by section 8.16(a)(i) of the Code. As GasNet states, its best estimate of the cost of the project is \$61.7 million. While actual costs may ultimately be higher or lower than this, GasNet's stated desire to avoid returning to the ACCC if the actual costs exceed its current best estimate does not provide a foundation for inflating the amount in respect of which agreement under section 8.21 of the Code is sought. If GasNet does incur cost over-runs, it would have the opportunity to apply for the inclusion of any that it can demonstrate meet the requirements of section 8.16(a) of the Code when it submits revisions to its access arrangement in 2007 or at any other time.

The ACCC considers that the approval of an additional contingency amount would reduce any incentive for GasNet to mitigate the risks associated with general cost uncertainty through risk management strategies that might be adopted by a prudent service provider acting efficiently, and in accordance with accepted good industry practice (for example, by contracting forward to avoid uncertainty in steel prices).

The ACCC does not consider that GasNet's proposal to include a \$6.4 million contingency allowance in its forecast meets the requirements of section 8.16(a)(i) of the Code.

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<sup>85</sup> GasNet Australia, Response to ACCC Request on Proposed Project Costs, 14 March 2006, p. 5 (emphasis added).



## **4.5 ACCC's conclusions**

### ***New facilities investment***

The ACCC concludes that GasNet's forecast of \$61.7 million does not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing services, and meets the requirements of section 8.16(a)(i) of the Code.

### ***Capitalisation of return over construction period***

The ACCC considers that the inclusion of an allowance for the capitalisation of costs during construction of \$0.840 million is consistent with the requirements of section 8.16(a)(i) of the Code.

### ***Contingency for cost uncertainty***

The ACCC does not consider that the additional \$6.4 million contingency allowance included by GasNet in its forecast new facilities investment meets the requirements of section 8.16(a)(i) of the Code.

## 5 System-wide benefits

### 5.1 Relevant provisions of the Code

Section 8.16(a)(ii) of the Code requires satisfaction of one or more of three conditions for the inclusion of new facilities investment in the capital base. GasNet argues that its proposal meets the requirements of section 8.16(a)(ii)(B). Pursuant to this subsection, the ACCC must be satisfied that the new facility has system-wide benefits that justify the approval of a higher reference tariff for all users.

This section details the ACCC's assessment of the Corio Loop augmentation under the system-wide benefits test.

### 5.2 GasNet's application

#### 5.2.1 Level of benefits

GasNet submits that the Code provides no guidance as to the threshold level of system-wide benefits that would be necessary to justify the inclusion of investment in the capital base based on system-wide benefits. GasNet argues that regulatory precedent provides that where costs are expected to be recovered through a substantial increase in tariffs to all users, the system-wide benefits must be also be substantial.

GasNet submits that the system-wide benefits likely to arise from the Corio Loop are sufficiently substantial as the present value of benefits exceeds the present value of costs. GasNet acknowledges the difficulty of measuring the quantum of system-wide benefits, however GasNet considers that a reasonable estimate of net system-wide benefits arising from the Corio Loop over the life of the asset is \$93.1 million in present value terms.<sup>86</sup>

#### 5.2.2 Nature of system-wide benefits

GasNet submits that the Corio Loop will provide the following system-wide benefits:

- improved system capability;
- enhanced system security; and
- competition benefits.

GasNet's arguments in relation to these issues are outlined below. In relation to the first two categories, GasNet's application refers to VENCORP's quantification of benefits arising from the Corio Loop in terms of a reduction in the Value of Unserved Energy (VUE). The VUE is a measure of the value placed by consumers on energy foregone in

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<sup>86</sup> GasNet Australia, *GasNet Application*, op. cit., pp. 16–17.

the event of an involuntary load curtailment. That is, it is the dollar value to consumers of energy lost due to an outage.

### ***Improved system capability***

GasNet considers that the main benefit of the Corio Loop is that it improves the capability and operational flexibility of the PTS to meet within-day supply-demand imbalances (and therefore its ability to meet peak demand) by increasing the level of useable system linepack and system capacity.<sup>87</sup> This benefit leads to a reduction in VUE through a reduction in involuntary load curtailment caused by inadequacies in the network through which gas is delivered (i.e. the volume of supply is sufficient to meet demand, but the gas supply cannot reach end-users due to a constrained transmission network).

GasNet notes that VENCORP estimated the value of improved system capacity on the PTS to be \$35.7 million based on a reduction in the VUE between 2008 and 2011. GasNet contends that this figure is conservative as it only gives an estimate of improved system capability from the Corio Loop over the asset's first four years, and not the full life of the asset.<sup>88</sup>

### ***Enhanced system security***

GasNet considers that a secondary benefit of the Corio Loop is that it provides extra supply insurance in the event of supply outages affecting flows along the Longford pipeline.<sup>89</sup> The value of a reduction in supply-related curtailments to users is the value of energy associated with reduced involuntary load curtailment caused by a plant or pipeline failure (i.e. there is sufficient network capacity through which gas can be delivered, but insufficient supply to meet demand).<sup>90</sup>

GasNet notes that VENCORP estimated that the Corio Loop would make available an additional 84.7 TJ to the PTS for each day in the event of a supply failure at Longford. GasNet further notes that VENCORP's estimate of the value of improved system security from the Corio Loop is that there will be a reduction in supply-related curtailments worth around \$7.6 million between 2008 and 2011. GasNet expect this estimate to be much higher over the full life of the asset.<sup>91</sup>

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<sup>87</sup> GasNet Australia, *GasNet Application*, op. cit., p. 17.

<sup>88</sup> *ibid.* The ACCC notes that the benefits from the reduction in VUE for this category have been taken from 2011 onwards (over the economic life of the project) to remain the same as the 2011 benefits. The \$93.1 million NPV of the market benefit reflects the benefits under this category over the economic life of the asset: see VENCORP, *VENCORP Report*, op. cit., p. 32.

<sup>89</sup> GasNet Australia, *GasNet Application*, op. cit., p. 18.

<sup>90</sup> VENCORP, *VENCORP Report*, op. cit., pp. 30, 32.

<sup>91</sup> GasNet Australia, *GasNet Application*, op. cit., p. 19. The ACCC notes however that the \$93.1 million NPV of the net market benefits of the Corio Loop option, in accordance with VENCORP's modelling includes benefits under this category over the full 50 year economic life of the asset.

### ***Competition benefits***

GasNet considers that the Corio Loop would provide enhanced competition benefits associated with the Southwest Pipeline. In particular, GasNet considers that the Corio Loop will facilitate competition in both upstream and retail markets, by expanding access to the gas storage and existing and potential gas fields in the Otway Basin.<sup>92</sup>

GasNet notes in its application that VENCORP has estimated the value of competition benefits from the Corio Loop at around \$26.9 million. GasNet states that VENCORP's calculation of competition benefits is based on a limited definition of competition benefits which only partially considers the impact of competitive forces on the cost of gas, and it considers that on a broader definition, such as one which includes 'gas on gas' competition, these benefits are likely to be higher.<sup>93</sup> GasNet notes that ultimately the magnitude of competition benefits will depend on the costs of competitive gas supplies and the extent of gas developments in the Otway Basin and South Australia.<sup>94</sup>

#### **5.2.3 Distribution of benefits**

GasNet acknowledges that the benefits of the Corio Loop may not always be enjoyed equally by all PTS users. GasNet notes that because of the way the gas curtailment regime operates in Victoria, the proposed augmentation will most benefit those who are first to be curtailed under the established Curtailment Guidelines.<sup>95</sup> GasNet notes, however, that the ACCC has previously recognised that benefits need not accrue equally to all users to be considered 'system-wide', and refers to the *Final Decision: Access Arrangement for the Principal Transmission System – Application for Revision by GPU GasNet Pty Ltd* (the Interconnect Decision) where the ACCC stated that it:

does not interpret the Code to require that system-wide benefits would accrue equally and simultaneously to all users. Rather, benefits should be available across the system and potentially be available to much of the customer base<sup>96</sup>

GasNet further notes that in any event:

- the Curtailment Guidelines may change and 'those users who are currently not curtailed do not pay a premium in the tariff for this benefit over those users who are

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<sup>92</sup> *ibid.*

<sup>93</sup> *ibid.*

<sup>94</sup> *ibid.*

<sup>95</sup> *Ibid.* p.18. see also VENCORP, *Gas Load Curtailment and Gas Rationing and Recovery Guidelines*, Issue 7.0 March 2003. The VENCORP guidelines set out the order in which VENCORP must, where it is required to do so, and to the extent it is reasonably practical, implement load curtailment. The order in which curtailment is to occur, in accordance with these tables is, generally speaking, in descending order according to size, with higher volume users curtailed first. That is, as clarified with VENCORP, large industrial customers, would be the class of customers who would typically be curtailed first and benefit therefore firstly from an expansion of the network to relieve intra-day constraints.

<sup>96</sup> GasNet Application, p. 18, citing Australian Competition and Consumer Commission, *Final Decision Access Arrangement for the Principal Transmission System - Application for Revision by GPU GasNet Pty Ltd*, 28 April 2000, p. vi (the Interconnect Decision).

curtailed, so it is appropriate that they pay a part of the cost of investments which reduce the risk of curtailment imposed on other users’;

- the Corio Loop defers the point at which users lower in the curtailment order would otherwise be subject to curtailment;
- there are broad public interest considerations in maintaining the reliability of gas supply in Victoria and the ACCC is required by section 2.24(e) of the Code to take public interest considerations into account when it considers access arrangements; and
- the augmentation has been recommended by VENCORP, an independent statutory corporation, whose roles include monitoring the capacity of the GNS and providing planning services to the gas industry as a whole.<sup>97</sup>

#### 5.2.4 Distribution of costs

GasNet notes that the current assessment process does not extend to the appropriate tariff structure for recovering the Corio Loop costs. This would be considered when GasNet submits its proposed revisions to the access arrangement, including its proposed reference tariff policy and structure, for the 2008–2012 access arrangement period. It submits that the system-wide benefits test does not bind GasNet to implement a specific tariff structure, noting that this could potentially result in inconsistency with the tariff design principles in the Code, and in particular section 8.1 of the Code.

Nonetheless, GasNet discusses the potential implications of the new facilities investment in the Corio Loop on reference tariffs in the 2008–2012 access arrangement period.

GasNet suggests that an investment which passes the system-wide benefits test could be recovered through a general increase in the anytime tariff. However, based on its forecasts of increased flows in the Southwest Pipeline as a result of the Corio Loop, GasNet expects that it would recover 5 to 10 per cent of the incremental costs of the Corio Loop augmentation from users of the Southwest Pipeline, if it maintained the Southwest Pipeline tariff at the same price path as that which would prevail in the absence of the augmentation. It notes that the proportion of costs recovered in this way would then grow over time as volumes along the Southwest Pipeline grow. The remainder of costs could be recovered from all users through an uplift in the anytime tariff of approximately \$0.021/GJ. GasNet notes that the actual tariff would depend on the actual costs incurred, the approved WACC and depreciation profile, and other factors which the ACCC considers relevant when it considers GasNet’s proposed revisions to the access arrangement for the regulatory period beginning in 2008.

In support of this proposition GasNet refers to the Interconnect Decision, which it submits establishes the principle that a portion of asset costs rolled into the capital base

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<sup>97</sup> GasNet Australia, *GasNet Application*, op. cit., p. 18.

under the system-wide benefits test can be recovered directly from users of the new asset, so that when dealing with a new investment which satisfies the system-wide benefits test:

- capital costs are first recovered from users of the new facility via the prevailing tariff; and then
- the residual capital costs are recovered from all users via a universal tariff uplift expressly approved by the ACCC on the basis that the investment creates system-wide benefits.<sup>98</sup>

### **5.3 Submissions from interested parties**

#### **5.3.1 Level of benefits**

TRUenergy's submission noted that the project is expected to deliver a (net) market benefit of \$93.1 million and that this represents a 'significant' benefit to the market. It submits that the reliability of the net market benefit test is 'strengthened' by the reasonableness of the assumptions made in the modelling. In particular, TRUenergy noted that the sensitivity testing applied to the modelling shows that in all cases the Corio Loop has a considerably higher net market benefit than the Longford Loop.<sup>99</sup>

#### **5.3.2 Nature of system-wide benefits**

In its submission TRUenergy made reference to previous decisions of the ACCC, in particular the Interconnect Decision and the South West Pipeline decision, and observed that in both cases the ACCC concluded 'that on a forward looking basis it is the potential of these assets to provide system security insurance that provides system-wide benefits'.<sup>100</sup>

TRUenergy submitted that the project that underpins GasNet's application provides system-wide benefits to all customers consistent with the Interconnect Decision and South West Pipeline decisions in that it is expected to:

- provide significant system security enhancement and increased linepack;
- provide additional multiple sources of gas that will help meet projected demand growth in the short to medium term; and
- encourage a stronger flow of gas from the Otway basin to compete more aggressively with other upstream basins.<sup>101</sup>

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<sup>98</sup> GasNet Australia, *GasNet Application*, pp. 20–21.

<sup>99</sup> TRUenergy, op. cit., pp. 3–4.

<sup>100</sup> *ibid.*

<sup>101</sup> *ibid.*, p. 5.

In relation to competition benefits, TRUenergy stated that ‘it is TRUenergy’s expectation that the competition benefits from the Corio Loop will be more substantial than those calculated in VENCORP’s net market benefits test’.<sup>102</sup>

Origin Energy’s submission noted that the key benefits identified (in VENCORP’s report) were the ‘reduced potential for curtailment of industrial and commercial users, enhanced reliability and security as well as increased scope for gas-on-gas and pipeline-on-pipeline competition.’<sup>103</sup> In its submission, Origin Energy argued that reduction in the incidence of curtailment of large users (without AMDQ) on its own would not be sufficient to support sharing of costs across all users, rather it is the combination of system security and competition benefits identified by VENCORP that give the Corio Loop project system-wide benefits.<sup>104</sup>

### 5.3.3 Distribution of benefits

Origin Energy commented that:

the beneficiaries in this case are diffuse with a number of different parties likely to benefit from the pipeline expansion and with the beneficiaries likely to change over time as the expansion encourages new suppliers, customers and shippers to access upstream and downstream markets. It will therefore be difficult to attribute the costs of the pipeline over its operational life to specific parties; particularly in the absence of firm access rights to the network.

In light of this essential difficulty Origin is supportive of GasNet’s intention to recover the cost of the Corio Loop augmentation through an increase in reference tariffs to all users of the PTS. Moreover, many of the benefits identified as consequential to the investment such as competition and reliability benefits can be considered to primarily fall to consumers as a class, further justifying this approach. Origin is supportive of an increase in reference tariffs to recover the cost of the investment provided all gas retailers are subject to an equivalent increase, which can be passed through in a competitively neutral manner to end users.<sup>105</sup>

TRUenergy submitted, noting past regulatory precedent, that the ‘net market benefits’ need not be shared equally by all users to be considered system-wide, and referred to OffGAR’s final decision in the Alinta case.<sup>106</sup>

A new facility may be said to provide system-wide benefits when it provides a benefit that is generally available, as opposed to being available to only a particular person or persons. However this does not mean that each user must benefit simultaneously or to the same extent.<sup>107</sup>

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<sup>102</sup> *ibid.*

<sup>103</sup> Origin Energy, *op. cit.*, p. 1.

<sup>104</sup> *ibid.*

<sup>105</sup> *ibid.*

<sup>106</sup> Office of Gas Access Regulation (Western Australia), *Recovery of costs associated with the introduction of full retail contestability in the mid -west and south-west gas distribution networks: Final Decision*, October 2003

<sup>107</sup> TRUenergy, *op. cit.*, p. 5.

### 5.3.4 Distribution of costs

Origin Energy's submission recognised the difficulties in attributing the costs of the Corio Loop over its operational life to specific parties, particularly given the absence of firm access rights to the network. Origin Energy expressed its support for an increase in reference tariffs to recover the costs of the new facilities investment, provided all gas retailers are subject to an equivalent increase, which could then be passed through to end users in a competitively neutral manner.<sup>108</sup>

TRUenergy submitted that the fact that GasNet's application to the ACCC relies on the system-wide benefits test in section 8.16(a)(ii)(B) of the Code will bind the ACCC to recover the costs from all users equally, because the augmentation will provide system-wide benefits to all customers. The submission questioned the rationale for recovering a portion of the new facilities investment from existing customers on the Southwest Pipeline, and queried whether this is inconsistent with the system-wide benefits test. TRUenergy expressed concern that GasNet's preliminary tariff proposal would, if approved, create a precedent whereby there would be 'winners and losers' where costs were recovered under the system-wide benefits test, in a way that was not contemplated by section 8.16(a)(ii)(B) of the Code.<sup>109</sup>

## 5.4 ACCC considerations

Under section 8.16(a)(ii)(B) of the Code the ACCC is required to weigh identified system-wide benefits against the prospect of a higher tariff for all users. This involves considering the level and distribution of benefits as well as considering both the quantum of cost in relation to the benefit and the distribution of the burden of that cost.

### 5.4.1 Does the Corio Loop have system-wide benefits as required under section 8.16(a)(ii)(B) of the Code?

#### 5.4.1.1 Level of benefits

GasNet's 'reasonable estimate' of net system-wide benefits of \$93.1 million in its application is consistent with the 'base case' analysis in the VENCORP Report.<sup>110</sup> The ACCC is satisfied that VENCORP has conducted its modelling of system-wide benefits in a rigorous manner. In assessing the benefits it has relied on studies it has had commissioned in order to ensure the reasonableness of the end figure. Further, it has conducted sensitivity testing around the assumptions underlying the modelled benefits.<sup>111</sup> The ACCC considers \$93.1 million to be a reasonable estimate.

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<sup>108</sup> Origin Energy, op. cit., p. 1.

<sup>109</sup> TRUenergy, op. cit., pp. 5–6.

<sup>110</sup> VENCORP, *VENCORP Report*, op. cit., p. 37.

<sup>111</sup> VENCORP, op. cit., pp. 29-31 The method of calculation underlying the reduction in Value of Unserved Energy figures can be found in the VENCORP Report as can the references to the studies and models relied on which underpin the method and results of these calculations.



#### 5.4.1.2 Nature of benefits

The nature of the benefits of the Corio Loop augmentation is set out in the VENCORP Report. VENCORP has identified two ‘market benefit’ categories in the base case in its Report, represented by the calculations for the reduction in  $VUE_{(network)}$  (capturing the benefits from improved system capability) and reduction in  $VUE_{(supply)}$  (capturing the benefits from enhanced system security). Competition benefits, which are nevertheless considered to exist, have not been included in VENCORP’s base case and therefore are not included in VENCORP’s estimate of \$93.1 million.

##### *Improved system capability*

The enhancement of the network to overcome the emerging insufficient network capacity would provide a certain, almost immediate system-wide benefit through reduced curtailment. VENCORP identified in its 2004 GAPR that a major augmentation was required before winter 2008 to reduce reliance on LNG to meet a 1-in-20 peak day demand. The Corio Loop meets the need to increase system capacity identified in the 2004 GAPR by increasing useable system linepack.<sup>112</sup>

This improved system capacity represents the largest proportion of benefits in the base-case modelling conducted by VENCORP. As GasNet notes, the NPV modelled by VENCORP from this improved system capacity is \$35.7 million from 2008 to 2011. After 2011, in accordance with VENCORP’s modelling, the benefits are assumed to remain the same as the 2011 benefits (i.e. \$16.3 million (\$2005) for each year for the remainder of the asset’s life).<sup>113</sup>

The amount of the NPV of project benefits is sensitive to the value customers place on reliability (VCR). However the project remains NPV positive under sensitivity testing around the value that customers attribute to network reliability.<sup>114</sup> This provides further confidence that the project meets section 8.16(a)(ii)(B) of the Code, given that the analysis below indicates that all users would benefit from the augmentation, and the fact that the actual *distribution* of benefits to users would not be sensitive to the value customers place on reliability.<sup>115</sup>

##### *Enhanced system security*

The Corio Loop would provide a secondary system-wide benefit since it would reduce the probability of network outages in the face of a supply or pipeline disruption such as

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<sup>112</sup> VENCORP, *Gas Annual Planning Review 2006–2010*, p. 27 (the 2005 GAPR).

<sup>113</sup> VENCORP, *VENCORP Report*, op. cit., p. 32.

<sup>114</sup> *ibid.*, p. 37, table 24.

<sup>115</sup> The ACCC requested the inclusion of sensitivity testing of the VCR (+/- 25 per cent) for industrial and commercial customers to meet concerns about the possibility that survey participants may have over or under-stated the true value of gas to them. This test addresses the fact that also VENCORP has used the survey value in the reduction in  $VUE_{(supply)}$  for large customers to equally also apply for the smaller percentage of residential customers. The ACCC agrees with VENCORP’s comments that applying the VCR from industrial/commercial customers to residential customers is unlikely to lead to any large under or over statement of benefits.

on the Longford side. The ACCC has given consideration to past occurrences, such as the Longford outage of 1998, in considering what might happen on a forward looking basis.

The ACCC considers that VENCORP's modelling is based on a comprehensive assessment of possible future outage scenarios and that the benefits estimated in Table 9 of the VENCORP Report are a reasonable assessment. The ACCC notes that the benefits modelled by VENCORP are \$7.6 million between 2008 and 2011.<sup>116</sup>

### *Competition benefits*

The ACCC notes the reason that VENCORP has not included an estimate of competition benefits in its base case model is that the method used incorporates wealth transfers and efficiency gains. VENCORP has estimated competition benefits using the projected 'uplift' derived from its mass balance model and an assumed bid stack.<sup>117</sup> VENCORP has advised that its estimate of competition benefits does encompass 'gas-on-gas' competition.

There may be some degree of debate as to whether the modelling by VENCORP fully captures the competition benefits arising from this project. Nevertheless, GasNet's application, the VENCORP Report and submissions received are in agreement that there are significant competition benefits attached to the Corio Loop.

It is likely that there are significant competition benefits associated with the project. These arise in particular from stronger flows of gas originating out of the Otway Basin (sourced from an increasing number of competing fields), allowing greater supply from the Iona side to compete against the existing larger supply of gas coming through Longford. VENCORP's supply forecasts and other recent public reports are indicative of the likelihood of stronger flows from the Otway Basin.<sup>118</sup> The existence of competition benefits is of added significance in the context of the observation that 'sustainable competition between a large number of producers is critical if gas consumers are to realise the benefit of the full reforms undertaken in other sectors of the gas market'.<sup>119</sup>

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<sup>116</sup> VENCORP, *VENCORP Report*, op. cit., p. 32. Note however that the \$93.1 million NPV of the net market benefits of the Corio Loop option, in accordance with VENCORP's modelling includes benefits under this category over the full 50 year economic life of the asset.

<sup>117</sup> *ibid.*, p. 34.

<sup>118</sup> VENCORP, *2005 GAPR*, op. cit., pp. 25–26 states that 'the Thylacine and Geographe fields in the Otway Basin indicates a large increase in gas available for injection into the PTS via the SeaGas interconnect at Iona'. The ACCC also notes in the *Australian Financial Review*, 9 March 2006, it was reported that the first flow of gas had been dispatched from TRUenergy's Iona gas processing plant, sourced from the \$200 million Santos Casino Gas Project to service South Australia and the Eastern states. It was further reported that Woodside's \$1.1 billion Otway gas project based on the Geographe and Thylacine fields was expected to be finished this year.

<sup>119</sup> Council of Australian Governments, *Energy Market Review Final Report—'Towards a Truly National and Efficient Energy Market'*, December 2002, p. 197 (Parer Report). The ACCC notes that at present the large majority of supply in the PTS comes from the Longford side of Melbourne, this augmentation will facilitate the passage of comparatively more gas from the Otway basin to compete with this existing larger source of gas. The objectives stated in the Parer Report will be facilitated through both an increased volume of gas being supplied from the Otway

### **5.4.1.3 Conclusion on system-wide benefits**

VENCorp's modelling identifies market benefits which the ACCC considers to be system-wide. The ACCC also considers that there will be significant competition benefits attached to this project, and has taken these into account. The ACCC has concluded that the Corio Loop has system-wide benefits.

### **5.4.2 Do these system-wide benefits justify an increase in reference tariff to all users as required under section 8.16(ii)(B) of the Code?**

#### ***5.4.2.1 Distribution of benefits***

##### *Improved system capability and enhanced system security*

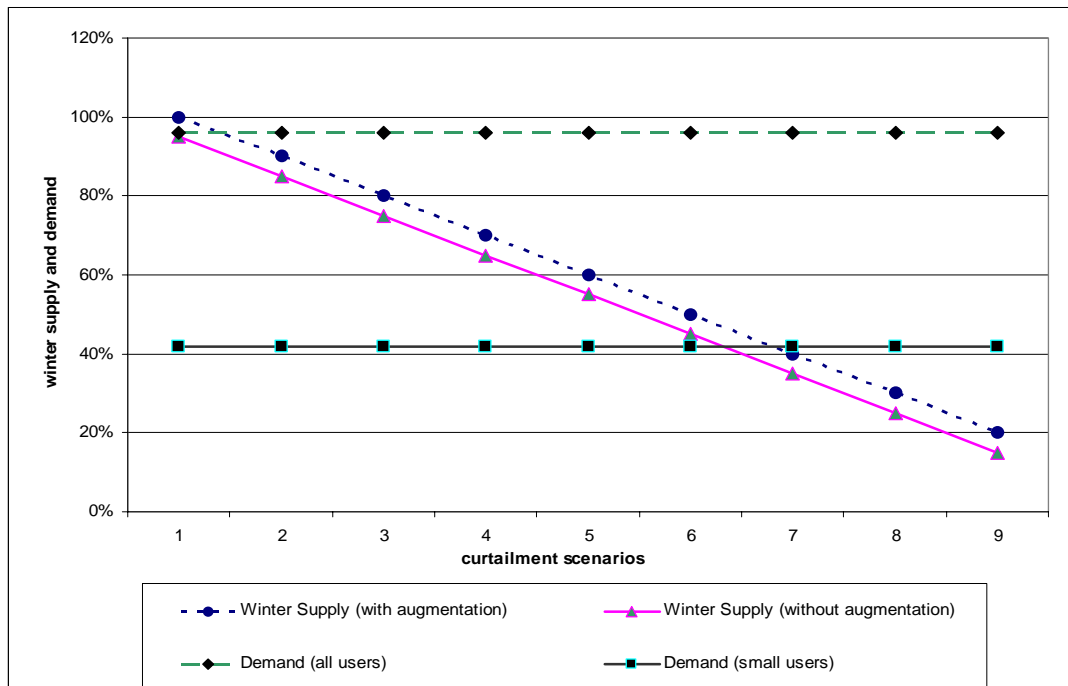
The benefits identified and modelled by VENCorp do not accrue to all users equally and simultaneously. As a consequence of the current curtailment tables in the Curtailment Guidelines, in the short term large end users would be expected to benefit more than smaller users. The distribution of these system-wide benefits for larger users and small users can be illustrated by reference to the diagram below.

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Basin and also by virtue of the fact that the diverse ownership of this gas will introduce more competition.

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**Figure 5.4.2.1 Effect of capacity enhancements (winter demand and reduced supply)**



Supply without the augmentation is plotted to the left of supply with the augmentation, reflecting the fact that for all scenarios the Corio Loop augmentation will provide more supply to meet demand. Demand has been held constant while the supply capacity is varied from full capacity to reduced capacity according to scenarios to the right, which represent increasingly serious scenarios where supply might be significantly reduced, for example by an event of similar magnitude to the 1998 Longford explosion.

While the scenarios in the diagram are only illustrative, they provide a useful demonstration that while capacity enhancements of the magnitude added by the Corio Loop would be expected to firstly benefit largest users, if a sizeable ‘supply’ outage was to occur then benefits would also flow to small users.

Scenario 1 in this diagram shows that on 1 in 20 winter peak days after 2007, network constraints would cause supply/demand imbalances.<sup>120</sup> The benefits from increased system capacity through ‘freeing up’ linepack would prevent curtailment of the larger users at the top of the curtailment tables. It would not affect small users because supply is largely enough to meet demand and, in accordance with the curtailment tables, they are effectively prioritised above larger users in receiving this supply.

Scenarios to the right of right of scenario 6 illustrate scenarios where a significant supply outage, such as another Longford scenario, could cause curtailment down to small users. As the Corio Loop augmentation is modelled to make available an extra

<sup>120</sup> VENCORP, 2005 GAPR, op. cit., p. 28.

84.7 TJ each day, the extent of curtailment of small users would be reduced significantly should such an event occur. VENCORP has advised that for all modelled supply outage scenarios, over all days, curtailment on average would be split between industrial and commercial customers (70 to 80 per cent) and residential customers (20 to 30 per cent).

#### *Competition benefits and public benefits*

An indirect benefit to all users is the competition benefits that would be provided by the Corio Loop. The regulator is directed specifically under section 2.24(e) of the Code to consider public benefits including the public benefit from having competition in markets. Development of the Corio Loop augmentation would facilitate basin to basin competition and also has the potential to allow for significant intra-basin competition in the Otway Basin where there a number of different fields either developed or under development. The benefits from increased competition in the upstream gas market would be expected to result in greater choice of supply and downwards cost pressures. These benefits would be expected to accrue over time to market participants including users and prospective users (section 2.24(f)) and the service providers (section 2.24(a)).

The ACCC considers further in accordance with section 2.24(e) that there are broad public interests in maintaining the reliability of gas supply in Victoria. All users potentially benefit from increased reliability whereby disruptions to normal industrial and business operations as well as domestic disruptions are reduced.

#### **5.4.2.2 Distribution of costs**

In order to apply the test in section 8.16(a)(ii)(B) of the Code it is necessary for the ACCC to form a view as to the likely quantum and structure of the associated reference tariff increase. However, there is no firm proposal on revisions to tariffs for the ACCC to consider—this matter will be considered in detail at the next access arrangement revisions. Nevertheless, the allocation of costs of the project will ultimately be subject to the Code and specifically the reference tariff principles set out in section 8 of the Code.

The ACCC notes that GasNet’s application outlines a proposal to recover costs by:

- (a) recovering 5 to 10 percent of the incremental costs from users of the Southwest pipeline through increased flows; and
- (b) levying the remainder of costs from all users through an uplift in the anytime tariff.

Such an approach would largely allocate costs in proportion to demand on the system and may represent an appropriate means to implement an increase in costs to all users.

Nevertheless, the question of the precise tariff structure for recovering the cost of this project is a matter to be determined in considering the proposed revisions to GasNet’s access arrangement. The regulator will consider the question of how the costs of the

Corio Loop should be allocated as part of GasNet's wider reference tariff proposals at the time of the next Access Arrangement revisions.

#### ***5.4.2.3 Conclusion on whether an increase in reference tariffs is justified to all users***

The ACCC considers that system-wide benefits will not in this case be restricted to a limited class of users.

The ACCC has weighed up the benefits and considered the quantum and likely distribution of costs with this augmentation, and concludes that there are system-wide benefits attached to the Corio Loop augmentation which in accordance with section 8.16(a)(ii)(B) of the Code justify an increase in reference tariffs to all Users.

### **5.5 Tariff structure**

The ACCC has noted both GasNet's preliminary proposal regarding an appropriate tariff structure and the submissions received in response to that proposal. However, as noted previously, these matters are outside the scope of the current assessment.

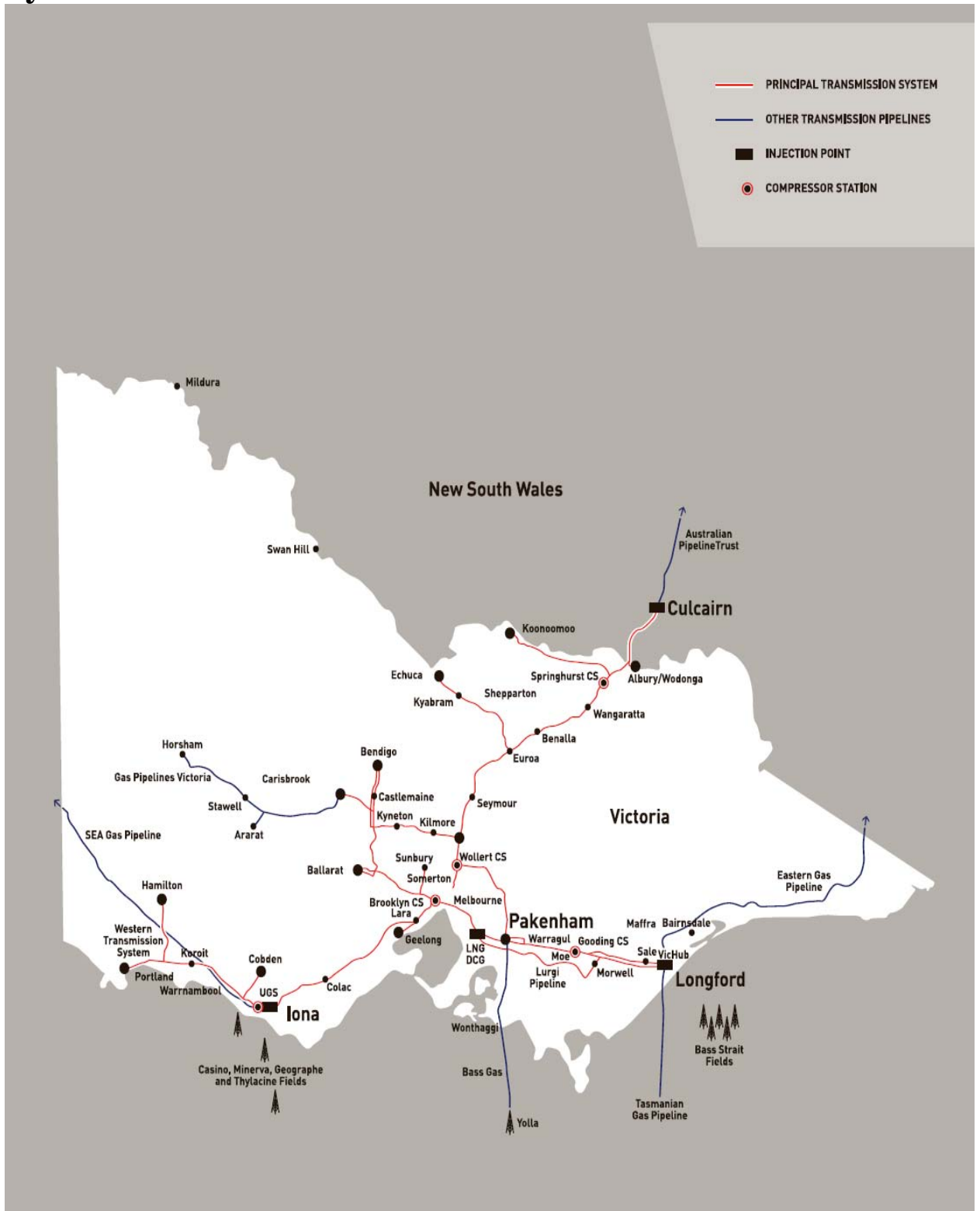
The ACCC has limited its consideration in this draft decision to whether it should agree that GasNet's forecast new facilities investment meets the threshold requirements under section 8.16(a) of the Code for roll-in to GasNet's capital base. While it has had regard to the likely nature of tariff recovery in applying this test, the question of the actual tariff structure for recovering that investment will be considered in the context of the broader suite of revisions proposed to GasNet's access arrangement in March 2007.

## **6 ACCC Draft Decision**

Pursuant to section 8.21 of the Gas Code, the ACCC proposes to agree, subject to the conditions and limitations noted below, that forecast investment in the amount of \$62.5 million (\$2005) relating to GasNet's proposal of 21 December 2005 to loop a 500 mm diameter pipeline from Lara to Brooklyn will meet the requirements of section 8.16(a) of the Code.

The new facilities investment will be escalated by the annual All Capital Cities Consumer Price Index from December 2005 to the point in time when the new facility enters the capital base.

# Appendix A: Victorian Principal Transmission System<sup>121</sup>



<sup>121</sup> VENCORP'S ANNUAL GAS PLANNING REPORT 2006-2010; p.i.



## Appendix B: Bias in calculation of the capitalisation of a return on capital costs

To capitalise a real return on construction costs, the ACCC applies a real monthly WACC (derived from the real vanilla WACC used in GasNet's current access arrangement) to the real monthly expenditure profile provided by GasNet. In contrast, GasNet applies a forecast of the rate of inflation to determine a nominal monthly WACC (derived from the real WACC in GasNet's access arrangement) to a nominal expenditure profile, and deflates the resulting figure by the forecast rate of inflation to arrive at a capitalised real return on construction costs.

The approach GasNet adopts, through the application of a nominal monthly WACC, results in a positive bias in calculating the capitalisation of a return on construction costs in real terms.

This bias is outlined below.

### ACCC approach:

$$FDC_t^{ACCC} = \sum_{s=1}^t (1 + r_m)^{t-s} r_m I_s$$

where:

$FDC_t^x$  financing costs during construction up to period  $t$

$I_s$  total expenditure in period  $s$

$r_m$  real monthly WACC

### GasNet approach:

$$FDC_t^{GN} = \sum_{s=1}^t \frac{(1 + n_m)^{t-s} n_m}{(1 + \pi_m)^{t-s+1}} I_s$$

where:

$n_m$  nominal monthly WACC

$\pi_m$  monthly CPI

The bias is the difference between the ACCC's and GasNet's approaches as shown below:

$$FDC_t^{GN} - FDC_t^{ACCC} = \frac{\pi_m}{(1 + \pi_m)} \sum_{s=1}^t (1 + r_m)^{t-s} I_s = \frac{\pi_m (1 + r_m)^t}{(1 + \pi_m)} NPV_0^t(I)$$

where:

$$NPV_0^t(I) = \sum_{s=1}^t \frac{I_s}{(1 + r_m)^s}$$