**Amended Proposed Revised Access Arrangement Information**
**22 March 2005**

# DAMPIER TO BUNBURY NATURAL GAS PIPELINE

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# TABLE OF CONTENTS

# 1. INTRODUCTION

This document sets out the Access Arrangement Information for the Dampier to Bunbury Natural Gas Pipeline ("DBNGP") pursuant to the requirements of the Gas Pipelines Access (Western Australia) Act 1998, which incorporates the National Third Party Access Code for Natural Gas Pipeline Systems ("Code").

# 2. ACCESS AND PRICING PRINCIPLES

## 2.1 Reference Service and Reference Tariff

Section 3.3 of the Code requires the Operator's Access Arrangement to offer a Reference Tariff for at least one service likely to be sought by a significant part of the market.

The Reference Tariff for the Tf Service offered by the Operator in its Access Arrangement is such a Reference Tariff.

## 2.2 Non-Reference Services

In addition to the Reference Service, Operator will, subject to operational availability (as determined by Operator as a reasonable and prudent pipeline operator), make available to a prospective shipper the following Service or Services:

(a) Part Haul Service;

(b) Back Haul Service;

(c) Spot Capacity Service;

(d) Park and Loan Service;

(e) Seasonal Service;

(f) Peaking Service;

(g) metering information service;

(h) pressure and temperature control service;

(i) odorisation service; and

(j) co-mingling service.

The Operator is prepared to negotiate to provide a prospective shipper with any other Service that is not a Tf Service.

Each of the services listed above in this section 2.2 is known as a Non-Reference Service. The Non-Reference Services offered by the Operator are intended to cater to the individual needs of prospective shippers. They are described in more detail below.

(a) Part Haul

Part Haul is a Gas transportation Service in the DBNGP where the Delivery and Receipt Points are upstream of Compressor Station 9 on the DBNGP, but does not include Back Haul.

(b) Back Haul

Back Haul is a Gas transportation Service in the DBNGP, where the Receipt Point is downstream of the Delivery Point.

(c) Spot Capacity Service

Spot Capacity Service means a Service for Spot Capacity by way of one or more Spot Transactions.

(d) Park and Loan Service

Shippers or prospective shippers serving end users with gas demands that are difficult to predict from day to day, or when faced with an outage from their gas supplier, may find the maintenance of their imbalances within the tolerance specified in the Access Arrangement difficult. To assist these shippers and prospective shippers, Operator will offer a Park and Loan Service, permitting limited gas storage in the DBNGP, and/or taking of additional Gas from the DBNGP when required. Operator's ability to offer a Park and Loan Service is restricted by the operating characteristics of the DBNGP.

(e) Seasonal Service

Capacity in the DBNGP varies inversely with ambient temperature. A higher pipeline capacity is available during winter months when ambient temperatures are low. A lower capacity is available during summer months, with the lowest capacity usually available in January. Seasonal Service will only be made available subject to operational availability (as determined by Operator as a reasonable and prudent pipeline operator) and Operator meeting its obligations under Gas transportation contracts entered into prior to the commencement of the Access Arrangement Period.

(f) Peaking Service

This service will enable an increase in the MHQ at a Delivery Point for a specified period.

(g) Metering information service

This service will entail the provision of metering and operational data directly to a shipper in addition to the data the Operator agrees to provide under an Access Contract for the Reference Service.

(h) Pressure and temperature control service

This service will entail the provision of a service by the Operator to vary the temperature and/or pressure at which the Operator shall deliver Gas at an Delivery Point.

(i) Odorisation service

This service will entail the provision of a service by the Operator to odorise the Gas being delivered at an Delivery Point.

(j) Co-mingling service

This service entails the agreement by the Operator with a Shipper to blend Out–of–Specification Gas with the main Gas stream such that the aggregate of the main Gas stream is within specification.

In addition to the above Non-Reference Services, the Operator will provide services to shippers with Gas transportation contracts entered into before the commencement of the Access Arrangement Period.

# 3. TARIFF DETERMINATION METHODOLOGY

## 3.1 Tariff Structure

The Tf Service offered by the Operator is a Full Haul Service. It is a Gas transportation service on the DBNGP to a Delivery Point which is downstream of Compressor Station 9, regardless of the location of the Receipt Point, but does not include Back Haul.

The Reference Tariff for the Tf Service is a two-part tariff as follows:

(a) Capacity Reservation Tariff

The Capacity Reservation Tariff is a number of dollars per GJ of Contracted Capacity for Tf Service.

Each Tf Service Shipper is to pay the Operator a Capacity Charge, which is to be calculated for each Gas Day by multiplying the aggregate of the Shipper's Delivery Point MDQs by the Capacity Reservation Tariff.

(b) Commodity Tariff

The Commodity Tariff is a number of dollars per GJ of Gas actually Delivered to any Delivery Point downstream of Compressor Station 9 on the DBNGP.

Each Tf Service Shipper is to pay the Operator a Commodity Charge, which is to be calculated for each Gas Day by multiplying the aggregate of the quantity of gas delivered to the Tf Service Shipper at a Delivery Point or Delivery Points by the Commodity Tariff.

## 3.2 Cost allocation

The portion of Total Revenue attributable to provision of the Tf Service is recovered through the Reference Tariff.

The portion of the Total Revenue attributable to provision of the Tf Service is the Total Revenue less the costs of providing Part Haul Services which have been assessed as the costs of the additional fuel gas required to provide those Services.

The Reference Tariff has been determined under an assumption that all Shippers using Full Haul services are users of the Reference Service.

The Capacity Reservation Tariff recovers from each Tf Service Shipper a proportion of the return and depreciation on, and a proportion of the non capital costs incurred in operating and maintaining, the DBNGP. The Capacity Reservation Tariff essentially recovers the fixed costs of the DBNGP. The levels of these costs are determined by the total requirement for capacity to provide the Tf Service, and they are to be recovered on the basis of Tf Service Shippers' contracted capacity requirements.

The Commodity Tariff recovers from each Tf Service Shipper a proportion of the cost of the fuel gas used on the DBNGP. Fuel gas costs are the only variable costs associated with operation of the DBNGP. They are recovered from Tf Service Shippers on the basis of the quantity of Gas delivered to those shippers.

## 3.3 Incentive structures: price path

The Reference Tariff Policy set out in the Access Arrangement provides for Reference Tariff adjustment in accordance with a predetermined price path. The Reference Tariff will be adjusted annually during the Access Arrangement Period by 100 per cent of the increase in the CPI.

Price path regulation provides Operator with an incentive to minimise the costs of delivering the Reference Service. With the Reference Tariff constrained to increasing at 100 per cent of the increase in CPI, reductions in the cost of delivering the Reference Service increase profits, and these increases in profits are retained at least until the end of the Access Arrangement Period.

If Operator is able to increase demand for the Reference Service above the forecast quantities used in tariff determination, its revenue from sales will exceed the forecast revenue. To the extent that the increase in demand can be accommodated without a proportionate increase in cost, the Operator will generate higher than expected profits. These higher profits are retained at least until the end of the Access Arrangement Period.

## 3.4 Incentive structures: efficiency carryover

Additional incentives for efficiency improvement are provided by the inclusion of an efficiency carryover mechanism in the Reference Tariff Policy of the Access Arrangement. That mechanism provides, in accordance with section 8.44 of the Code, for a sharing of any returns to the Operator from the sale of Full Haul services in an Access Arrangement Period that exceeded the level of returns that were expected during that Access Arrangement Period for the sale of such services. This sharing is effected through inclusion of any efficiency gains in the current Access Arrangement Period in the Total Revenue from which the Reference Tariff for the following Access Arrangement Period is to be determined. If efficiency gains are made in the current Access Arrangement Period, the Operator is rewarded with a higher Reference Tariff in the following Access Arrangement Period. If efficiency "losses" are realized, the efficiency carryover mechanism works, symmetrically, to penalize the Operator with a lower Reference Tariff in the following Access Arrangement Period.

# 4. INFORMATION REGARDING CAPITAL COSTS

## 4.1 Initial Asset Values

The initial Capital Base has been established at a value of $1,550.00 million as at 31 December 1999 in accordance with the Final Decision of the Independent Gas Pipelines Access Regulator.

The allocation of the initial Capital Base to asset classes as at 31 December 1999 is in accordance with the allocation made for determination of the Reference Tariff applicable during the initial Access Arrangement Period. Asset values by class of assets as at 31 December 1999 are indicated in Table 1.

**TABLE 1: ASSET VALUE BY ASSET CLASS**

| Asset | Percentage of total asset value | Asset value at 31 December 1999 ($m) |
|---|---|---|
| Pipeline | 81.49 | 1,263.15 |
| Compression | 13.65 | 211.60 |
| Metering | 1.12 | 17.35 |
| Other | | |
| Depreciable | 3.07 | 47.66 |
| Non depreciable (land and linepack) | 0.66 | 10.24 |
| Total | 100.00 | 1,550.00 |

## 4.2 Actual New Facilities Investment

The actual New Facilities Investment during the initial Access Arrangement Period is shown in Table 2.

**TABLE 2: ACTUAL NEW FACILITIES INVESTMENT ($M NOMINAL)**

| Year ending 31 December | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Pipeline | 1.39 | 0.03 | 0.06 | 0.00 | 0.62 |
| Compression | 18.62 | 1.33 | 0.08 | -0.11 | 0.18 |
| Metering | 0.57 | 0.54 | 0.36 | -0.03 | 1.67 |
| Other | 5.10 | 1.37 | 0.75 | 0.92 | 0.90 |
| Total | 25.68 | 3.27 | 1.26 | 0.77 | 3.38 |

## 4.3 Roll-forward of the Capital Base

The Operator has rolled forward the Capital Base to 31 December 2004 as follows:

(a) commencing with the initial Capital Base of $1,550.00 million on 31 December 1999;

(b) actual new facilities investment during the initial Access Arrangement Period has been added;

(c) depreciation as forecast in determining the Reference Tariff applying during initial Access Arrangement Period has been subtracted; and

(d) the Capital Base in each year of the initial Access Arrangement Period has been escalated at the actual rate of inflation.

The roll forward of the capital base to 31 December 2004 is shown in Table 3.

**TABLE 3: ROLL FORWARD OF THE CAPITAL BASE ($M NOMINAL)**

| Year ending 31 December | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Capital base at beginning of year | 1,550.00 | 1,626.19 | 1,638.75 | 1,646.77 | 1,642.60 |
| New facilities investment | 25.68 | 3.27 | 1.26 | 0.77 | 3.38 |
| Depreciation | 39.41 | 41.49 | 42.85 | 43.90 | 45.05 |
| Inflation adjustment | 89.93 | 50.78 | 49.62 | 38.96 | 41.93 |
| Capital Base at end of year | 1,626.19 | 1,638.75 | 1,646.77 | 1,642.60 | 1,642.86 |

## 4.4 New Facilities Investment

New Facilities Investment forecast to occur during the Access Arrangement Period is reasonably expected to pass the requirements of section 8.16 of the Code when that New Facilities Investment is forecast to occur.

A description of the forecast New Facilities Investment, and justification for that investment, is provided in Annexure 2.

The value of New Facilities Investment for the Access Arrangement Period is as shown in Table 4.

**TABLE 4: FORECAST NEW FACILITIES INVESTMENT ($M NOMINAL)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Pipeline | 88.91 | 275.19 | 0.00 | 226.84 | 101.28 | 0.00 |
| Compression | 100.50 | 117.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| Metering | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other | 13.16 | 13.97 | 7.30 | 9.01 | 10.06 | 9.29 |
| Non-depreciable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 202.57 | 406.95 | 7.30 | 235.85 | 111.34 | 9.29 |

## 4.5 Rate of Return

The Rate of Return for the Access Arrangement Period has been established as a pre-tax real weighted average of the returns applicable to debt and equity.

The return on debt has been determined as the sum of a risk free rate of return, an estimate of the corporate debt margin, and an estimate of the costs of raising debt.

The return on equity has been determined using the capital asset pricing model.

The Rate of Return parameters and values are shown in Table 5.

The pre-tax real weighted average cost of capital of 7.24%, shown in the last row of Table 5, has been used in calculation of Total Revenue.

**Table 5: Rate of Return parameters and values**

| Parameter | Calculation | Value |
|---|---|---|
| Nominal risk free rate of return | $R_{f,\ nominal}$ | 5.39% |
| Real risk free rate of return | $R_{f,\ real}$ | 2.77% |
| Market risk premium | $R_m - R_f$ | 6.00% |
| Asset beta | $\beta_a$ | 0.60 |
| Debt beta | $\beta_d$ | 0.20 |
| Debt margin | $\delta$ | 1.36 |
| Ratio of debt to total assets | D/V | 60.00% |
| Corporate tax rate | T | 30.00% |
| Valuation of imputation credits | $\gamma$ | 50.00% |
| **Calculated values** | | |
| Ratio of equity to total assets | $E/V = 1 - D/V$ | 40.00% |
| Equity beta | $\beta_e = \beta_a + (\beta_a - \beta_d) \times D/E$ | 1.20 |
| Cost of equity | $K_e = R_{f,\ nominal} + \beta_e \times (R_m - R_f)$ | 12.59% |
| Cost of debt | $K_d = R_{f,\ nominal} + \delta$ | 6.75% |
| Expected inflation | $\pi_e = (1 + R_{f,\ nominal})/(1 + R_{f,\ real}) - 1$ | 2.55% |
| **WACC** | | |
| Post-tax nominal | | 6.99% |
| Post-tax real | | 4.32% |
| Pre-tax nominal | | 9.98% |
| Pre-tax real | | 7.24% |

## 4.6 Depreciation

A separate depreciation schedule has been determined for each of the four groups of physical assets that form the DBNGP. These four groups are:

(a) pipeline assets;

(b) compressor station assets;

(c) metering assets; and

(d) other assets.

For the assets in each of the four groups, depreciation during the Access Arrangement Period has been determined by applying the straight line method.

Assumptions for asset lives for new assets, and average remaining asset lives as at 31 December 2004 for assets in the initial Capital Base as at 31 December 1999, are shown in Table 6.

**TABLE 6: ASSUMED ASSET LIVES**

| Asset | Asset Life (years) | Average Remaining Asset Life at 31 December 2004 (years) |
|---|---|---|
| Pipeline assets | 70 | 49.50 |
| Compression assets | 30 | 14.60 |
| Metering assets | 50 | 33.50 |
| Other depreciable assets | 30 | 11.85 |

Table 7 shows the depreciation schedule for each class of assets comprising the Capital Base.

**TABLE 7: DEPRECIATION SCHEDULE ($M NOMINAL)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Pipeline assets | 28.08 | 30.10 | 34.90 | 35.79 | 40.03 | 42.53 |
| Compression assets | 13.83 | 17.62 | 22.09 | 22.66 | 23.24 | 23.83 |
| Metering assets | 0.61 | 0.63 | 0.64 | 0.66 | 0.68 | 0.69 |
| Other depreciable assets | 3.76 | 4.30 | 4.89 | 5.27 | 5.71 | 6.20 |
| Total | 46.28 | 52.65 | 62.53 | 64.37 | 69.65 | 73.25 |

Table 8 shows the roll forward of the Capital Base over the Access Arrangement Period on the basis of the forecast New Facilities Investment shown in Table 4 and Depreciation shown in Table 5.

**TABLE 8: ROLL FORWARD OF THE CAPITAL BASE THROUGH THE ACCESS ARRANGEMENT PERIOD ($M NOMINAL)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Capital Base at beginning of year | 1,642.86 | 1,841.08 | 2,242.38 | 2,244.39 | 2,473.16 | 2,577.97 |
| New facilities investment | 202.57 | 406.95 | 7.30 | 235.85 | 111.34 | 9.29 |
| Depreciation | 46.28 | 52.65 | 62.53 | 64.37 | 69.65 | 73.25 |
| Inflation adjustment | 41.94 | 47.00 | 57.24 | 57.29 | 63.13 | 65.80 |
| Capital Base at end of year | 1,841.08 | 2,242.38 | 2,244.39 | 2,473.16 | 2,577.97 | 2,579.82 |

The accumulated depreciation for the DBNGP, from 1 January 2000 to 31 December 2010 is shown in Table 9.

**TABLE 9: ACCUMULATED DEPRECIATION ($M NOMINAL)**

| Year ending 31 December | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|
| Accumulated depreciation | 39.41 | 80.90 | 123.76 | 167.66 | 212.71 | 258.99 |

| Year ending 31 December | 2006 | 2007 | 2007 | 2007 | 2010 | |
|---|---|---|---|---|---|---|
| Accumulated depreciation | 311.64 | 374.16 | 438.54 | 508.19 | 581.44 | |

# 5. INFORMATION REGARDING NON CAPITAL COSTS

## 5.1 Fixed versus variable costs

The costs associated with the operation and maintenance of a gas transmission pipeline system are predominantly fixed. For a given pipeline configuration, capital costs, pipeline operating and maintenance costs and, to a lesser extent, compressor maintenance costs, do not vary materially with the volume of gas delivered to shippers. The only truly variable costs are the costs of fuel gas.

When the capacity of the DBNGP is expanded (implementing a new pipeline configuration), the level of these fixed costs will rise.

## 5.2 Forecast Non Capital Costs

Forecast Non Capital Costs for the Access Arrangement Period are shown in Table 10.

**TABLE 10: NON CAPITAL COSTS ($M NOMINAL)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Wages and Salaries | 8.61 | 7.93 | 12.37 | 12.20 | 12.00 | 11.58 |
| Materials and Services | 34.78 | 34.82 | 44.03 | 42.72 | 41.47 | 43.81 |
| Corporate Overheads | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fuel gas | 20.11 | 23.19 | 40.83 | 38.79 | 37.88 | 41.11 |
| Total | 63.50 | 65.95 | 97.23 | 93.70 | 91.34 | 96.50 |

## 5.3 Corporate overheads

The estimated Non Capital Costs for the proposed Access Arrangement Period do not include any allocation of overheads from the entities which own the DBNGP.

## 5.4 Gas used in operations

The cost of fuel gas is derived from estimates of the quantity of gas used in operations. The quantity of gas used in operations in each year of the Access Arrangement Period is an estimate of the quantity of gas used as compressor fuel during the year assuming steady state flow, plus an allowance of 5% for:

(a) additional compressor fuel used in accommodating variable flow rates;

(b) Gas used as fuel in gas engine alternators and heaters;

(c) Gas which is vented during maintenance activities; and

(d) Gas which is lost from the DBNGP.

# 6. TOTAL REVENUE

## 6.1 Total Revenue

The Total Revenue has been calculated by the Cost of Service methodology as described in section 8.4 of the Code, wherein the Total Revenue is equal to the cost of providing all Services (which may be the forecast of such costs), and with this cost to be calculated on the basis of:

(a) a return on the value of the capital assets that form the Covered Pipeline or are otherwise used to provide Services (Capital Base);

(b) depreciation of the Capital Base (Depreciation); and

(c) the operating, maintenance and other non capital costs incurred in providing all Services (Non Capital Costs).

The methodology has been applied in accordance with section 8.5A(c) of the Code under which a real Rate of Return is applied to the nominal Capital Base, and Depreciation and the Non Capital Costs are expressed as nominal (or escalated) values.

The Total Revenue for the Access Arrangement Period is shown in Table 11.

**TABLE 11: TOTAL REVENUE ($M NOMINAL)**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Return on Assets | 122.01 | 136.73 | 166.53 | 166.68 | 183.67 | 191.45 |
| Depreciation | 46.28 | 52.65 | 62.53 | 64.37 | 69.65 | 73.25 |
| Non Capital Costs | 63.50 | 65.95 | 97.23 | 93.70 | 91.34 | 96.50 |
| Total | 231.79 | 255.32 | 326.29 | 324.75 | 344.66 | 361.20 |

## 6.2 Total costs at corporate level

The DBNGP business is a stand-alone entity. The Non Capital Costs in Table 11 are, therefore, the total service provider costs at corporate level.

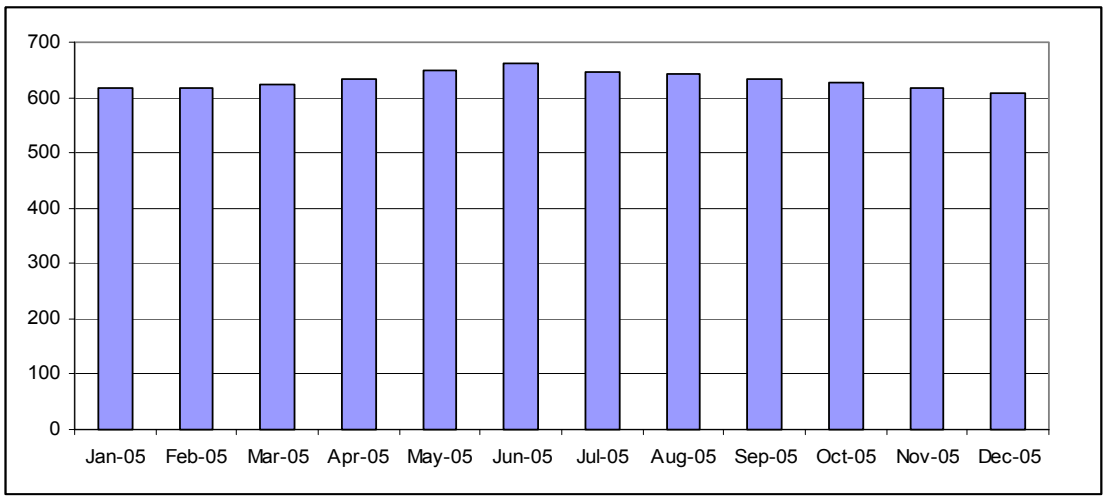
The business of the DBNGP is the provision of gas transportation services. There is, therefore, no allocation of costs between regulated and unregulated segments.

# 7. INFORMATION REGARDING CAPACITY AND THROUGHPUT

## 7.1 Maximum delivery capability

The forecast maximum capacity of the DBNGP during 2005 is shown in Figure 1.

**FIGURE 1: DBNGP FORECAST MAXIMUM CAPACITY 2005 (TJ/D)**




A large number of assumptions must be made in determining the maximum capacity of a gas transmission pipeline. Assumptions made in determining the maximum capacity of the DBNGP related to:

(a) receipt point pressures;

(b) quantities received at receipt points;

(c) heating value of the gas transported;

(d) composition of the gas transported;

(e) gas temperature;

(f) ambient temperature;

(g) compressor unit availability;

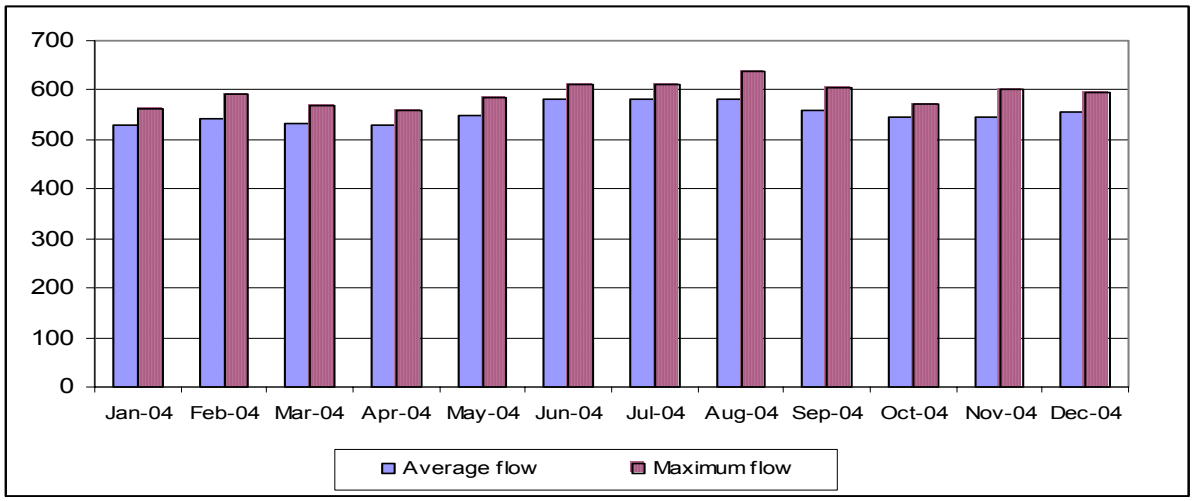
(h) delivery point pressures; and

(i) shipper load profiles.

## 7.2 Average daily and peak demand

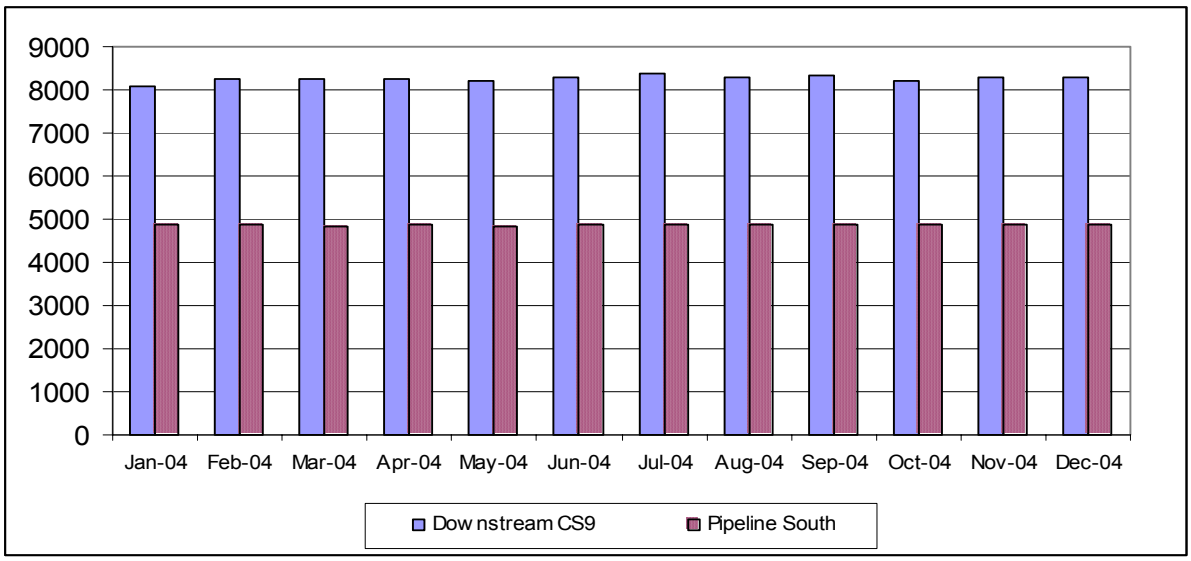
Daily flows through CS 9 during 2004, averaged over each month of the year, are shown in Figure 2. Figure 2 also shows the maximum flow (largest daily flow) through CS9 in each month of 2004.

**FIGURE 2: AVERAGE AND MAXIMUM FLOWS THROUGH CS9 DURING 2004 (TJ/D)**




Monthly average pressures immediately downstream of CS9, and at the inlet to southern section of the pipeline (at Kwinana Junction), during 2004, are shown in Figure 3.

**FIGURE 3: AVERAGE PRESSURES DURING 2004 (KPAG)**



## 7.3 Contracted capacities and throughput: actual and forecast

Tables 12 and 13 show the contracted Full Haul capacity between 2000 and 2004, and of the total volumes of Gas – throughput – delivered using that contracted capacity. The corresponding forecasts for the period from 2005 to 2010 are shown in tables 14 and 15.

**TABLE 12: CONTRACTED CAPACITY (TJ/DAY)**

| Year ending 31 December | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Full Haul | 548.3 | 551.1 | 547.6 | 538.9 | 557.9 |

**TABLE 13: THROUGHPUT (TJ/DAY)**

| Year ending 31 December | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Full Haul | 499.1 | 533.6 | 543.4 | 546.7 | 553.0 |

**TABLE 14: FORECAST CONTRACTED CAPACITY (TJ/DAY)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Full Haul | 575.9 | 615.6 | 715.0 | 771.1 | 788.5 | 826.4 |

**TABLE 15: FORECAST THROUGHPUT (TJ/DAY)**

| Year ending 31 December | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Full Haul | 554.8 | 591.9 | 681.9 | 736.9 | 753.7 | 788.4 |

## 7.4 Delivery Points and Numbers of Customers

Table 14 shows the Full Haul Delivery Points on the DBNGP, and the number of Shippers taking delivery of Gas at each of those Delivery Points.

**Table 14: Full Haul Delivery Points on the DBNGP and numbers of Shippers taking delivery of Gas at each Delivery Point**

| Delivery Point | Number of Shippers |
|---|---|
| Muchea | 1 |
| Pinjar | 3 |
| Della Road | 3 |
| Ellenbrook | 1 |
| Harrow Street | 3 |
| Caversham | 3 |
| Welshpool | 3 |
| Forrestdale | 3 |
| Russell Road | 3 |
| Wesfarmers LPG | 1 |
| Australian Gold Reagents | 1 |
| Alcoa Kwinana | 3 |
| Kwinana Power Station | 3 |
| Cockburn Power Station | 3 |
| Barter Road/HiSmelt | 2 |
| Mission Energy Cogeneration | 3 |
| Kwinana Beach Road | 1 |
| Rockingham | 1 |
| WMC | 0 |
| Pinjarra | 1 |
| Alcoa Pinjarra | 1 |
| Pinjarra Cogeneration | 2 |
| Oakley Road | 1 |
| Harvey | 1 |
| Worsley | 1 |
| South West Cogeneration | 3 |
| Kemerton | 1 |
| Clifton Road | 2 |

# 8. KEY PERFORMANCE INDICATORS

## 8.1 Code Requirements

Attachment A to the Code requires Operator to provide information regarding key performance indicators ("KPIs"). More specifically, the Code seeks information on:

(a) industry KPIs used by the Operator to justify "reasonably incurred costs"; and

(b) the Operator's KPIs for each pricing zone, service or category of asset.

Provision of industry KPIs is difficult. There are few, if any, useful comparators for gas transmission pipelines in Australia. The principal national industry body representing pipeline owners and operators, the Australian Pipeline Industry Association, does not publish key performance measures for operation of the pipelines owned by its members.

## 8.2 KPIs for the DBNGP

In the absence of accepted industry performance measures, Operator has adopted the following KPIs for the DBNGP:

(a) compressor reliability;

(b) compressor availability;

(c) asset utilisation; and

(d) fuel ratio.

## 8.3 Compressor reliability

This KPI measures, as a percentage figure, the reliability of Compressors on the DBNGP by the following formula:

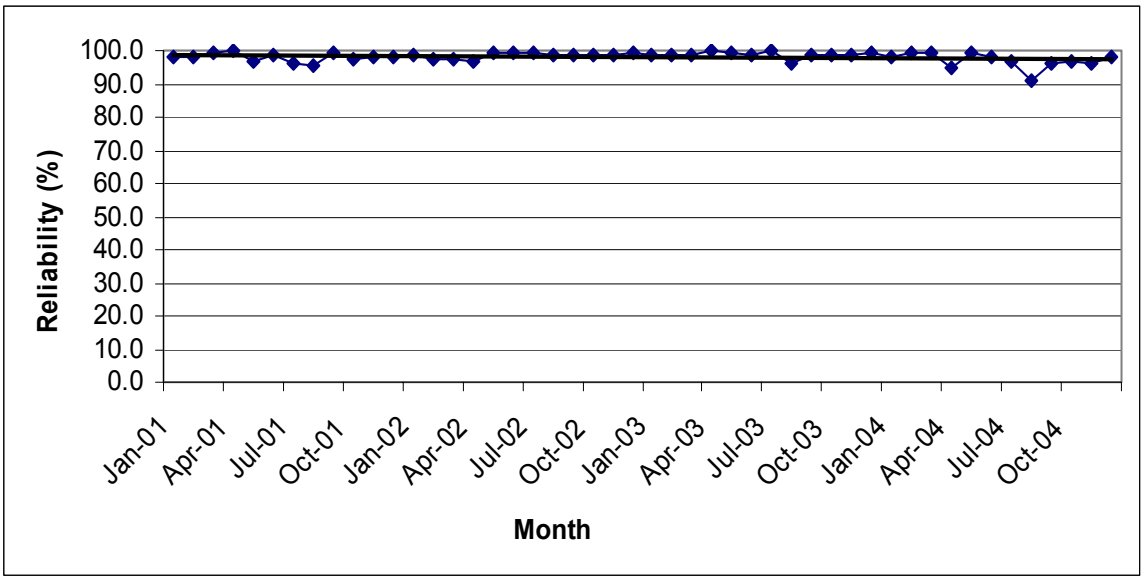
Compressor Reliability % = 100 x (Total Hrs - Forced Outage Hrs)/Total Hrs

where:

"Forced Outage Hrs" means the number of hours in a period when the compressor is not available for service, and the cause of unavailability has not been planned (for example, a shutdown due to failure of a critical pressure transmitter); and

"Total Hrs" means the number of hours that elapse between the start and finish times for the period.

**Figure 4: Average compressor reliability**



## 8.4 Compressor availability

This KPI measures, as a percentage figure, the availability of each Compressor on the DBNGP by the following formula:

Compressor Availability % = 100 x (Total Hrs - Forced Outage Hrs - Planned Outage Hrs)/Total Hrs

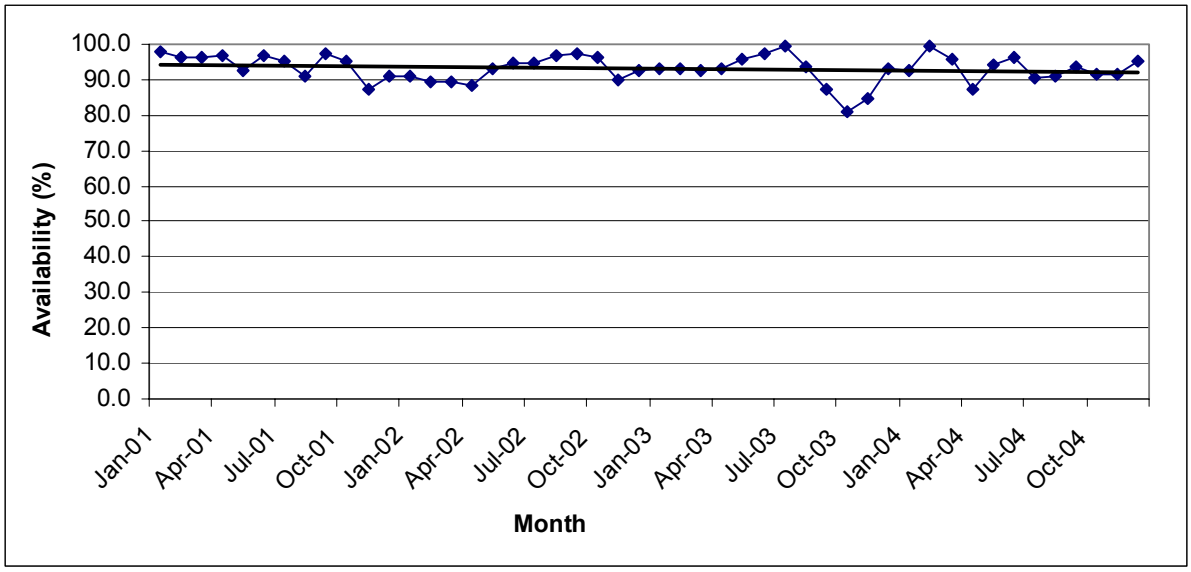
where:

"Forced Outage Hrs" means the number of hours in a period when the compressor is not available for service and the cause of unavailability is not due to preplanned reasons (for example, a shutdown due to failure of a critical pressure transmitter);

"Total Hrs" means the number of hours that elapse between the start and finish times for the period; and

"Planned Outage Hrs" means the number of hours in a period when the compressor is not available for service and the cause of unavailability is preplanned (for example, a planned oil change, or a planned modification to the compressor fuel gas skid which prevents operation).

**Figure 5: Average compressor availability**



## 8.5 Asset utilisation

This KPI measures, as a percentage figure, the utilisation of the DBNGP. It is calculated using the following formula:

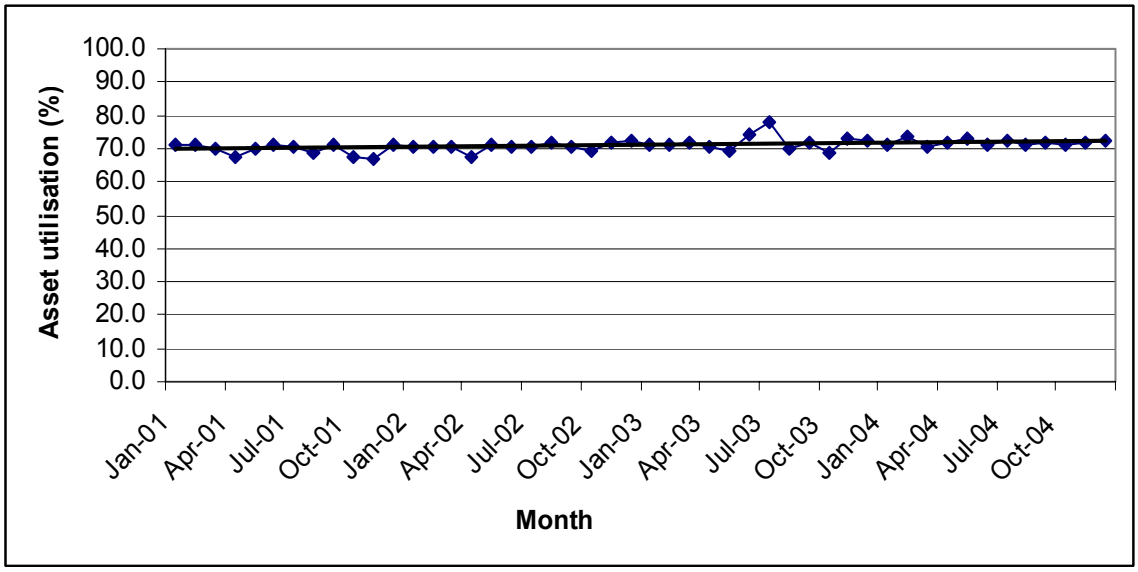
Asset Utilisation % = 100 x Actual Full Haul Throughput/Monthly Design Maximum Throughput

where:

"Actual Full Haul Throughput" means the summation of Gas deliveries from the DBNGP downstream of CS9 over a period; and

"Monthly Design Maximum Throughput" means the DBNGP maximum full haul throughput predicted by DBNGP operator modelling for the month(s) in which the period is contained.

**Figure 6: Asset utilisation**



## 8.6 Fuel ratio

This KPI is the ratio at which fuel gas is used on the DBNGP. It is calculated using the following formula:

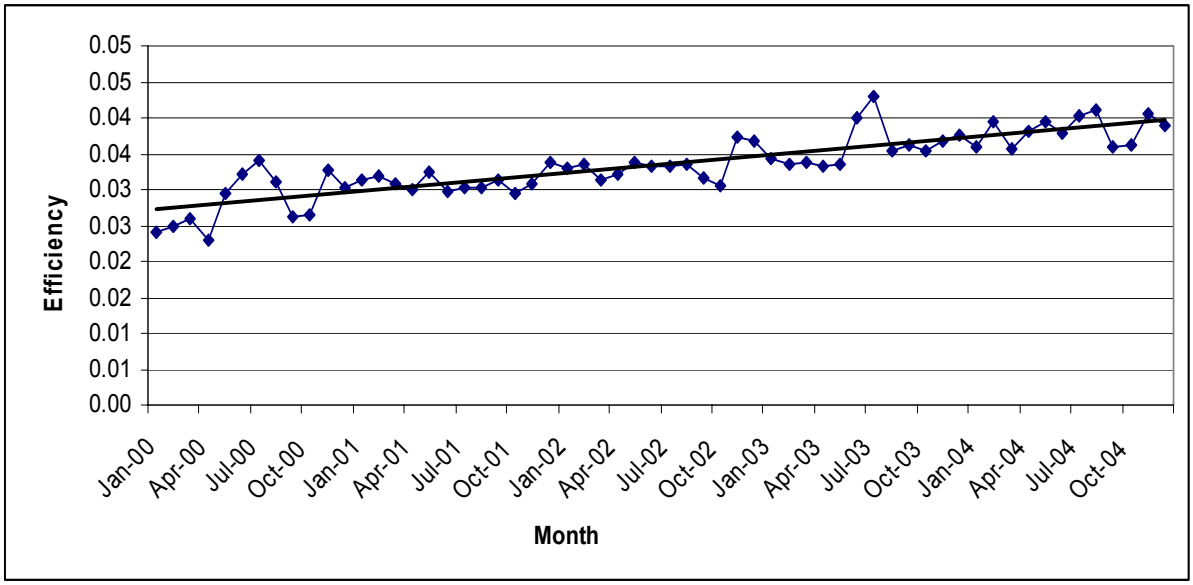
Fuel Ratio % = 100 x Actual Fuel Consumption/Actual Full Haul Throughput

where:

"Actual Fuel Consumption" means the total of all compressor fuel gas consumed over a period; and

"Actual Full Haul Throughput" means summation of Gas deliveries from the DBNGP downstream of CS9 over the period.

**Figure 7: Fuel ratio**



# Annexure 1
# DBNGP SYSTEM DESCRIPTION
# AS AT JANUARY 2005

# Annexure 2

# DESCRIPTION OF NATURE AND JUSTIFICATION FOR NEW FACILITIES INVESTMENT