

Application for Revision to Access Arrangement

GPU GasNet Pty Ltd

**Access Arrangement by GPU GasNet Pty Ltd
for the Principal Transmission System**

Date: 25 August 1999

Lodged by:

GPU GasNet Pty Ltd

180 Greens Road

DANDENONG VIC 3175

Fax (03) 9797 5189

Tel (03) 9797 5222

Ref: C O'Reilly

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY..... 1

 1.1 APPLICATION..... 1

 1.2 NEW FACILITIES..... 1

 1.3 ROLL-IN TEST..... 1

 1.4 SYSTEM-WIDE BENEFITS TEST..... 1

 1.5 TARIFF STRUCTURE..... 2

2 INTRODUCTION..... 3

 2.1 APPLICATION..... 3

 2.2 ORIGINAL ACCESS ARRANGEMENT..... 3

 2.3 OPERATING LEASE ARRANGEMENT..... 3

 2.4 GPU GASNET ACQUISITION..... 4

 2.5 CURRENT STATUS..... 4

 2.6 SINGLE CAPITAL BASE..... 5

 2.7 COVERED PIPELINE..... 5

 2.8 EFFECTIVE DATE..... 5

 2.9 CONTACT DETAILS..... 5

3 DESCRIPTION OF FACILITIES..... 6

 3.1 INTERCONNECT PIPELINE..... 6

 3.2 SPRINGHURST COMPRESSOR..... 6

 3.3 VALVES..... 6

4 REGULATORY REQUIREMENTS..... 6

 4.1 EXTENSIONS/EXPANSIONS POLICY..... 6

 4.2 REGULATORY ROLL-IN TEST..... 7

 4.3 TARIFFS..... 8

5 NEW FACILITIES..... 8

 5.1 NEW FACILITIES INVESTMENT..... 8

 5.2 NEW FACILITIES..... 9

 5.3 ACTUAL CAPITAL COST..... 9

6 ROLL-IN TO CAPITAL BASE..... 9

 6.1 THE ECONOMIC FEASIBILITY TEST..... 9

 6.2 STANDARD PROCEDURE..... 11

 6.3 THE SYSTEM-WIDE BENEFITS TEST..... 11

 6.4 SYSTEM-WIDE BENEFIT - ENHANCED SYSTEM SECURITY..... 12

 6.5 VALUING ENHANCED SYSTEM SECURITY..... 14

 6.6 SYSTEM-WIDE BENEFIT - INCREASED COMPETITION..... 19

 6.7 VALUING INCREASED COMPETITION..... 21

 6.8 PRUDENT INVESTMENT..... 21

7 TARIFF STRUCTURE..... 24

 7.1 TARIFFS GENERALLY..... 24

 7.2 RECOVERY PERIOD..... 24

 7.3 STRUCTURE OF REVISED TARIFFS..... 26

 7.4 TIMING OF CHANGE..... 27

8 ANNUAL OPERATION AND MAINTENANCE COSTS..... 28

9 DEFINITIONS..... 28

ANNEXURE 1: DESCRIPTION OF INTERCONNECT PIPELINE AND SPRINGHURST COMPRESSOR

ANNEXURE 2: REVISED REFERENCE TARIFFS

ANNEXURE 3: SUPPLEMENTARY ACCESS ARRANGEMENT INFORMATION

ANNEXURE 4: EXTENSIONS/EXPANSIONS POLICY

ANNEXURE 5: VENCORP PAPER

ANNEXURE 6: SYSTEM PLANNING PAPER

1 **Executive summary**

1.1 *Application*

GPU GasNet applies, under its Extensions/Expansions Policy, to expand its Capital Base in relation to, and to amend the Reference Tariffs for the use of, the Principal Transmission System to take account of the Interconnect Pipeline, the Springhurst Compressor and the Valves (together the “**Interconnect Assets**”) on the basis that the Interconnect Assets pass the System-Wide Benefits Test.

1.2 *New facilities*

The Interconnect Pipeline, which was commissioned in July 1998, is a gas transmission pipeline of approximately 63 km in length linking the Principal Transmission System in Victoria with the EAPL system in New South Wales. The capital cost of the Interconnect Pipeline was approximately \$19.5m.

The Springhurst Compressor refers to an expansion of the Principal Transmission System comprising a gas compressor station at Springhurst (approximately 20 km south of the Interconnect Pipeline). The capital cost of the Springhurst Compressor was approximately \$18.7m¹.

The Valves are three remotely operated regulators and an automated valve, which are required to manage flows associated with the Interconnect Pipeline through the Principal Transmission System. The capital cost of the Valves was approximately \$4.4m.

1.3 *Roll-in test*

The Interconnect Assets do not satisfy the Economic Feasibility Test because, in the absence of revised tariffs, they do not generate additional revenue sufficient to meet their capital cost. Under the Extensions/Expansions Policy, the standard procedure for new facilities that do not satisfy the Economic Feasibility Test is to recover the capital cost by means of a surcharge or capital contribution.

However, GPU GasNet considers that the Interconnect Assets satisfy the exception in clause 5.7.2(c) of the Extensions/Expansions Policy because they pass the System-Wide Benefits Test. Therefore, under the Extensions/Expansions Policy, the Capital Base can be expanded and the Reference Tariffs can be amended to reflect the actual capital cost of the Interconnect Assets.

1.4 *System-Wide Benefits Test*

GPU GasNet considers that the Interconnect Assets satisfy the System-Wide Benefits Test in that they provide the following benefits.

(a) *System security benefits*

They have provided (and continue to provide) enhanced system security to all users of the Principal Transmission System by enabling gas sourced from the Cooper Basin to flow

¹ However, the amount to be rolled is approximately \$16.5m because of a State contribution of \$2.2m. Refer section 5.3.

south into Victoria. This added security was provided during the gas supply emergency in Victoria following the Longford fire and explosion in September 1998 when, as a result of flows through the Interconnect Pipeline:

- (i) critical loads such as nursing homes and hospitals were not curtailed; and
- (ii) the risk of a total system collapse was more easily avoided.

This added system security was also considered in the planning for Winter 1999. The Interconnect Assets, as part of the MMAP, formed a key element of Victoria's planning for dealing with a supply shortage in the event that Gas Plant No. 1 at Longford did not provide uninterrupted supply.

Although GPU GasNet considers that these benefits in 1998 and 1999 were sufficient to justify a roll-in to the capital base, it is also worth noting that, in the long term, the Interconnect Assets will provide an additional source of gas which will mitigate the impact of gas supply emergencies and avoid other unplanned curtailments.

(b) *Competition benefits*

They provide enhanced competition by enabling "basin on basin" competition for the first time in both Victoria and New South Wales. They connect two previously isolated markets, enabling Cooper Basin gas to compete in Victoria against Bass Strait gas and vice versa. Significantly, while this new competition will provide substantial benefits, it may not produce a corresponding increase in the flows on the Interconnect Pipeline. This is because:

- (i) much of the competition may be by means of gas swaps rather than physical transfer (although the capacity of the Interconnect Assets will be required in the event that a swap needs to be fulfilled physically); and
- (ii) much of the competitive benefit will flow from the threat of competition even if actual physical flows are not substantial.

1.5 *Tariff structure*

The proposed revisions to the reference tariffs comprise:

- a new "interconnect" zone, with a new zonal tariff; and
- an increase in the Anytime Period charge applying to each existing zone.

These revised tariffs are set out in greater detail in **Annexure 2**.

As discussed in detail in section 7.2 below, GPU GasNet considers that there are three periods over which the costs of the Interconnect Assets can be recovered:

- **option 1:** 12 months;
- **option 2:** the remainder of the initial regulatory period; or
- **option 3:** the depreciation life of the Interconnect Assets.

GPU GasNet prefers either option 1 or option 2. However, the matter is ultimately one for the Commission to decide.

2 Introduction

2.1 Application

This application is lodged by GPU GasNet on its own behalf and on behalf of TPAA under section 2.28 of the Code and clause 5.7 of the Access Arrangement for the review of the Access Arrangement.

This application was contemplated by the Commission in its final decision on the Access Arrangement for the Principal Transmission System, in which the Commission stated that it expected a revision application to be lodged in relation to the Interconnect Pipeline and noted that a public consultation procedure would be required².

2.2 Original Access Arrangement

On 3 November 1997, the Energy Projects Division of the Victorian Department of Treasury and Finance submitted, on behalf of TPA and TPAA, a proposed access arrangement for the Principal Transmission System in Victoria. Following extensive public consultation and detailed consideration by the Commission, the Commission released its final decision on 6 October 1998 and, following submission of the revised Access Arrangement by TPA and TPAA, the Commission released its final approval on 16 December 1998. The Access Arrangement came into effect on 1 March 1999, being the date on which the Victorian Market and System Operations Rules commenced.

2.3 Operating Lease arrangement

As discussed in section 5.2 of the Access Arrangement, TPAA, as owner of the Principal Transmission System, leased the Principal Transmission System under a short term operating lease arrangement (“**Operating Lease**”) to TPA, thereby enabling TPA to offer the Services described in the Access Arrangement.

The Operating Lease is stated to be a lease of the “Fixed Assets”, which is defined to include the Principal Gas Transmission System. Principal Gas Transmission System is defined as the “Gas Transmission System” as defined in the Gas Industry Act and any “Augmentation” or “Extension” of that system.

Under the Operating Lease, “Extension” is defined to include extending the Principal Gas Transmission System to provide supply of gas to areas not previously supplied by the Principal Gas Transmission System.

Therefore, the Interconnect Pipeline falls within the definition of Principal Gas Transmission System in the Operating Lease because it is an Extension of the “Gas Transmission System”, being connected to the “Gas Transmission System” at Barnawartha.

Under the Operating Lease, “Augmentation” is defined to include upgrading the capacity or service potential of the Principal Gas Transmission System by adding new plant or equipment. The Springhurst Compressor and the Valves fall within this definition.

² ACCC final decision, Access Arrangement for the Principal Transmission System, 6 October 1998, page 144.

2.4 GPU GasNet acquisition

On 2 June 1999, GPU GasNet acquired the business (including the assets and liabilities) of TPA and the Victorian business (including the assets and liabilities) of TPAA including the Principal Transmission System. In particular:

- (a) under an Allocation Statement dated 2 June 1999 made under section 115C of the Gas Industry Act 1994 (Vic):
 - (i) the property, rights and liabilities of TPA in the Operating Lease (ie as lessee) were vested in GPU GasNet; and
 - (ii) the property, rights and liabilities of TPAA in relation to pipelines situated in Victoria were vested in GPU GasNet;
- (b) the property, rights and liabilities of TPAA in pipelines situated in New South Wales remained with TPAA and were **not** allocated to GPU GasNet; and
- (c) GPU GasNet acquired all of the shares in TPAA, with the result that TPAA is a 100% owned subsidiary of GPU GasNet.

2.5 Current status

The effect of this arrangement is that:

- (a) GPU GasNet is:
 - (i) the owner of the portion of the Principal Transmission System that is situated in Victoria; and
 - (ii) the holder of the lessee's interest under the Operating Lease in relation to the Principal Transmission System that is situated in Victoria and New South Wales; and

as it is also the legal owner of the pipelines, the Operating Lease has “merged” in relation to pipelines situated in Victoria; and

- (b) GPU GasNet's subsidiary, TPAA, continues to own that part of the Principal Transmission System situated in New South Wales and continues to lease it to GPU GasNet under what remains of the Operating Lease.

As a result, GPU GasNet makes this application as:

- (a) the owner of the portion of the Interconnect Pipeline situated in Victoria, the Springhurst Compressor and the Valves; and
- (b) as lessee of the portion of the Interconnect Pipeline situated in New South Wales.

TPAA makes this application in its capacity as owner of the portion of the Interconnect Pipeline situated in New South Wales.

2.6 *Single Capital Base*

Despite this separation of ownership, assuming the Interconnect Assets satisfy the relevant roll-in tests (refer section 6 below), all of the Interconnect Assets should be regarded as part of a single Capital Base for the purposes of calculating Reference Tariffs for the use of those facilities. In particular:

- (a) all of the Interconnect Assets are owned by GPU GasNet or its subsidiary;
- (b) the Interconnect Assets that are owned by the subsidiary are leased to GPU GasNet;
- (c) the Commission accepted as part of its approval of the Access Arrangement that a single Capital Base would be accepted for the purposes of determining Reference Tariffs for access to the Principal Transmission System, despite the fact that the relevant assets were leased from TPAA to TPA (at a time when TPA and TPAA were “sibling” companies) and without reference to the lease payments made by TPA to TPAA; and
- (d) the lease arrangement simply represents a continuation of the pre-existing Operating Lease arrangement.

2.7 *Covered pipeline*

The Principal Transmission System is deemed to be a Covered Pipeline under the Code³ and therefore:

- (a) on 2 June 1999 GPU GasNet became a Service Provider⁴ under the Code; and
- (b) the Access Arrangement continues to apply to the Principal Transmission System despite the change in Service Provider and binds GPU GasNet in the same way that it bound TPA and TPAA immediately before GPU GasNet acquired the Principal Transmission System⁵.

Finally, the Access Arrangement continues to bind TPAA in relation to the portion of the Interconnect Pipeline situated in New South Wales.

2.8 *Effective date*

The effective date of the revisions proposed in this application is 1 January 2000.

2.9 *Contact details*

The contact officer in relation to this application is:

Ms Christine O'Reilly
Commercial Manager
GPU GasNet Pty Ltd

³ Code, Schedule A.

⁴ Which is defined in the Code as a person who owns (whether legally or equitably) or operates the whole or any part of a Pipeline.

⁵ Code, section 9.3(b).

180 Greens Road
DANDENONG VIC 3175
Telephone (03) 9797 5222
Fax (03) 9797 5189

3 **Description of facilities**

3.1 *Interconnect Pipeline*

The Interconnect Pipeline is a transmission pipeline of approximately 63 km in length linking the Principal Transmission System at Barnawartha in Victoria with the EAPL system at Culcairn in New South Wales. The Interconnect Pipeline, which was commissioned in July 1998, allowed gas to flow for the first time between New South Wales and Victoria⁶.

The capital cost of the Interconnect Pipeline was approximately \$19.5m and the anticipated incremental operating cost is approximately \$0.12m per annum.

A detailed description of the Interconnect Pipeline is set out in **Annexure 1**.

3.2 *Springhurst Compressor*

The Springhurst Compressor refers to an expansion of the Principal Transmission System comprising a gas compressor station at Springhurst, approximately 20 km south of Barnawartha.

The capital cost of the Springhurst Compressor was approximately \$18.7m and the anticipated incremental operating cost is approximately \$0.1m per annum.

A detailed description of the Springhurst Compressor is set out in **Annexure 1**.

3.3 *Valves*

The Valves refer to three remotely operated regulators and an automated valve, which are required to manage flows associated with the Interconnect Pipeline through the Principal Transmission System.

The capital cost of the Valves was approximately \$4.4m and the anticipated incremental operating cost is approximately \$0.01 per annum.

4 **Regulatory requirements**

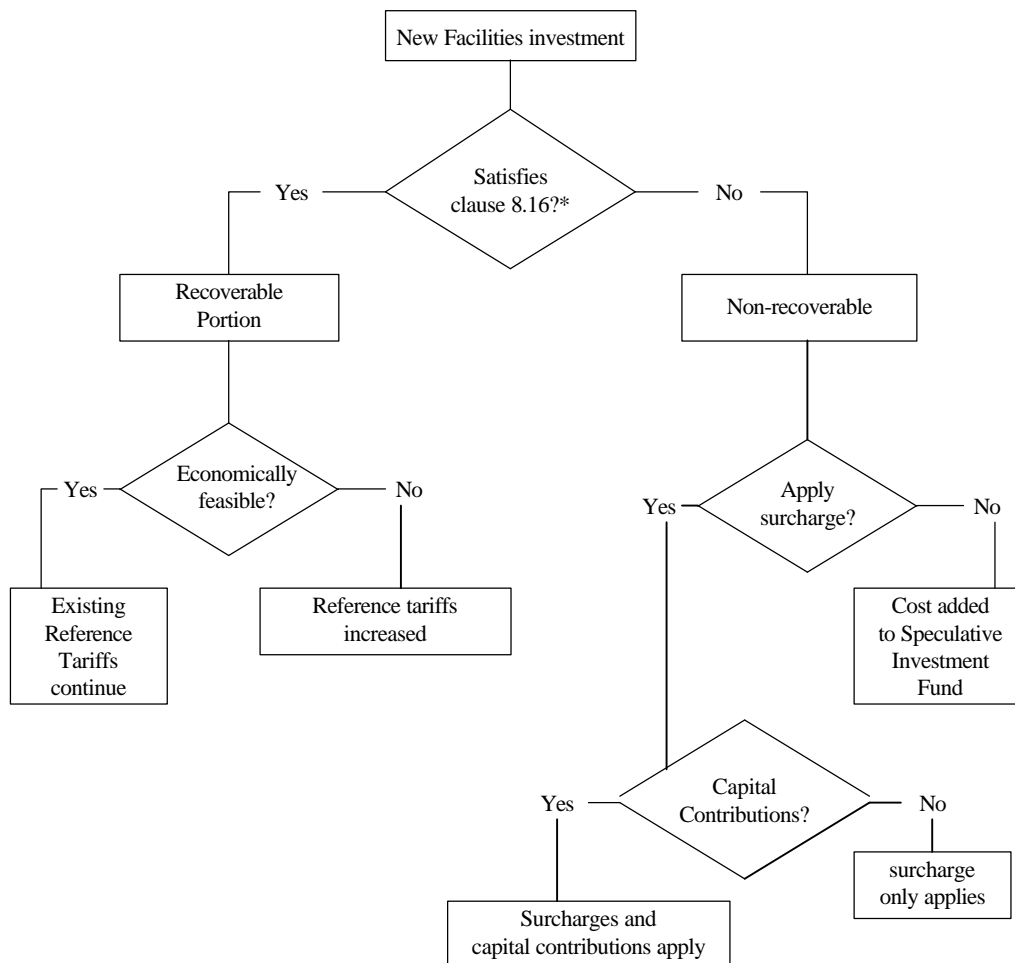
4.1 *Extensions/expansions policy*

Under section 3.18 of the Code, an Access Arrangement must include an extensions/expansions policy which sets out how an extension or expansion of the Covered Pipeline will affect the Reference Tariffs.

GPU GasNet's Extensions/Expansions Policy is set out in clause 5.7 of the Access Arrangement. For ease of reference, clause 5.7 has been reproduced in **Annexure 4**.

⁶ Apart from Bass Strait gas that is supplied in Albury and Murray Valley towns in New South Wales.

The effect of an extension or expansion on Reference Tariffs under GPU GasNet's Extensions/Expansions Policy is summarised in diagram 1 below.



- * Clause 8.16 of the Code: investment is prudent and efficient and:
- (a) is economically feasible;
 - (b) has system-wide benefits; or
 - (c) is necessary for safety, integrity or contracted capacity.

Diagram 1: GPU GasNet Extensions/Expansion policy

4.2 Regulatory roll-in test

This application is made under clause 5.7.2(c) of the Extensions/Expansions Policy which provides that:

New Facilities Investment that does not pass the Economic Feasibility Test may be recovered outside the standard procedure in clause 5.7.2(b) where:

- (1) *TPA and/or Users satisfy the Regulator that the New Facilities Investment passes the System-Wide Benefits Test, in which case the Regulator may approve higher Reference Tariffs for all Users and the New Facility may be included in the Capital Base; or*

- (2) *the New Facility is able to be included in the Capital Base on grounds that it is necessary to maintain the safety, integrity or contracted capacity of the Reference Services.*

The elements of these tests and the reasons that GPU GasNet considers the System-Wide Benefits Test is satisfied are discussed in sections 5 and 6 below.

4.3 *Tariffs*

The Extensions/Expansions Policy does not prescribe the tariff structure to apply in the event of a roll-in to the Capital Base. Therefore, subject to the overall requirements of the Code, GPU GasNet has flexibility in structuring the changes to the Reference Tariffs to accommodate the changes to the Capital Base.

As discussed in detail in section 7.2 below, there are at least three methods by which this change to the Capital Base could be reflected in the Reference Tariffs.

- **Option 1:**

The full cost could be recovered in a very short period (say 12 months), reflecting the immediate system security benefits (ie critical support during the gas supply emergency in 1998 and security against uncertainty of supply in winter 1999 - refer section 6.4 below).

- **Option 2:**

The full cost could be recovered over the remainder of the initial regulatory period (ie ending on 31 December 2002), again reflecting the immediate system security benefits.

- **Option 3:**

The cost could be recovered over the depreciation life of the Interconnect Assets, in recognition of the ongoing system security and competition benefits provided by those facilities.

5 **New Facilities**

5.1 *New Facilities Investment*

In order for the capital cost of the Interconnect Assets to be included in the Capital Base and for the Reference Tariffs to be adjusted, it must first be established that the Interconnect Assets fall within the scope of New Facilities Investment.

New Facilities Investments is defined in section 8.16 of the Code as the amount of the actual capital cost incurred in constructing the New Facilities for the purpose of providing Services.

GPU GasNet considers that the Interconnect Assets fall within the definition of New Facilities Investment.

5.2 *New Facilities*

The phrase “New Facilities” is defined in the Code as an extension, or expansion of the capacity of, a Covered Pipeline which is to be treated as part of that Covered Pipeline in accordance with the Extensions/Expansions Policy. The Interconnect Assets are part of the Covered Pipeline. In particular:

- (a) under clause 5.7.1(f) of the Access Arrangement, the Interconnect Pipeline is, in effect, deemed to be Covered as part of the Principal Transmission System; and
- (b) under clause 5.7.1 of the Access Arrangement, the Springhurst Compressor and the Valves, as “expansions”⁷, are Covered as part of the Principal Transmission System.

5.3 *Actual capital cost*

The phrase “actual capital cost” is not defined in the Code. GPU GasNet considers that “actual capital cost” includes:

- (a) all amounts paid to third parties for the supply of materials for and the construction of the New Facility;
- (b) all amounts paid to third parties relating to planning, design and permitting of the New Facility;
- (c) additional internal costs relating to the development of the New Facility; and
- (d) an allowance that reflects the capitalisation of a reasonable return on costs incurred in relation to the New Facility for an efficient construction period⁸.

The actual capital cost of the Interconnect Assets was \$42.6m. Details of these costs are set out in the Supplementary Access Arrangement information (**Annexure 3**).

6 **Roll-in to Capital Base**

Assuming the cost of the Interconnect Assets falls within the scope of New Facilities Investment, the ability of GPU GasNet to roll-in that as part of its Capital Base under clause 5.7.2(c) of the Access Arrangement depends on a series of tests.

6.1 *The Economic Feasibility Test*

Under clause 5.7.1(a) of the Access Arrangement, if the New Facilities Investment satisfies the Economic Feasibility Test, then the New Facility is included in the Capital Base and is charged at the Reference Tariff. GPU GasNet considers that the Interconnect Assets (either individually or in aggregate) do not satisfy the Economic Feasibility Test.

The Economic Feasibility Test is satisfied if the anticipated incremental revenue from the New Facility⁹ exceeds the New Facilities Investment.

⁷ “Expansion” is defined in the Access Arrangement to include upgrading the capacity of a transmission pipeline by adding new plant or equipment.

⁸ The inclusion of such amounts was approved by the Commission in its final determination - ACCC final decision, n.50, page 27.

The application of this test creates a number of ambiguities in relation to the GPU GasNet tariff structure.

(a) *Straightforward application*

The Economic Feasibility Test is easily applied in circumstances where:

- (i) an extension is made to a pipeline that charges a distance based tariff (and therefore the tariff automatically extends to any extension to the Covered pipeline); or
- (ii) an expansion of the pipeline results in a debottlenecking such that, under the existing Reference Tariff regime, the additional revenue resulting from the increase throughput is sufficient to cover the cost of the New Facility.

(b) *Zonal system*

However, the Economic Feasibility Test is difficult to apply where, as in the case of the GPU GasNet System, a zonal tariff model applies and (in relation to the Interconnect Assets) the relevant expansion of capacity may not result in increased throughput. In addition, there is no injection charge at Culcairn or Barnawartha and therefore there would be no additional injection charges.

Despite the obvious benefits of the Interconnect Assets in relation to increased competition (refer section 6.6) and system security (refer section 6.4), there is no reasonable assurance that GPU GasNet will actually generate additional revenues from the Interconnect Assets under the current tariff arrangement (ie. in the absence of a new zonal tariff for the Interconnect Pipeline). In particular:

- (i) there is currently no Reference Tariff for the use of the Interconnect Pipeline;
- (ii) it is unclear whether there will be any additional throughput in the GPU GasNet System as a result of the Interconnect Assets because:
 - (A) if the Interconnect Assets are used for system security reasons, they are simply replacing gas which should be flowing on another part of the system; and
 - (B) gas “transported” through the Interconnect Pipeline may be sold by means of swap arrangements and therefore have no effect on the actual physical throughput;
- (iii) the existing tariffs for the Principal Transmission System already assume flows of 3 PJ south to north and 5 PJ north to south annually through the Interconnect Pipeline and therefore the materialisation of these flows will not result in any additional revenue for GPU GasNet¹⁰; and

⁹ Presumably, in circumstances where there is no adjustment to the Reference Tariffs.

¹⁰ Indeed, GPU GasNet takes the risk that, if these flows do not materialise, its actual revenues will be lower than anticipated.

- (iv) as a result of the tariff control formula applying under the Access Arrangement, there will be no net increase in GPU GasNet's revenue as the Interconnect Assets will not be satisfying any additional unmet demand (ie. because supplies from Longford are capable of meeting current forecast demands and those demands have already been included in the determination of GPU GasNet's existing tariffs).

6.2 *Standard procedure*

If the Economic Feasibility Test is not satisfied, then the standard procedure under the Extensions/Expansions Policy is for:

- (a) the portion of the New Facility that does satisfy the Economic Feasibility Test to be rolled in to the Capital Base; and
- (b) the portion of the New Facility that does not satisfy the Economic Feasibility Test to be recovered by means of one or more of:
 - (i) a Surcharge;
 - (ii) Capital Contributions; or
 - (iii) a Speculative Investment Fund.

However, GPU GasNet considers that the standard procedure does not apply, because the Interconnect Assets satisfy the requirements of clause 5.7.2(c) of the Access Arrangement. In particular, the Interconnect Assets pass the System-Wide Benefits Test.

6.3 *The System-Wide Benefits Test*

The System-Wide Benefits Test is defined in the Access Arrangement as, subject to clause 8.16(a) of the Code¹¹, the Regulator being satisfied that a New Facility has system wide benefits which justify the approval of a higher Reference Tariff for all Users.

Little guidance is provided in the Code as to the application of this test. In particular, the concept of "System-Wide Benefits" has not been defined. Given this ambiguity, GPU GasNet considers that interpreting this test in light of the objectives of the Code involves a number of key elements.

- (a) The test is an objective one and requires the Regulator to form a reasonable view based on the information available.
- (b) The assessment must be based on information that was available and expectations that could reasonably be made at the time the relevant investment was committed to. If the New Facilities satisfy the System-Wide Benefits Test at the time a service provider committed to installing them, then that conclusion should not be altered by any subsequent events.
- (c) The Code is silent as to for whom the benefits should accrue. GPU GasNet considers that the accompanying words "System-Wide" suggest that a broad

¹¹ The "Prudent Investment" test, refer section 6.8 below.

definition should be adopted, namely that there should be benefits for a substantial portion of the customers whose gas is transported through the relevant system.

- (d) Similarly, the concept of “Benefits” should be given a broad interpretation and should include benefits such as:
- (i) enhanced system security (for example, a reduced risk of system collapse or other dangerous events);
 - (ii) enhanced system reliability (for example, the ability of the system to perform reliably during periods of peak demand); and
 - (iii) enhanced competition (for example, introducing a new source of gas which is likely to provide benefits to customers in the form of greater price or service competition).
- (e) Finally, in order to “justify” the approval of a higher Reference Tariff for all users, the Commission must be satisfied that the benefits expected to flow from the New Facilities outweigh the costs of the increased tariffs. Generally, this will involve an economic assessment. However, in some cases (for example New Facilities which increase competition), it may be difficult to quantify these benefits.

GPU GasNet considers that the Interconnect Assets satisfy these requirements. In particular, they provide enhanced system security and increased competition.

6.4 *System-wide benefit - enhanced system security*

In considering the system security benefit, three aspects need to be considered:

- the benefit provided during the gas supply emergencies in 1998;
- the system security benefit provided in Winter 1999; and
- ongoing system security benefits.

These are discussed in turn below.

(a) *1998 emergencies*

The Interconnect Pipeline provided direct system security benefits during the gas supply emergency in Victoria in 1998.

The Longford fire and explosion led to complete failure of supply from Longford for two weeks. The only source of supply during this period came from the limited reserves of LNG storage and from New South Wales through the Interconnect Pipeline. Estimates of the economic cost to Victoria of this emergency have not been finally collated, but preliminary estimates put the cost at approximately \$1 billion¹².

During the supply failure, supplies from New South Wales flowed through the Interconnect Pipeline and there was no need to curtail withdrawals by critical loads such as nursing

¹² *Australian Financial Review* 5 October 1998

homes and hospitals. It is likely that, if the Interconnect Pipeline had not been in place, then some or all of these critical loads would have been curtailed.

In addition, the existence of the Interconnect Pipeline meant that the risk of a total system collapse was more easily avoided. If the Victorian transmission and distribution system had been exhausted (for example by critical loads or by persons breaching curtailments orders), then there would have been a significant risk that air would have entered the distribution system and, as a result:

- (i) created a potentially explosive mix of air and gas in the system; and
- (ii) triggered a much longer shutdown of the system, as the air would need to be “purged” from the system in an operation that could have taken several months. The existence of additional supplies through the Interconnect Pipeline served to reduce the risk that an exhaustion of the system would occur.

(b) *1999 system security planning*

As discussed in detail in the VENCORP Paper (**Annexure 5**), the Springhurst Compressor and the Valves, along with the Interconnect Pipeline and the Young and Bulla Park compressors, formed the key links in the MMAP. Following the Longford fire and explosion in 1998, this Program was developed to provide additional security of supply for winter 1999 in light of the possibility that gas production at Longford would not return to full capacity before the peak demand in winter 1999.

The Longford fire and explosion destroyed a substantial part of Esso’s Gas Plant No. 1 at Longford and associated infrastructure. In those circumstances, it was unclear what capacity would be available from Longford during Winter 1999. Therefore, the MMAP was designed to secure additional gas from sources other than Longford.

The necessity for the MMAP was illustrated by the fact that as late as June 1999, Esso was not in a position to guarantee that gas supplies would be restored to sufficient levels¹³.

The Springhurst Compressor, in conjunction with the Interconnect Pipeline, the Young and Bulla Park Compressors and the Valves provided an additional 92 TJ of capacity to ship gas from Moomba to Melbourne during Winter 1999. Given the uncertainty associated with supply from Longford following the Longford fire and explosion, the Springhurst Compressor and Valves provided a critical element of the planning for system security for Winter 1999. As such, the system security benefits of the Springhurst Compressor and Valves (and the Interconnect Pipeline) were established in the planning for Winter 1999.

(c) *Ongoing system security benefits*

GPU GasNet considers that the system security benefits of the Interconnect Assets demonstrated during the 1998 gas supply emergency and the planning for system security in Winter 1999 are sufficient in isolation to justify a roll-in to the GPU GasNet Capital Base. However, the Interconnect Assets also provide ongoing system security benefits.

¹³ “Gas supply not certain says Esso”, *The Age*, 12 June 1999, News page 5.

The Victorian gas transmission and distribution system has been designed on the basis that if there is a serious failure of transmission or supply, then the LNG reserves will be utilised to feed the system (and therefore avoid total system collapse) until all relevant valves can be closed. However, the flows through the Interconnect Pipeline provide a significantly greater safety margin.

The Springhurst Compressor and Valves augment the capacity of the Interconnect Pipeline and further reduces the threat of supply emergencies in Victoria. However, the Interconnect Assets also provide a degree of flexibility which substantially increases their value to Victoria. For example the Springhurst Compressor can be relocated in a relatively short time to other parts of the network to boost supply where it is needed. The Valves improve the control of the system and enable VENCORP to deliver gas under a wide range of contingencies.

In addition, the Interconnect Assets provide a means to relieve congestion on days of peak system demand. This will lead to lower levels of congestion uplift under the MSO Rules and ultimately provides benefits to all consumers. In particular, given the finely balanced nature of the gas transmission system and supply arrangements at times of peak demand, the Interconnect Assets will provide an additional means to deal with surprise events.

The Interconnect Assets will supplement the supply capacity expected to be provided by underground storage. The Interconnect Assets enhance system security by providing access to an additional source of supply in the event of supply problems at the underground storage, depletion of underground storage or in the event of pipeline failures from the underground storage.

The EGP, which is expected to be operational after the winter of 2000, will provide only limited system security support for Victoria. This is because the EGP is designed primarily to ship gas from Bass Strait to Wilton, Sydney. For north-flowing gas a compressor will be located at Longford. For south-flowing gas the pipeline would lack compression between Young and Longford, a distance of 1,020 km. At this stage, GPU GasNet is not aware of any intention by Duke to connect the EGP to the GPU GasNet system, nor to configure the EGP compressor at Longford for reverse flows.

The deliverability of the EGP is limited in comparison to the Interconnect Pipeline by the available capacity of the EAPL system¹⁴, and by the greater distance from Moomba to Melbourne via Wilton and Longford (2,220 km), as compared to the shorter Interconnect Pipeline route (1,570 km). The greater distance means that capacity is limited and that the time to deliver gas from Moomba will be significantly greater. This would be an important issue when immediate system support is required in an emergency. A further point of comparison between the EGP and the Interconnect Assets is the location of the injections into Victoria. The EGP would inject at Longford (if a connection was available) whereas the Interconnect Assets inject gas from the north. Therefore, unlike the Interconnect, the EGP could not provide system security if there was a failure of the main supply pipeline from Longford into Melbourne.

6.5 Valuing enhanced system security

¹⁴ The EAPL system can carry a greater quantity of gas from Moomba to Young than from Moomba to Wilton, owing to the shorter transportation distance. The capacity to Wilton is also more subject to the prevailing demand in Sydney than is the capacity from Moomba to Young.

The VENCORP paper (**Annexure 5**) attests to the increased flows into the Victorian market which were attributable to the availability of the Interconnect during 1998 and which will be available in 1999 due to the MMAP. These are:

- 35 TJ/d north to south into Victoria through the Interconnect pipeline available in 1998; and
- a further 57 TJ/d north to south into Victoria attributable to the MMAP available in Winter 1999.

In valuing system security, a number of issues need to be considered.

(a) *Theoretical calculation of system security value*

The value of enhanced system security in any year can theoretically be calculated from:

$$SSV = Q \times V \times P$$

where:

SSV = system security value

Q = quantity of additional system security provided (refer paragraph (b) below)

V = value of lost load avoided (refer paragraph (c) below)

P = probability of additional security being utilised (refer paragraph (d) below)

Few of these items can be precisely defined. However, as discussed below, indications are available for each which allow an assessment of system security benefit provided by the Interconnect pipeline in 1998 and potentially provided by the Interconnect Assets in Winter 1999.

(b) *Quantity of additional system security*

The quantity of system security provided by the Interconnect and the MMAP can be reasonably defined. They are:

- (i) 35 TJ/day for the Interconnect Pipeline; and
- (ii) an additional 57 TJ/day by the MMAP.

(c) *Value of Lost Load Avoided*

The Value of Lost Load (VoLL) in the Victorian gas market is intended to be a measure of the cost of non-supply, or curtailment. The MSO Rules (clause 3.2.4a) describes VoLL as:

“If hourly injections and withdrawals of gas ... imply that curtailment would have occurred in a pricing zone in a trading interval... the market price for that pricing zone and that trading interval is VoLL.”

VoLL in the MSOR is set at \$800/GJ. However, the actual setting of VoLL in both the gas and electricity markets has been rather arbitrary. There have been arguments made in both markets that VoLL has been set too low, reflecting negotiated outcomes to limit price exposure in a relatively immature market, which does not encourage additional system security. The Commission has required that the gas market VoLL be reviewed within 12 months of gas market operation and then every two years. For the sake of this application, GPU GasNet will assume that the VoLL is appropriately set at \$800/GJ.

However, VoLL is intended to be utilised for only relatively short periods. Over a longer term, customers and retailers have the chance to adapt to circumstances. As was seen during the gas supply emergency following the Longford fire and explosion, when faced with gas curtailment, some individuals and businesses managed to switch fuels or appliances and others changed behaviour. Of course, most could not do this.

A more appropriate measure of the cost of longer-term interruption should be set through the Administered Price Cap (APC) measures in the MSO Rules (clause 6.7). These allow for market suspension during periods of force majeure or emergency, with market pricing at the APC.

The APC is set according to clause 6.7.1:

“After consulting Market participants, VENCORP must develop, authorise and publish and may from time to time in accordance with the public consultation procedures vary an administered price cap ...”

GPU GasNet understands that the APC has been set at \$80/GJ.

A value of avoided lost load of between \$80/GJ (APC) and \$800/GJ (VoLL) appears reasonable for system benefit evaluation. For longer term curtailments, when adaptation by consumers is more likely, use of the lower value would appear more appropriate. For shorter term interruptions, or those which are difficult to foresee or plan, the higher value should more closely approximate the cost to consumers.

GPU GasNet has not included within these calculations the long-term cost to the gas industry of uncertainty about the possibility of gas shortages in Winter. Available evidence suggests that further disruptions in winter 1999 would have seriously undermined consumer confidence and further dampened appliance purchase trends.

(d) *Probability of utilisation of system security*

The probability of utilisation of a system security benefit such as the Interconnect Assets is often very difficult to establish. It must be remembered that the probabilities must be assessed on the basis of decision making and likely consequences at the time when the decision to make the New Facilities investments was taken.

The Interconnect Pipeline provided actual benefit to the system of approximately 440 TJ during the period of gas curtailment following the Longford fire and explosion in 1998.

Looking through 1998/1999 eyes, there was, as a result of the Longford fire and explosion, a material probability that the MMAP would be required to meet system gas needs during Winter 1999. As late as June 1999, Esso refused to provide assurances that contracted volumes would be available as required¹⁵.

Only at the end of June 1999 did Esso confirm that supplies would be sufficient to meet Victorian requirements in 1999¹⁶.

The merits of the system planning decisions associated with the MMAP cannot be re-assessed with hindsight. The applicable probability is that assessed at the time the decisions were made. GPU GasNet does not know what the actual probabilities of shortage of supply were when Winter 1999 planning contingency decisions were made and did not have direct access to the discussions with Esso. However, the probabilities were significant enough to cause the Victorian Government to require TPA to commit approximately \$100m to the MMAP plus additional amounts on the Southwest Pipeline.

(e) *System benefit of having the Interconnect pipeline during 1998*

Let us now apply the “SSV” formula to actual events. In 1998 the Interconnect Pipeline allowed 440 TJ of gas to be provided to support the system during the Longford emergency. The value of avoided curtailment can best be evaluated through use of the VoLL (ie. that each TJ of gas transported through the Interconnect during this period conferred system benefit of \$800,000). However, even if the value is set at the APC, 1/10 this amount, it is clear that the system benefit conferred by the Interconnect during winter 1998 outweighs the cost of the Interconnect Pipeline. As the Interconnect Pipeline was actually used, the probability (P) is 1.0.

Applying the formula $SSV = Q \times V \times P$, the value of system security (SSV) lies between the following extremes:

$SSV = \$352\text{m}$ (ie. $440 \text{ TJ} \times \$800,000/\text{TJ}$); and

$SSV = \$35.2\text{m}$ (ie. $440 \text{ TJ} \times \$80,000/\text{TJ}$).

The total cost of the GPU GasNet portion of the Interconnect was less than \$20m. Therefore, the system security benefits of the Interconnect can be seen to have outweighed its total cost to Victoria during 1998 alone.

(f) *System benefits of the Interconnect Assets during Winter 1999*

According to the VENCORP paper (**Annexure 5**), when the Winter 1999 decisions were being made, it was expected that if Longford Gas Plant No. 1 was not repaired the projected usage of the Interconnect during a 1 in 2 winter would be between 3 and 4 PJ (say 3.5 PJ) while the MMAP would add a further 3.9 PJ of usage.

Given that some supply would be available from Longford Gas Plants Nos 2 and 3 and from other contingency measures, the interruptions would have occurred only

¹⁵ Refer above.

¹⁶ *The Age*, 29 June 1999, p1, 8

on peak days. Given the uncertainty associated with both the timing and duration of such curtailments and the consequent difficulty of adapting to them, the value of the curtailed load would likely lie closer to \$800/GJ than to \$80/GJ (see section 6.5(c) above).

Even at an APC value of \$80/GJ, this meant that if the MMAP was in place and Gas Plant No. 1 was not available, the system benefit would have been some \$590m (3500 TJ x \$80,000/TJ for the Interconnect + 3900 TJ x \$80,000/TJ for the MMAP).

The probability (at the time) of Gas Plant No. 1 not being available is virtually impossible to assess in hindsight. However, at the time, there was much speculation about Esso not being able to meet commitments in Winter 1999, with opinion generally being that the likelihood of Esso achieving the required availability by mid 1999 ranged from a reasonable possibility to highly unlikely.

It appears reasonable to assume that the probability of significant shortfalls of supply from Longford at the time could have been expected to lie between 20% (ie a reasonably low probability that shortfalls would occur) and 80% (ie a high expectation that shortfalls would occur).

The range of system security benefit (SSV) attributable to the Interconnect Assets would reasonably, therefore, be expected to lie between the following extremes:

SSV = \$4.7b ((3900 + 3500) TJ x \$800,000/TJ x 80%); and

SSV = \$118m ((3900 + 3500) TJ x \$80,000/TJ x 20%).

For the individual assets the estimated range of values of system security benefits provided to Victorian consumers is:

- (i) \$56m to \$2.2b to attributable to the Interconnect Pipeline
- (ii) \$60m to \$2.5b to attributable to the MMAP enhancements.

The total cost of the Interconnect Pipeline and the MMAP was approximately \$100m. Of this, only the costs of the Interconnect pipeline (approximately \$20m) and the Springhurst Compressor and Valves (approximately \$21m) are to be borne by Victorian gas users. Even the lowest estimates of the ranges above suggest that the system security benefit of the Interconnect Assets in Winter 1999, both in aggregate and individually, more than equals the cost of the assets.

It is likely that the actual benefit lies between the two extremes. Consequently, the costs paid by Victorian gas consumers for the Interconnect Assets are likely to be far exceeded by the benefits attributable to these assets in 1998 and 1999 alone.

(g) *Summary*

The system security benefits of the Interconnect Assets can be assessed by considering the value of lost load avoided in 1998 and during winter 1999. Although precise calculations of the benefits are not available, indicative estimates can be made.

The physical flows through the Interconnect Pipeline following the Longford fire and explosion in 1998 and forecast flows attributable to the Interconnect Pipeline and (incrementally) MMAP if the Longford Gas Plant No. 1 was not available by Winter 1999 are documented.

The value of load not curtailed is estimated to lie between \$800/GJ (VoLL) and \$80/GJ (recommended APC).

The probability of the Interconnect Assets being required to provide system security at the time decisions were made last year is uncertain. For a reasonable range of probability estimates, the cost of the Interconnect Assets allocated to gas consumers under the proposed revised Reference Tariffs is likely to be far exceeded by the benefits attributable to these assets accruing to gas consumers for enhanced system security in 1998 and Winter 1999 alone. The same conclusion can be drawn for the Interconnect pipeline and the MMAP elements individually.

6.6 *System-wide benefit - increased competition*

A fundamental issue in gas reform in Victoria is the lack of producer competition. This issue has led the Victorian Government to adopt a suite of measures including:

- the development of alternative supply sources - of which the Interconnect Assets are prime examples;
- the enactment of the Significant Producer provisions contained in the Gas Industry Act 1994 (Vic);
- the development of the Gas Release Program;
- the introduction of a spot market for gas;
- the development of Underground Storage; and
- the adoption of the Market Carriage model.

The Interconnect Assets assume special importance as they bring immediate competition through physical gas flow capability. In this context a number of key factors need to be considered.

(a) *Historical monopoly*

Gas supply into Victoria has been derived almost exclusively from Esso-BHP for almost 30 years through a single (joint-venture) producer supplying a single purchaser (Gas and Fuel) structure. This structure initially balanced a monopoly seller against a monopsony buyer. A similar situation has prevailed in New South Wales over the past 25 years with the South Australian Cooper Basin Joint Venture supplying gas to AGL.

(b) *Inter-basin competition*

There is a perceived need for increased producer competition both between and within basins¹⁷. Over the longer term, increased producer competition will likely arise from upstream reform such as procedures for allocation of exploration permits, revocation of authorisation of joint venture marketing and emergence of new producers. In the shorter term, interconnection of basins offers the best means of inducing direct producer competition. The Interconnect Assets afford the first opportunity for a Victorian gas retailer to buy gas from the Cooper Basin thus imposing real competitive pressure on the Bass Strait producers. This has significant value to all Victorian users with the obvious potential (as with the introduction of any contestability) to reduce prices to consumers.

(c) *Magnified impact*

The 5 PJ of gas supplied into Victoria from the Cooper Basin supplies approximately 2-3% of total gas used in Victoria. Similarly, gas flowing through the Interconnect will supply only a few percent of the New South Wales market. However, the proportion of gas actually flowing through the Interconnect greatly underestimates the benefits of access to direct competition. Experience in Western Australia and elsewhere has shown that relatively fierce wellhead price competition can be generated even where a relatively small proportion of total load is met from competitive sources. The Western Australian market is considered to be the most competitive gas market in Australia because of the number of independent producers and purchasers, even though the great bulk of the market is served by the North West Shelf Joint Venture.

(d) *Swaps*

As has been seen internationally, capacity for physical flow does not necessarily limit the capacity for “competitive flows”. When flow can take place in both directions through an interconnect, notional backhauls can significantly increase the level of potential competitive flows. “Swaps” facilitated by interconnection are even more important. It is not uncommon to see swaps involving volumes of gas significantly greater than the physical flow capacity of a pipeline. Interconnections facilitate such flows and allow innovative mechanisms to be applied to sourcing supply. This means that the competitive effect may far outweigh the physical flow capabilities.

(e) *Peak supply*

In addition to introducing competition for baseload supply, the Interconnect Assets facilitate competition for peak supply. That is, additional flows will be able to compete to supply the market at times of peak demand, when the existing supply arrangements are more likely to be finely balanced.

(f) *Underground storage*

In the near future the Underground Storage will provide an additional source of commodity MDQ, and will help to free up competition amongst the Retailers for new markets. However, in the absence of the Interconnect Assets, supply into the Underground Storage would still depend on Bass Strait gas. The Interconnect Assets provide a competitive

¹⁷ Refer Industry Commission Australian Gas Industry and markets study (1995)

source of additional MDQ, which will further diminish the reliance on the Bass Strait producers.

6.7 Valuing increased competition

The benefits that flow from improved competition are impossible to quantify precisely. However a useful perspective on the issue is obtained by comparing the annual revenue requirement of the rolled-in investments for the Interconnect Assets with the total traded value of gas in Victoria each year. For example, the annual revenue requirement associated with recovery over the lifetime of the Interconnect Assets¹⁸ (\$4.7m) may be compared to an estimated annual traded value of gas of the order of \$500m¹⁹ or approximately 1%. This is a small price to pay for the potential to cap or reduce gas prices in the future.

In addition, a “ball-park” comparison can be made with the EGP. The Interconnect Assets, which cost approximately \$42.6m, are cheaper than the reported \$400m cost of the proposed EGP²⁰ which will transport gas from Victoria into New South Wales.

6.8 Prudent investment

As discussed above, the System-Wide Benefits Test is only satisfied if the relevant New Facilities Investment satisfies clause 8.16 of the Code. Clause 8.16 is satisfied if the amount of the New Facilities Investment 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 cost of delivering the services.

GPU GasNet considers that the design and construction of the New Facilities meets these requirements.

(a) Interconnect Pipeline

The pipeline between Barnawartha and Wagga was constructed principally by EAPL (approximately 94% of total costs). The total cost was divided between GPU GasNet and EAPL according to the assets acquired by each party and allocation of any specific costs, such as directional drilling under major rivers. The GPU portion of the pipeline between Barnawartha and Culcairn (referred to in this application as the Interconnect Pipeline) has a total cost of \$19.5m, broken down as follows.

Item	Cost
EAPL Charge	\$18.3m
GPU Pipeline Costs	\$0.7m
Stoppling Equipment	\$0.1m
Interest during Construction	\$0.4m
Total	\$19.5m

Note: Costs include GPU GasNet internal labour and overheads costs which were \$0.2m.

¹⁸ ie. using Option 3, refer section 7.2(c) below.

¹⁹ 200 PJ of gas purchased from Bass Strait at \$2.50/GJ costs \$500m. Other costs include LNG and New South Wales gas.

²⁰ This provides an illustration of the order of magnitude of the funds that participants are prepared to commit in order to achieve basin on basin competition.

GPU GasNet (then TPA) employed prudent and efficient practices in the construction of this pipeline by ensuring that appropriate tendering processes were used for the major components of the project. GPU GasNet monitored the project to ensure that appropriate tendering processes were followed for material, pipe coating, construction etc. GPU GasNet was also heavily involved in the design of the pipeline.

Pipeline costs can vary significantly given the unique circumstances of each pipeline. Costs can vary according to the availability of materials and construction crews, the exchange rate, the nature of the terrain, and the number of river and road crossings. Unfortunately, there are few meaningful benchmarks available. For these reasons it is difficult to draw conclusions from benchmark exercises, and GPU GasNet relies upon appropriate tendering processes to ensure prudent practice is achieved. However a “ball park” comparison for a 450 mm pipeline has been provided in the EPIC Moomba-Adelaide Access Arrangement²¹. The indicative cost for a 450 mm pipeline is \$360/metre which is comparable to the actual cost for the Interconnect Pipeline of \$312/metre.

GPU GasNet and EAPL selected a diameter of 450 mm for the Interconnect Pipeline. This sizing allows for economical expansion of the capacity of the Interconnect Pipeline for both northerly and southerly flows. It was prudent to construct to this diameter given the severe limitations that an under-sized pipeline would have presented to system security and to any further expansion of capacity. For example the MMAP is able to carry 92 TJ/day north-south making use of three new compressor stations. If the Interconnect had been sized at 300 mm, the south flowing capacity would have been reduced to 74 TJ/day, and the most feasible method to bring this capacity up to 92 TJ/day would have been to install an additional \$12-15m compressor station at a point midway between Young and Wodonga.

(b) *Springhurst Compressor*

The Springhurst Compressor and Valves were constructed as part of the MMAP. The design basis for this project is described in **Annexure 6**, and an independent assessment of the project has been provided by VENCORP in **Annexure 5**. These documents demonstrate the prudent design and location of the facilities.

The Springhurst Compressor (which is described in detail in **Annexure 1**) consists of a 4.6 MW Solar Centaur gas turbine powering a centrifugal compressor unit. The station is located at a greenfields site approximately 21 km south of the Interconnect connection point at Barnawartha. The cost of the entire station is \$18.7m as detailed below.

Item	Cost
Turbo-Machinery	\$5.0m
Balance of Plant	\$5.3m
Construction	\$6.2m
Freight	\$1.3m
Project Services	\$0.8m
Interest during Construction	\$0.1m
Total	\$18.7m

Note: Costs include GPU GasNet internal labour and overheads costs which were \$0.2m.

²¹ Access Arrangement Information for Moomba-Adelaide Pipeline page 24.

It is difficult to compare this cost with benchmarks given the circumstances in which the project was undertaken. A project of this size would normally be completed over an 18 month period (at least), whereas the time frame required for the MMAP project was only five months. In the time available there was no opportunity to obtain the machinery or construction contracts through a lengthy competitive tendering process, as would normally be the case. Instead GPU GasNet approached Solar Turbines based on their history of reliable operation and provision of support with GPU GasNet, and ascertained that Solar was willing and able to source the required units in the available time. Nevertheless, GPU GasNet sought independent advice from consulting engineers Stone & Webster and Fitzroy & Worley, who concluded that the quotations from Solar compared favourably with US prices and were not excessive. GPU GasNet estimates that the additional costs due to acceleration of the project amount to approximately 15-20%, in addition to approximately \$1.0m for air freighting.

The operating cost (excluding fuel) for the Springhurst Compressor is estimated to be \$0.10m during 1999. It has been assumed that Longford will be fully operational over the winter of 1999, hence the compressor has a relatively low utilisation. The on-going operating cost is estimated to be \$0.09m per annum, escalating at CPI. The ongoing cost is calculated on the assumption that the compressor is on stand-by but is not required to support significant flows. These costs are based on standard overhaul and maintenance rates as charged by external service companies.

Note that GPU GasNet is not including the cost of fuel to operate the compressor, despite the fact that approximately 35 TJ would be required for the projected flows in 1999. GPU GasNet is rolling this fuel requirement into the total forecasted fuel requirement for the system, on the basis that increased injections at Culcairn will lead to lower utilisation of the Gooding and Wollert compressors.

(c) *Valves*

The Valves consist of three pressure regulators and an actuated valve. The function of these facilities is to control flows and pressures on the GPU system when significant injections occur at both Longford and Culcairn. A description of the function and design of these facilities is provided in **Annexures 1 and 6**.

The total cost of the four projects is shown below.

Item	Cost
Barnawartha City Gate	\$1.0m
Ballan Line Valve Control	\$0.5m
Wandong Pressure Limiter	\$1.1m
Wollert Pressure Limiter	\$1.6m
Project Services	\$0.2m
Interest during Construction	\$0.0m
Total	\$4.4m

Note: Costs include GPU GasNet internal labour and overheads costs which were \$0.2m.

These Facilities were built over a period of five months whereas the normal time frame would be at least eight to nine months. A competitive tendering process was used for the procurement of equipment and the construction contract.

(d) *Cost Summary*

The total cost of the Interconnect Pipeline was \$19.5m. The Springhurst Compressor cost \$18.7m. A contribution of \$2.2m was made to the cost of the Springhurst Compressor by the Victorian Government, which has been used to reduce the total cost to be rolled-in to the GPU GasNet Capital Base to \$16.5m. The capital cost of the Valves was \$4.4m. This can be summarised as follows

Item	Capital Costs	O&M 1999	O&M on-going
Interconnect	\$19.5m	\$0.12m	CPI escalation
Compressor	\$16.5m ²²	\$0.10m	\$0.09m escalating at CPI.
Valves	\$4.4m	\$0.01m	CPI escalation
Total	40.4m	\$0.23m	

7 Tariff structure7.1 *Tariffs generally*

Assuming that the capital cost of the Interconnect Assets satisfies the requirements for roll-in to the GPU GasNet Capital Base (and GPU GasNet considers that it does), then the Commission must determine how that addition to the Capital Base should be treated for the purposes of amending the Reference Tariffs. In this regard, three key issues need to be considered:

- (a) the period over which the cost will be recovered;
- (b) the structure of the revised Reference Tariffs; and
- (c) the timing of the introduction of the new tariffs.

These issues are discussed in sections 7.2 to 7.4 below.

7.2 *Recovery period*

The Interconnect Assets perform a unique function within the Principal Transmission System. Unlike the rest of the system, which is in essence designed to transport gas from Longford to a variety of Victorian withdrawal points, the Interconnect Assets perform vital system security and competition functions without necessarily functioning as a “base load” transportation link.

As discussed in section 6.4, the Interconnect Assets provide significant ongoing System-Wide Benefits in the form of increased system security. However, by definition, this ongoing system security comprises the potential to provide support at times of supply or system failure rather than actual day to day support. In other words, the benefit takes the form of a reserve which is available to be called upon. However, the Interconnect Assets have had direct system security uses beyond that of a theoretical reserve. In particular:

²² after deducting State contribution

- during the gas supply emergency following the Longford fire and explosion in September 1998, the Interconnect Pipeline provided the only uninterrupted source of gas into the Principal Transmission System²³; and
- in planning for Winter 1999, when there was no certainty that the Longford processing plant could be capable of operating at full capacity²⁴, the Interconnect Assets comprised an integral part of the planning for supply reliability for Victoria.

As discussed in section 4.3, there are a number of options open to the Commission in relation to the period over which the capital costs of the Interconnect Assets will be recovered.

(a) *Over 12 months*

By definition, an element of a transmission system which provides a system redundancy function provides its benefit by means of its availability for use rather than its actual use. In these circumstances, its benefit is most striking during those periods when it is actually in use (ie because there has been a system failure elsewhere). This aspect of system redundancy was demonstrated most dramatically during the September 1998 gas emergency and again with concerns over the security of winter 1999 supplies. Given that the Interconnect Pipeline was actually used during the gas emergency and that the Interconnect Assets were planned for possible use in 1999, the Commission may choose to approve the recovery of the capital costs from users of the system at the time of the gas emergency. Given the passage of time, the best approximation of this outcome would be to recover the cost of the Interconnect Assets prospectively over a brief period (say 12 months commencing 1 January 2000).

(b) *Over the remainder of the regulatory period*

If the Commission accepted the broad principle of recovering the cost of the Interconnect Assets from the users who benefited directly from it during the September 1998 gas emergency and during winter 1999, but the Commission was also concerned about the potential “tariff shock” associated with the recovery over 12 months, the Commission could approve the recovery of these capital costs over the balance of the initial regulatory period (ie ending 31 December 2002).

(c) *Over the asset life*

Finally, the Commission could approve the recovery of these capital costs over the depreciation life of the Interconnect Assets. This has the advantage of maintaining consistency with the recovery of the existing GPU GasNet Capital Base and avoiding “tariff shock” during the current regulatory period.

The tariffs resulting from each of options 1, 2 and 3 are set out in **Annexure 2**.

GPU GasNet recognises that option 3 would be preferred by users of the Principal Transmission System because it spreads the cost over a longer period (and therefore reduces the short-term impact of the increased tariffs) and places the Interconnect Assets, in

²³ other than liquefaction of LNG.

²⁴ Refer above.

common with the rest of the Principal Transmission System, “at risk” of being found at a later date to be redundant and therefore removed from the Capital Base.

However, option 1 or 2 produces a tariff which is more reflective of the actual benefit, as opposed to potential benefit, provided by the Interconnect Assets and reduces regulatory uncertainty as to the recovery of their capital cost.

GPU GasNet prefers either option 1 or option 2. However, the matter is ultimately one for the Commission to decide.

7.3 *Structure of revised tariffs*

As discussed in **Annexure 3**, GPU GasNet proposes to amend its Reference Tariffs by:

- (a) introducing a new Interconnect Zone, to which a new Reference Tariff applies; and
- (b) increasing the existing Reference Tariffs for other zones.

A fully cost-reflective tariff would not be supported on the Interconnect Pipeline alone because the competitive environment for interstate trade restricts the ability of GPU GasNet to raise revenue from conventional tariffed services on the Interconnect Assets. In addition, vigorous competition across the Interconnect Pipeline will encourage gas swaps to which GPU GasNet is not required to be a party, which will tend to diminish Interconnect Assets revenues in an unpredictable way.

A cost-reflective tariff might for example be set at a value equal to the Interconnect Assets revenue requirement (\$4.7m) divided by the forecasted flows of 8 PJ pa (5 PJ North – South and 3 PJ South – North), which is \$0.59/GJ. However, it is unlikely that potential shippers would be prepared to pay this amount, given the competitive environment between Victoria and New South Wales. That is, GPU GasNet is restricted in the rates it can charge on the Interconnect Pipeline, given the need for delivered gas prices sourced from Longford to be competitive with gas sourced from the Cooper Basin in Sydney.

The same argument applies to firm flows from the Cooper Basin into Victoria. In this case the transportation tariff advantage to the incumbent supplier (Longford) is even greater.

Moreover, GPU GasNet cannot be assured of supplementary revenues from backhauls or counter-flows because of the reasonable expectation of gas swaps in these circumstances. The gas markets will benefit significantly from the opportunity for gas swaps, even though this activity will generate little revenue for GPU GasNet (this is a clear example of how the whole market benefits from the Interconnect Assets without the owner of the Interconnect Assets being able to recover its investment)²⁵.

A reasonable benchmark for a zonal Interconnect tariff can be found from the average distance-based rates on the EAPL system. Based on the EAPL published rates, the Interconnect Pipeline tariff (for an 80% load factor customer) is \$0.042/GJ. Where bi-directional flows occur, a backhaul tariff is applicable, and the relevant tariff is \$0.022/GJ.

²⁵Note that southerly flows will receive a Matched Booking rebate, and it is reasonable to classify this as negative incremental revenue attributable to the Interconnect. This leads to a reduction in the incremental revenues from the Interconnect and detracts further from the direct economic feasibility of the project.

GPU GasNet believes that a sustainable tariff for bi-directional flows should be set between the EAPL firm forward haul rate and the EAPL backhaul rate.

If a zonal tariff of \$0.030/GJ were charged on the forecast flows of 3 PJ north and 5 PJ south, then the revenue would support the roll-in of \$1.56m (8% of the Interconnect Assets investment).

The remaining investment of the Interconnect Assets should be rolled-in to the GPU GasNet Capital Base in recognition of the system-wide benefits to gas consumers in Victoria. There are a number of options for recovering this investment from the Reference Tariff. One option is to increase all assets pro-rata by the remaining capital investment, which will lead to all users paying a marginally higher tariff. However under this option those users on a lower transportation tariff will pay less in absolute terms than those users paying a higher transportation rate. This does not reflect the fact that the identified system-wide benefits are generic to the whole market.

The GPU GasNet preferred option is to treat the outstanding investment as part of the non-locational common cost pool in the TPA tariff methodology. This cost is then allocated as a non-locational Anytime charge to all users.

The additional Anytime Period charge under option 3 in section 7.2 above is approximately \$0.030/GJ in 1999, as described in the attached Supplementary Access Arrangement Information (**Annexure 3**).

7.4 *Timing of change*

In determining the new Reference Tariffs, two timing issues need to be considered:

- the date on which the revised tariffs commenced; and
- the date from which GPU GasNet is permitted to earn a return on the New Facilities Investment.

In calculating the proposed revised tariffs, GPU GasNet has assumed that the Commission's final determination of this application will be made within three months of this application and that the new tariffs will commence on 1 January 2000.

Naturally, if the actual date on which the Commission makes its final approval is later or earlier than assumed, then minor adjustments will be required to the revised tariffs.

GPU GasNet considers that it should be entitled to earn a return on the New Facilities Investment from the date on which the relevant New Facility becomes operational²⁶. As such, GPU GasNet should earn a return on the New Facilities Investment:

- in relation to the Interconnect Pipeline, from 15 July 1998;
- in relation to the Springhurst Compressor, from 1 June 1999; and
- in relation to the Valves, from 1 June 1999.

²⁶ As discussed in section 5.3 above, the New Facilities Investment should contain an allowance that reflects the capitalisation of a reasonable return on funds for an efficient construction period.

For reasons of regulatory simplicity and consistency, GPU GasNet accepts that the WACC and assumed life used in calculating this return should be the same as applied by the Commission in determining the Reference Tariffs.

In order to recover the return on the New Facilities Investment between the date of commissioning and the date on which the new tariffs commence, the revised tariffs should include an allowance to reflect this return. GPU GasNet proposes that a Net Present Value (NPV) model be adopted such that the NPV of the additional revenue created by the actual revised tariffs is the same as the NPV of the “ideal” revised tariff that would have applied if the tariffs had been revised from the date of commissioning of each asset. This NPV model, which is discussed in detail in **Annexure 3**, is consistent with:

- the general regulatory principle of providing a service provider with a return on its prudent investments;
- section 8.4 of the Code, which permits a NPV methodology; and
- the Commission’s comments in the Final Decision in relation to return on investment during the construction period²⁷.

8 Annual Operation and Maintenance costs

The revised Reference Tariff incorporate the following allowances for operation and maintenance costs:

- (a) Interconnect Pipeline - \$0.12m;
- (b) Springhurst Compressor - \$0.10m; and
- (c) Valves - \$0.01m.

These amounts are discussed further in the Supplementary Access Arrangement Information (**Annexure 3**).

Together, the operation and maintenance costs of the Interconnect Assets is \$0.22m or, in relation to the length of the Interconnect Pipeline, approximately \$3.5m per 1,000 km. This compares favourably with the \$16m per 1,000 km (in 1998) accepted by the Commission as part of the Access Arrangement²⁸.

In addition, GPU GasNet has included \$0.1m as its direct costs relating to preparing and completing this application.

9 Definitions

In this application, unless a contrary intention appears:

“**Access Arrangement**” means the Access Arrangement by TPA and TPAA for the Principal Transmission System which was approved by the Commission on 16 December 1998 and which, under the Code, binds GPU GasNet;

²⁷ Refer above.

²⁸ ACCC Final Decision, section 3.6.2, p. 68.

“**Capital Base**” has the same meaning as in the Code.

“**Code**” means the National Third Party Access Code for Natural gas Pipeline Systems set out in Schedule 2 of the Gas Pipelines Access (South Australia) Act 1997, as amended or replaced from time to time;

“**Commission**” means the Australian Competition and Consumer Commission;

“**EAPL**” means Eastern Australian Pipeline Limited;

“**Economic Feasibility Test**” has the same meaning as in the Access Arrangement;

“**EGP**” means Eastern Gas Pipeline, the proposed Duke transmission pipeline between Longford and Sydney.

“**Expansion**” has the same meaning as in the Access Arrangement;

“**Extension**” has the same meaning as in the Access Arrangement;

“**Extensions/Expansions Policy**” has the same meaning as in the Access Arrangement and, for ease of reference, is reproduced in **Annexure 4**;

“**Gascor GSA**” means the gas supply agreement between Gascor Pty Ltd and Esso/BHP and the associated arrangements for on-selling that gas to several gas retailers;

“**GJ**” means gigajoule;

“**initial regulatory period**” has the same meaning as in the Tariff Order;

“**Injection point**” has the same meaning as in the Tariff Order;

“**Interconnect Pipeline**” means the natural gas pipeline extending from Barnawartha in Victoria to Culcairn in New South Wales, described in the map in Appendix 1;

“**Interconnect Assets**” means the Interconnect Pipeline, the Springhurst Compressor and the Valves;

“**MDQ**” means maximum daily quantity;

“**MMAP**” means the Melbourne-Moomba Augmentation Program;

“**Principal Transmission System**” has the same meaning as in the Access Arrangement;

“**Reference Tariffs**” has the same meaning as in the Access Arrangement.

“**Springhurst Compressor**” means the gas compressor at Springhurst, comprising a centrifugal compressor unit and powered by a Solar Turbines Centaur gas turbine.

“**System-Wide Benefits Test**” has the same meaning as in the Access Arrangement;

“**Tariff Order**” means the Order-in-Council (Victorian Gas Industry Tariff Order 1998, as amended from time to time) made by under section 48A of the Gas Industry Act 1994;

“**Transmission zone**” has the same meaning as in the Tariff Order;

“**TPA**” means Transmission Pipelines Australia Pty Ltd;

“**TPAA**” means Transmission Pipelines Australia (Assets) Pty Ltd;

“**Valves**” means the three remotely operated pressure limiters at Barnawatha, Wandong and Ballan and the automated valve at Wollert; and

“**VENCorp**” has the same meaning as in the Gas Industry Act 1994.