

**REVISED ACCESS ARRANGEMENT  
INFORMATION  
FOR THE  
MOOMBA TO ADELAIDE  
NATURAL GAS PIPELINE**

**REVISED AS AT 22 JANUARY 2002**

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This Revised Access Arrangement Information is submitted pursuant to Section 2.18 of the National Third Party Access Code for Natural Gas Pipeline Systems ("Code").

This document has been prepared for review by the ACCC as Regulator under the Code and may contain information the public disclosure of which could be unduly harmful to the legitimate business interests of the Service Provider or a User or a Prospective User.

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## ATTACHMENTS

Attachment 1	FINANCIAL INFORMATION
Attachment 2	ORC PAPER
Attachment 3	WACC PARAMETERS
Attachment 4	DETAILS OF TRANSMISSION PIPELINE SYSTEMS OF AUSTRALIA

# INTRODUCTION

## 1. Access Arrangement & Access Arrangement Information

### 1.1 Introduction

As at the Lodgement Date, the Service Provider, Epic Energy South Australia Pty Ltd, is a corporation formed under South Australian law and is a subsidiary of Epic Energy Pty Ltd.

The Service Provider is the owner of natural Gas pipeline transmission systems in South Australia. One of those is the Moomba to Adelaide Pipeline System.

This document is the Access Arrangement Information that relates to the Access Arrangement for the Pipeline System. The purpose of this document is to enable Users and Prospective Users to understand the derivation of the elements of the Access Arrangement and to form an opinion as to the compliance of the Access Arrangement with the National Third Party Access Code for Natural Gas Pipeline Systems ('Code'). This document also sets out the information described in Attachment A to the Code.

Expressions used in this document have the same meanings as they have in the Code or (as the case may be) in the Access Arrangement, unless specifically noted otherwise.

### 1.2 Required Contents of the Access Arrangement

The Code requires the Access Arrangement to include a number of elements. Those elements, the sections of the Code that require their inclusion, and the clauses of the Access Arrangement which address those elements, are as follows:

- a Services Policy (Code sections 3.1 and 3.2) – Access Arrangement clause 4;
- a Reference Tariff for each Reference Service and the Reference Tariff Policy (Code sections 3.3 to 3.5) – Access Arrangement clause 5;
- the terms and conditions on which the Service Provider will supply each Reference Service (Code section 3.6) – Access Arrangement clauses 11 to 42;
- a Capacity Management Policy (Code section 3.7) – Access Arrangement clause 3;
- a Trading Policy (Code sections 3.9 to 3.11) – Access Arrangement clause 26;
- a Queuing Policy and an Extensions/Expansions Policy (Code sections 3.12 to 3.16) – Access Arrangement clauses 6 to 10; and
- a Revisions Submission Date and a Revisions Commencement Date (Code sections 3.17 to 3.20) – Access Arrangement clause 1.

Clause 43 of the Access Arrangement is relevant to all of the elements described above, as it contains definitions of expressions used throughout the Access Arrangement, as well as other interpretation aids.

## 1.3 Outline of Principal Elements of Access Arrangement

### (a) *Services Offered*

#### (i) *FT Service and IT Service*

As indicated in the Services Policy in clause 4 of the Access Arrangement, the Service Provider is offering 2 services under the terms of the Access Arrangement; FT Service which is a Reference Service, and IT Service which is a Rebatable Service. These services are outlined below in sections 1.3(a)(iii) and (iv).

If a Prospective User wishes to obtain a service other than FT Service or IT Service, it will have to negotiate with the Service Provider with a view to agreeing terms and conditions for that service (Non Standard Service).

#### (ii) *Impact of Existing Agreements of Service Provider*

**IT IS IMPORTANT TO NOTE** that the Gas transportation contracts of the Service Provider in existence as at the date of this Access Arrangement Information, are such that FT Service and IT Service can only be made available by the Service Provider in the limited circumstances described in section 1.3(c) below, until, at least, 1 January 2006.

#### (iii) *Nature of FT Service*

FT Service is a firm service in that it will be available on any Day of the year (except in the case of a force majeure event and certain other circumstances). Of the existing Capacity of the Pipeline System, 323 TJ/Day has been made available by the Service Provider for the provision of FT Service. That amount of Capacity is known as the 'System Primary Capacity' of the Pipeline System and has been allocated by the Service Provider across all of the existing Delivery Points in the amounts set out in Attachment B of Schedule 1 of the Access Arrangement.

Prospective Users seeking FT Service will be entitled to contract at a specific Delivery Point to utilise up to that amount of the System Primary Capacity allocated to that point which has not already been contracted to another User(s). Such a contracted quantity will be the 'Primary Capacity Quantity' of the User at that point. The sum of all of a User's Primary Capacity Quantities at all Delivery Points will be equal to the User's MDQ (ie the maximum quantity of Gas that the User will be entitled, in aggregate, to take delivery of from the Pipeline System on a Day).

However, some points on the Pipeline System have the physical capability to take delivery of a greater quantity of Gas on a Day than that which has been allocated to that point by the Service Provider for the purposes of determining System Primary Capacity. (The physical capability of a point is known as the 'Maximum Capacity' of the point.) Furthermore, on a Day, a User may wish to utilise a point on the Pipeline System at which it does not have a Primary Capacity Quantity. Consequently, a User with a contract for FT Service is entitled, on a Day, to nominate a quantity of Gas for delivery from any point on the Pipeline System, subject to two constraints:

- first, the User's aggregate nominations on a Day must not exceed its MDQ; and
- secondly, the User cannot nominate a quantity that would exceed the Maximum Capacity at the relevant point.

On a Day, those Users that have made nominations to utilise Primary Capacity Quantities at a point will have their nominated quantities scheduled for delivery. If the sum of such nominated quantities is less than the Maximum Capacity of the relevant point, and if other Users have also made nominations to utilise that point, then the balance of the Maximum Capacity (ie after taking into account the nominations to utilise Primary Capacity Quantities) will be allocated between those other Users prorata on the basis of their nominations at that point.

A contract for FT Service must be for a minimum term of 2 years.

(iv) *Nature of IT Service*

IT Service has a lesser priority than FT Service; the amount of the Capacity of the Pipeline System that will be available for IT Service on a Day will not be able to be determined by the Service Provider until nominations for FT Service have been received for that Day. The mechanics for nominations and scheduling of IT Services are set out in clause 18 of the Access Arrangement. Once those FT Service nominations have been received, nominations will then be taken from Users with contracts for IT Service.

Those Users will be entitled to make nominations at any of the Delivery Points on the Pipeline System at which the Service Provider determines that there is remaining Capacity. Where the aggregate of the nominations at a point from all Users with contracts for IT Service exceeds the available Capacity at that point, the available Capacity will be allocated by the Service Provider between those Users prorata on the basis of their respective nominations at that point.

Users with contracts for FT Service will not have rights that will displace, or adversely impact upon, the quantities of Gas that have been scheduled for receipt from/delivery to Users with contracts for IT Service.

A contract for IT Service must have a term of at least 2 years.

(v) *Retention Allowance*

All Users will be required to supply to the Service Provider, free of charge, all Gas required by the Service Provider for the operation of the Pipeline System. The quantity of such Gas to be supplied by a particular User on a Day is known as the 'Retention Allowance'. Clause 17 of the access arrangement deals with the Retention Allowance..

(vi) *Charges*

As at the date of this Access Arrangement Information, the tariffs, charges and charge rates that are applicable to the provision of FT Service and those that are applicable to the provision of IT Service are set out in the Tariff Schedule (which appears at Schedule 4 in the Access Arrangement).

The Tariff Schedule must be read in conjunction with relevant provisions in the Access Arrangement. Together, they indicate how tariffs and charges are to be calculated and when they are payable by the User.

(vii) *Operational Provisions*

The majority of the provisions of the Access Arrangement (ie clauses 11 to 42), set out the terms and conditions on which the Service Provider will supply FT

Service and IT Service. Many of those provisions are concerned with operational, 'day to day' and technical rights and obligations of the User and the Service Provider. They address such issues as the nominating and scheduling of daily quantities, the allocation of quantities at jointly used Receipt Points and Delivery Points, imbalance, curtailment and interruption, operational flow orders, Receipt Point and Delivery Point equipment obligations and access rights, Gas quality and quantity measurement, invoicing and payment, liabilities and indemnities, dispute resolution and rights of termination.

**(viii) *Electronic Bulletin Board***

All operational and other 'day to day' communications between the Service Provider and the User are intended to take place on an electronic bulletin board (or EBB). This will extend to all nominations by the User, the scheduling of all quantities for a day by the Service Provider, and the issuing of curtailment and other notices by the Service Provider.

The User will be solely responsible for monitoring the EBB and its facsimile machine at all times.

**(b) *Trading Policy***

Clause 26 of the Access Arrangement sets out the Service Provider's Trading Policy.

If a User wishes to undertake a Bare Transfer on a day it may do so without providing any information to the Service Provider.

On the other hand, if a User wishes to transfer rights to access Capacity on the basis that the Service Provider will deal with, invoice and accept payment from the transferee, then certain conditions will apply. The conditions are set out in clause 26, but include the following:

- the transferee must have an existing contract for FT Service or IT Service; and
- the User must indemnify the Service Provider if the transferee fails to meet its obligations to the Service Provider in respect of the transferred right to access capacity.

**(c) *Queuing Policy and Extensions/Expansions Policy***

Clause 10 of the Access Arrangement contains the Service Provider's Queuing Policy and Extensions/Expansions Policy. It proposes that New Facilities that are constructed will not be part of the Covered Pipeline unless the Service Provider otherwise agrees.

In deciding whether to construct any New Facilities, the Service Provider will apply a set of criteria set out in clause 10.10.

**(d) *Requests for Service***

Clauses 6 and 7 of the Access Arrangement set out how Requests for Service are to be made by a Prospective User and how they will be evaluated by the Service Provider.

A Request for Service must be in the form set out in Schedule 5 of the Access Arrangement and accompanied by the information and documentation referred to in clause 9.2 of the Access Arrangement (which will enable the Service Provider to assess the creditworthiness of the Prospective User). A non-refundable Application Fee will also be payable.

All Requests for Service will be lodged with the Service Provider on the EBB. A Prospective User that is not already a User at the date of establishment of the EBB and who wishes to make a Request for Service, will have to first enter into an EBB System Agreement with the Service Provider. A copy of that agreement, and any other relevant information, can be obtained by contacting:

State Sales Manager South Australia  
Epic Energy South Australia Pty Ltd  
26 High Street  
DRY CREEK SA 5094

PO Box 2450  
DRY CREEK SA 5094

Telephone: (08) 8343 8100  
Facsimile: (08) 8343 8125

A fee will be payable upon entering into an EBB System Agreement.

**(e) Contract Documentation**

Where the Service Provider is able to contract with a Prospective User for the provision of FT Service or IT Service, it will forward an FT Service Contract or IT Service Contract to the Prospective User for execution. That contract will be a brief document which:

- will incorporate, by reference, all of the terms and conditions of the Access Arrangement; and
- will have a schedule, which will have been completed by the Service Provider, setting out those items of information that are specific to the Prospective User and the service it is to be provided with (eg MDQ, Primary Capacity Quantities, Capital Contribution, etc).

**IT IS IMPORTANT TO NOTE** that the Access Arrangement may be varied or replaced from time to time by the Service Provider, but only with the prior approval of the Regulator pursuant to the Code. Where that happens, the User's contract for FT Service or IT Service – including all tariffs and charges (other than the amount of any Capital Contribution) – will automatically be varied or replaced. In other words, at any point in time, the contracts of all Users receiving FT Service, and the contracts of all Users receiving IT Service, will be on precisely the same terms and conditions (other than the amount of any Capital Contribution that may be payable).

## **1.4 Categories of information to be disclosed as part of the Access Arrangement Information**

Attachment A to the Code outlines six categories of information that must be provided in the Service Provider's Access Arrangement Information. The required information is provided herein as follows:

- Category 1 : Information regarding Access & Pricing Principles, see Section 2.

- Category 2 : Information regarding Capital Costs, see Section 3.
- Category 3 : Information regarding Operations and Maintenance Costs, see Section 4, with the exception of Gas used in operations, see Section 6.3 (c).
- Category 4 : Information on Overheads & Marketing Costs, see Section 4.
- Category 5 : Information regarding System Capacity & Volume Assumptions, see Section 5.
- Category 6 : Information regarding Key Performance Indicators, see Section 6.



## 2. ACCESS & PRICING PRINCIPLES

### 2.1 Reference Tariff Determination

During the first Access Arrangement Period at least, for a User to receive FT or IT Service an expansion (New Facilities to increase capacity) and an extension (addition of other New Facilities) will be required. The Reference Tariff is therefore applicable only within the context of the Extensions/Expansions Policy of the Access Arrangement. The significance of this fact brings into question the relevance of this Access Arrangement

The Reference Service is firm transportation (FT) service. As described above, this service provides for receipt of Gas in the Moomba region, transportation down the main line, and delivery of Gas in the Adelaide metropolitan region. If Gas deliveries are sought off the Whyalla Lateral, which branches off the mainline, a capacity surcharge (additional fixed charge) will apply.

### 2.2 Cost Allocation

Under existing contracts, the majority of total revenue, excluding Gas cost, is recovered through fixed capacity charges with the remainder recovered through a commodity charge. The same proportion is to be reflected in the proposed Reference Tariffs. Allocation of costs and revenues was required to arrive at the Whyalla Lateral Surcharge for FT Service on the Whyalla Lateral. The Whyalla Lateral Surcharge was calculated to recover the total current revenues recovered under existing contracts for capacity on these facilities. A summary of this allocation and derivation of Reference Tariffs is shown at Attachment 1, Table 6.

There is also one Rebatable Service (Interruptible (IT) Service) which is inferior in quality to FT Service. The price of IT Service has been set to equate to 115% of FT Service as shown on Attachment 1, Table 6, but will be charged on a commodity basis only. Revenues from IT Service are expected to be zero during the initial Access Arrangement Period. Should any revenues be recovered, they would be subject to the incentive mechanism discussed below.

### 2.3 Incentive Mechanism

The incentive mechanism contained within the Access Arrangement relates to the provision of IT Services to improve the efficiency of utilisation of the Pipeline System. If the pipeline recovers substantially more than its Total Revenue Requirement and revenue is generated by the sale of IT Service, a portion of the revenue from the sale of IT Service will be rebated to Reference Service customers. This is further detailed at clause 5.3 of the Access Arrangement.

## 3. CAPITAL COSTS

### 3.1 Capital Base

#### (a) *Optimized Replacement Cost ("ORC")*

An analysis of the Optimized Replacement Cost (ORC) for the Pipeline System is contained within Attachment 2. The ORC has been based upon the following parameters:

Receipt Point Pressure	6300 kPa
Firm Capacity	323 TJ per day

Geographical Extent of System	As at the Lodgement Date
Market Size and location	As at the Lodgement Date

Four options were addressed to provide similar capacity and redundancy to the existing system, with the following results (in 1998 dollars):

Option A	The existing 558 mm diameter pipeline	\$673 million
Option B	558 mm diameter pipeline at 15 Mpa	\$600 million
Option C	863 mm diameter, free flow pipeline	\$758million
Option D	610 mm diameter pipeline at 10 MPa	\$626 million

The least cost option (Option B) was selected.

The Regulator is directed by the Code that the valuation of the initial Capital Base should not normally fall outside the range of values of Depreciated Historic Cost and the Depreciated Optimised Replacement Cost (DORC).

It is the Service Provider's view that the correct valuation of the asset should be on the basis of what it would cost for a competitor to fully replace the asset. That is, Optimized Replacement Cost (ORC) analysis or deprival value should be utilized.

Only deprival value analysis provides the representative valuation of the true worth of an asset, provided that the same quality of service is delivered through both the existing and deprival value replacement asset.

**(b) Depreciated Optimized Replacement Cost (“DORC”)**

As indicated in the Reference Tariff Policy, the Service Provider has used the Depreciated Optimised Replacement Cost (DORC) methodology in determining its initial Capital Base.

The Pipeline System is now 31 years old. Given the appropriate ongoing maintenance, it should operate for at least a further 49 years. For the purposes of evaluating DORC, the Pipeline System has been depreciated on an asset class basis.

The DORC for the Pipeline System has been determined to be \$423 million (in 2001 dollars), as set out in Attachment 1, Table 3. A comparison of asset values is shown below:

Replacement Value	\$643 million
ORC	\$600 million (1998 dollars)
DORC	\$423 million (2001 dollars)
Book Value (at 31/12/98)	\$319 million

**(c) Working Capital**

Working Capital has been calculated as 20 days of the annual managed costs. This amount has been added to the Capital Base calculation as shown on Attachment 1, Table 3.

**(d) Forecast and Committed Capital Expenditure**

Capital Expenditure in the initial Access Arrangement Period includes completion of the currently contracted upgrade in capacity and expenditure to maintain the safety,

integrity and reliability of contracted Capacity. The amounts estimated for capital expenditure are shown on Attachment 1, Table 3.

There are no planned investments for expansion or extensions. However, if the Extensions/Expansions Policy is utilised, the Capital Contribution mechanism would be applied.

**(e) Initial Capital Base**

The total initial Capital Base is set out in Attachment 1, Table 3.

### **3.2 Rate of Return**

**(a) WACC Approach**

In establishing the Total Revenue for the MAPS, the Service Provider has provided for a post-tax nominal return on an equity investment in the pipeline system. The allowed rate of return on equity has been determined using the Capital Asset Pricing Model.

The financial parameters used in determining the post-tax nominal return on equity are set out in Attachment 3.

## **4. NON-CAPITAL COSTS (EXPENSES)**

In accordance with the obligations under sections 2.7, 2.8 and Attachment A of the Code, non-capital costs have been estimated for the initial Access Arrangement Period. In the Service Provider's view the information set out in Attachment 1, Table 2 satisfies the information disclosure requirements of the Code.

### **4.1 Operations and Maintenance Costs**

Details of operations and maintenance costs have been presented in Attachment 1, Table 2.

### **4.2 Fixed versus Variable Costs**

With the exception of fuel Gas, costs incurred by the Service Provider in respect of the Pipeline System are fixed in nature over the short term. Fuel Gas varies, generally, with Gas throughput. Under the proposed Reference Service, all Gas required as Fuel Gas will be retained from Gas received into the pipeline. The impact of the Retention Allowance (RA) provisions of the Access Arrangement will mean that between 95% and 100% of Gas received into the pipeline will be redelivered to customers, depending upon fuel use requirements.

Although all costs to be recovered under the Reference Tariff are fixed as noted in section 2.2 above, the Service Provider is proposing to recover only a proportion of costs through the Capacity Charge.

### **4.3 Overheads and Marketing Costs**

**(a) Marketing Costs**

At the current time, the Service Provider is not authorized by its board of directors to participate in any marketing or trading activities, which would require "ring-fencing". Therefore, there are no costs associated with these activities.

**(b) Allocation of Corporate Costs**

The Epic group of companies is structured such that corporate/ administrative services are provided to the operating units of the group, including the Service Provider.

#### **4.4 Cost Allocation to non-jurisdictional activities**

The Service Provider currently operates two pipelines for others:

- Riverland (Operated on behalf of Envestra); and
- Liquids Line (Operated on behalf of Santos).

The Service Provider also owns and operates a small, isolated pipeline in Southeastern South Australia known as the Katnook pipeline. All costs, revenues, and in the case of the Katnook pipeline, capital costs, are captured separately in the company's accounting system and have been excluded from the proposed revenue requirement.

As at the Lodgment Date, the Service Provider also provided Gas control centre support services to the Epic Queensland business unit. Unlike the services above, the costs associated with this service are not captured separately in the company's accounting system. To eliminate the impact of this service from the revenue requirement calculation, all revenues recovered from the Queensland business unit have been credited to (reduced) operation and maintenance expenses in the revenue requirement calculation.

#### **4.5 Other Costs**

Information regarding wages and salaries and other aggregated costs is set out in Attachment 1, Table 2.

### **5. SYSTEM CAPACITY AND VOLUME ASSUMPTIONS**

Information regarding Pipeline System capacity and volume assumptions is set out in Schedule 1 of the Access Arrangement. The Service Provider considers that to be the appropriate location for that information as it will be updated and maintained on the company's electronic bulletin board.

### **6. EFFICIENT COSTS AND PERFORMANCE MEASURES FOR PIPELINES**

#### **6.1 Introduction**

Attachment A to the Code suggests that industry key performance indicators (KPIs) should be used by the Service Provider to justify reasonably incurred costs. The challenge is how to compare the performance of individual service providers in a meaningful way.

The Service Provider suggests that there are two distinct potential roles for KPIs and benchmarks:

- to establish service standards or monitoring arrangements to ensure that the quality of service provision does not decline within a price control period (typically 5 years); and
- to help determine the efficient level of operating costs which should be included in the 5-year price control.

It is the Service Provider's view that there are no useful comparators in Australia at this time, and it has therefore not sought to use KPI data in setting or justifying the proposed

Reference Tariffs. However, some crude cost performance measures are addressed below in Section 6.3 (a), more to illustrate their limited usefulness, than as a means of comparison between organizations. In the future, quality of service indicators may provide some comparison of the service performance of pipelines in Australia. To support this effort, service comparators have been provided at Section 6.3 (b).

## 6.2 Key Performance Measures for Pipelines

### (a) *Using KPIs in setting price controls*

To develop reliable benchmark information, the appropriate cost and accounting data for all companies in the comparison group must be captured in a consistent manner, over an extended period of time. In addition, appropriate adjustments must be made for differences in companies' physical characteristics, including but not limited to, the ability to trade-off between capital and operating expenditures. For example, distinguishing factors that must be taken into account include:

- Pipeline design, construction; and operation;
- the grade of steel used in construction and the protection mechanisms;
- the operating pressure;
- impact on service standards in the event of a compressor failure;
- management of the impact of operational difficulties; and
- the size of the market served.

In light of the above, the Service Provider suggests that there are too many differences of a geographic, historic, political, operational and physical nature in the Australian pipeline sector, to permit benchmarks to be used to actually set the level of allowable costs in the business.

### (b) *International Comparators*

Using international rather than domestic comparators is not a solution as was concluded by regulators in the U.K. For example, U.S. transmission companies tend to have large differences in environmental and physical characteristics, e.g. they are much more integrated within networks than is the case in Australia.

### (c) *Pipelines in Australia*

The table in Attachment 4 is from the Australian Gas Association<sup>1</sup> which highlights the range of vastly different conditions and operations of transmission pipelines in Australia, for example:

- Including the Moomba to Adelaide pipeline, only 11 pipelines were commissioned prior to 1981, but 5 of those are less than 1/3 of the length of the Moomba to Adelaide pipeline.
- In terms of pipeline length, the closest comparator to the Moomba to Adelaide (781km) pipeline is Ballera to Wallumbilla (756 km), but the latter pipeline was commissioned in 1997, whilst Moomba to Adelaide was commissioned in 1969.

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<sup>1</sup> Gas Statistics Australia 1996

- There are considerable differences between pipelines in terms of diameter, capacity and geographic location.

**(d) Conclusion**

In summary, it is the Service Provider's view that the requirements of Category 6 of Attachment A of the Code should be modified to enable pipelines to develop quality of service standards and supporting measurement data. This would have the following advantages:

- Category 6 information would be more useful to interested parties than the present cost comparisons which are only a partial and potentially misleading analysis;
- Over time, Access Arrangements would begin to find consistent national service standards which reflect the level of the Reference Tariffs;
- Interested parties and regulators would be able to track quality of service performance through the period of the access arrangement; and
- A framework could be developed for understanding the link between asset and operating cost requirements, service levels and Reference Tariffs.

## 6.3 Performance Indicators

### (a) Comparison of Australian Pipelines

A simplistic comparison of the estimated transportation charges (per GJ) of a range of Australian Gas transmission pipelines on a linear basis (ignoring volume, diameter, age and other factors), is provided by the following table. It should be noted that, while the Pipeline System is fully compressed, it still holds a very competitive position in this comparison.

**THE PIPELINE DIAGRAM THAT WAS INCLUDED IN THE ORIGINAL ACCESS ARRANGEMENT INFORMATION DOCUMENT FILED WITH THE REGULATOR HAS BEEN REMOVED FROM THIS REVISED ACCESS ARRANGEMENT DOCUMENT AS EPIC ENERGY HAS BEEN ADVISED THAT THE TARIFF OF ONE OF THE PIPELINES DEPICTED MAY NOT HAVE BEEN ACCURATELY REPRESENTED**

### (b) Selection of Service Comparators

Of more relevance are service factors. The table below compares the Service Provider's performance with that of PASA.

Item	PASA				Epic		
	1979/80	1984/85	1989/90	1994/95	1996	1997	1998
No. Employees (total SA)	127.0	188.0	193.0	127.6	109.8	103.9	97.8
Pipe operated (total SA, km)	919.0	1593.0	1739.0	2039.0	2039.0	2039.0	2040.0
Km pipe/employee	7.2	8.5	9.0	16.0	18.6	19.6	20.9
LTIs (1) (total SA)	N/A	18	13	2	2	0	0
GUF (2)	-1.02%	-0.33%	-0.73%	-0.28%	-0.03%	+0.11%	+0.01%
Load Factor (3)	1.21	1.25	1.39	1.41	1.72	1.53	1.76
No of Restrictions (Gas not delivered, GJ)	47	234	7	4.5	0	0	0

Notes:

1. LTI = Lost Time Injury
2. A (+ ve) sign means that Delivery Point measurement exceeds Receipt Point measurement.
3. Peak Day ÷ Average Day

Further information on the Pipeline System pre July 1995 can be found in *Government Trading Enterprises Performance Indicators*, produced by the Steering Committee on National Performance Monitoring of Government Trading Enterprises.

**(c) Gas Used In Operations**

Below, is an historical summary of Gas used in operations, and the associated cost, for Gas from all measured uses:

	<b>1996</b>	<b>1997</b>	<b>1998</b>
Fuel Gas (TJ's)	874.317	1,021.126	1,262.013
Other Measured (Venting, etc) (TJ's)	86.906	95.350	79.060
Total Fuel Gas (TJ's)	961.223	1,116.476	1,341.073
Gas Unaccounted For	25.186	(82.784)	(7.835)
<b>Total Gas Used (TJ's)</b>	<b>986.409</b>	<b>1,033.692</b>	<b>1,333.238</b>
<b>Total Cost (Financial Accounts)</b>	<b>\$2,478,000</b>	<b>\$2,602,000</b>	<b>\$3,261,000</b>