

Proposed Revisions DBNGP Access Arrangement

2016 – 2020 Access Arrangement Period

Throughput and Capacity Forecast

Supporting Submission: 11



PUBLIC

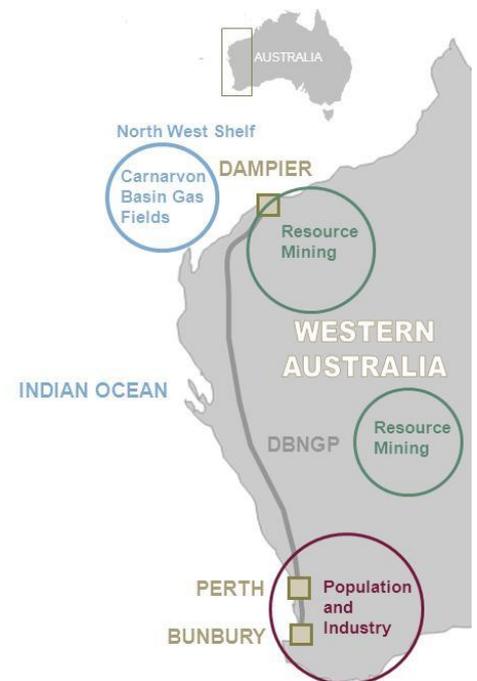
Date Submitted: 31/12/2014

CONFIDENTIALITY

- 1.1 This submission is provided to the ERA to assist it in its assessment of the proposed revisions to the DBNGP Access Arrangement.
- 1.2 Some information contained in the submission is confidential and commercially sensitive. The reasons for DBP's claim of confidentiality are outlined in Appendix C: to this submission.
- 1.3 A public *version* of this submission will be provided separately.
- 1.4 Accordingly, this version of the submission is provided to the ERA on the following conditions:
 - (a) it is to be used by the ERA solely for the purposes of assessing the proposed revisions to the DBNGP Access Arrangement;
 - (b) it is not to be disclosed to any person other than the following without DBP's prior written approval:
 - (i) those staff of the ERA who are involved in assisting the ERA in its assessment process; and
 - (ii) those of the ERA's consultants who are involved in assisting the ERA in its assessment process and who have appropriate confidentiality undertakings in place.

DBP Transmission (DBP) is the owner and operator of the Dampier to Bunbury Natural Gas Pipeline (DBNGP), Western Australia's most important piece of energy infrastructure.

The DBNGP is WA's key gas transmission pipeline stretching almost 1600 kilometres and linking the gas fields located in the Carnarvon Basin off the Pilbara coast with population centres and industry in the south-west of the State



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1. INTRODUCTION

- 1.1 On 31 December 2014, DBNGP (WA) Transmission Pty Ltd (DBP) filed the following documents with the Economic Regulation Authority (ERA):
 - (a) proposed revised Access Arrangement (**Proposed Revised AA**); and
 - (b) proposed revised Access Arrangement Information (**Proposed Revised AAI**).
- 1.2 These documents are proposed to cover the access arrangement period commencing on 1 January 2016 and ending on 31 December 2020 (**AA Period**)
- 1.3 These documents contain the information that the National Gas Access (WA) Act 2009 (NGA) (which includes the Western Australian National Gas Access Law text (NGL) and the National Gas Rules (NGR)) requires to be included in order to enable them to be approved by the ERA.
- 1.4 In addition to the Proposed Revised AA and Proposed Revised AAI, a number of additional supporting submissions were filed to assist the ERA in assessing the Proposed Revised AA. These included the following:
 - (a) Submission 1: Proposal
 - (b) Submission 2: Cost Controls and Governance
 - (c) Submission 3: Proposed Reference Service
 - (d) Submission 4: Terms and Conditions
 - (e) Submission 5: Non-tariff related issues
 - (f) Submission 6: Cost Verification and Allocation
 - (g) Submission 7: Actual Capital Expenditure (Expansion)
 - (h) Submission 8 Actual Capital Expenditure (Stay-in-Business) (Part 1 & 2)
 - (i) Submission 9: Forecast Capital Expenditure
 - (j) Submission 10: Forecast Operating Expenditure
 - (k) Submission 11: Capacity and throughput forecast
 - (l) Submission 12: Rate of Return
 - (m) Submission 13: Total Revenue
 - (n) Submission 14: Tariff model and tariff calculation
- 1.5 This submission contains further supporting information in relation to the matters in the Proposed Revised AA and Proposed Revised AAI that relate to forecast contracted capacity and throughput for the AA Period.

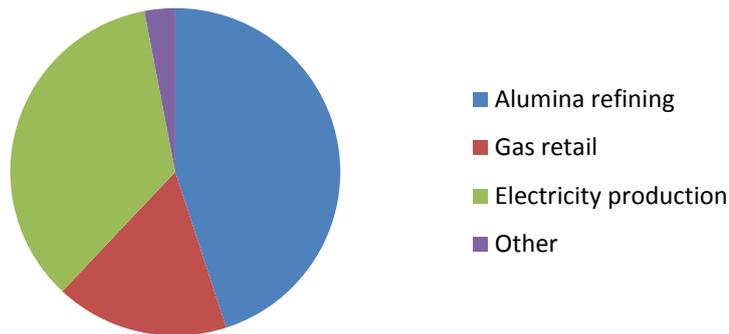
2. REQUIREMENTS OF THE NGR

- 2.1 NGR 72 outlines the specific requirements for access arrangement information relevant to price and revenue regulation. NGR 72(1)(d) requires that DBP include in the Proposed Revised AAI, to the extent that it is practicable, a forecast of pipeline capacity and utilisation of pipeline capacity over the AA Period and the basis on which each forecast has been derived.
- 2.2 NGR 74 and 75 provides further, more general, guidance on preparing forecasts for the purposes of the access arrangement. NGR 74 and 75 are as follows:
- 2.3 NGR 74 is directly relevant to the provision of forecasts and estimates:
- (1) *Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate.*
 - (2) *A forecast or estimate:*
 - (a) *must be arrived at on a reasonable basis; and*
 - (b) *must represent the best forecast or estimate possible in the circumstances.*
- 2.4 NGR 75 relates to the use of inferred or derivative information:
- Information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based.*
- 2.5 DBP's has provided Pipeline Capacity and the basis on which that Pipeline Capacity is contained in Section 10 Table 17 and the basis on which it has been derived is provided at paragraph 9.4 of the AAI.
- 2.6 In relation to the forecast utilisation of Pipeline Capacity over the AA period, as required by NGR 72, DBP's Proposed Revised AAI contains both a forecast of contracted capacity (**Capacity Forecast**) (Table 16) and a forecast of utilisation of that contracted capacity (**Throughput Forecast**) (Table 18) as well as the basis on which each have been derived.
- 2.7 This submission provides further support for the parts of the Proposed Revised AAI that outline:
- (a) the basis on which both the Capacity Forecast and the Throughput Forecast for the AA Period have been derived as required by NGR 72(2)(d); and
 - (b) how these forecasts are consistent with NGR 74 and 75.

3. BACKGROUND

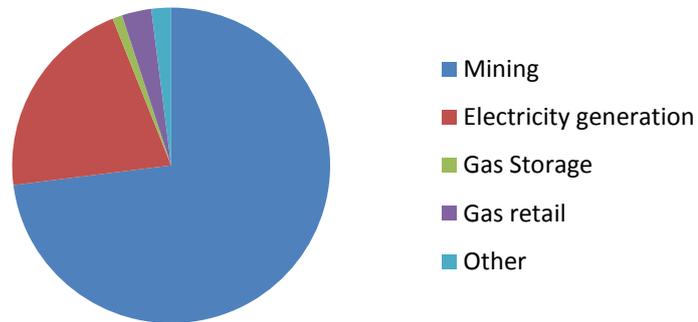
- 3.1 DBP's primary business is the transportation of natural gas through the Dampier to Bunbury Natural Gas Pipeline. In all, DBP has 25 customers that contract for firm transportation services, of which 11 are predominantly firm full haul shippers, 9 are predominantly part haul shippers and 5 are predominantly back haul shippers.
- 3.2 Firm full haul shippers fall into one of 4 broad industry sectors:
- (a) alumina refining;
 - (b) gas retail;
 - (c) electricity generation; and
 - (d) other.
- 3.3 The proportion of throughput by industry sectors is shown in Figure 1 and are 45% Alumina refining, 17% gas retail, 35% electricity generation and 3% other. The proportions have remained relatively constant over the last 5 years.

Figure 1: Full Haul throughput by industry



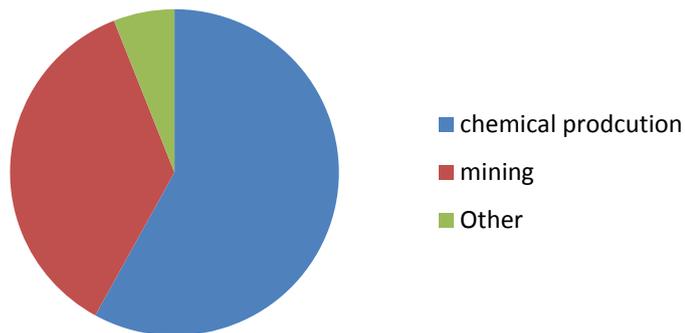
- 3.4 Part Haul shippers fall into one of 4 broad industry sectors:
- (a) mining;
 - (b) electricity generation;
 - (c) gas storage; and
 - (d) gas retail.
- 3.5 The proportion of part haul throughput by industry sectors is shown in Figure 2 and is 73% mining, 21% electricity generation, 3% gas retail, 2% other and 1% storage.

Figure 2: Part Haul throughput by industry



3.6 Back Haul shippers fall into one of 3 broad industry sectors - chemical production, mining and other. The proportion of back haul throughput by industry is shown in Figure 3 and is 58% chemical production and 36% mining.

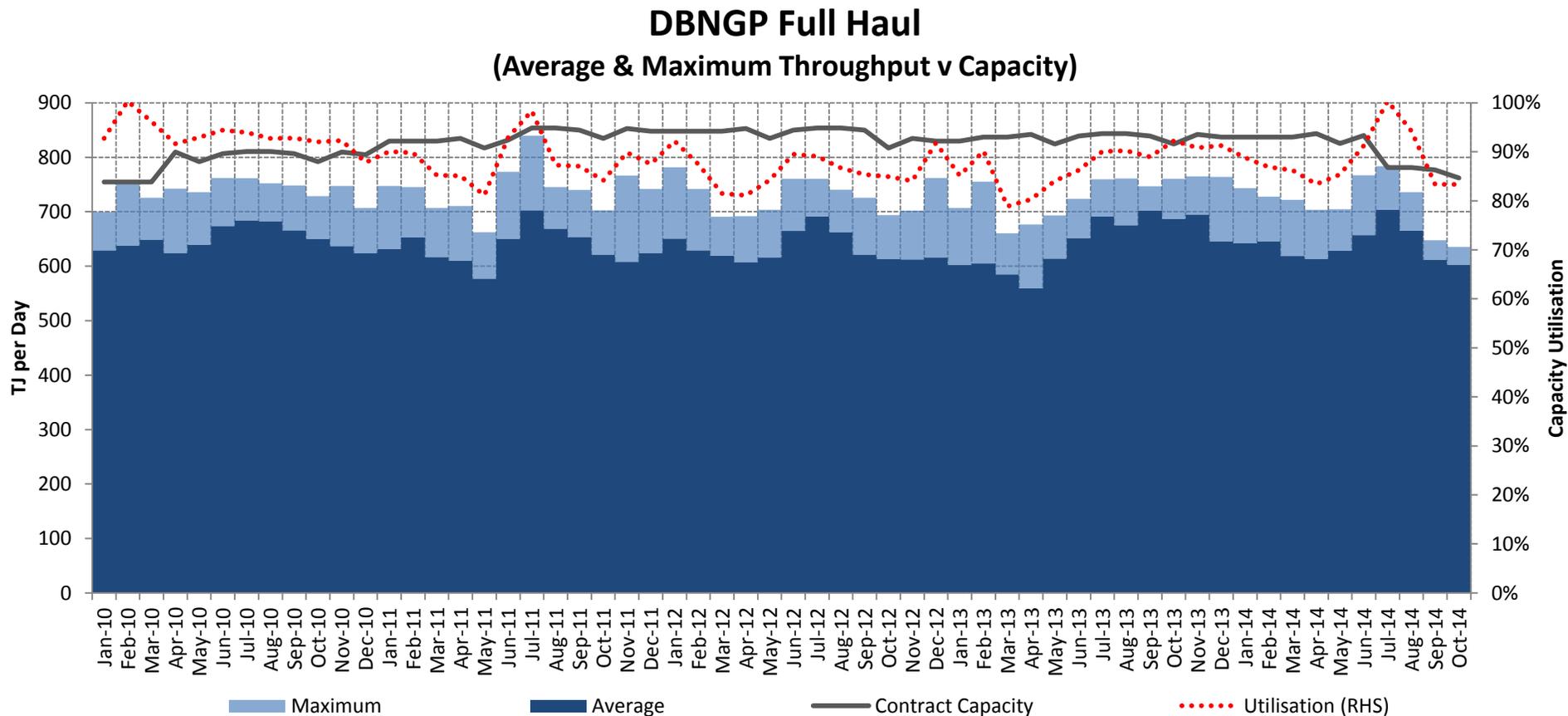
Figure 3: Back Haul throughput by industry



Asset Utilisation

- 3.7 The following graph shows the aggregated historical average throughput, maximum throughput and average contracted capacity on a monthly basis for full haul shippers on the DBNGP from 2010 to 2014.
- 3.8 It should be noted that full haul throughput and contracted capacity has been compiled on a shipper by shipper basis, as opposed to an outlet by outlet basis. DBP notes that this is consistent with the minimum, maximum and average throughput by service provided in Table 6 to 8 of the AAI however, the figure below exclusively shows T1 full haul throughput.
- 3.9 The average throughput has been determined by aggregating the average TJ on a gas day over each month for T1 throughput for each shipper contract.
- 3.10 Maximum throughput for each month has been determined by aggregating each shipper's maximum T1 full haul throughput on a gas day for each given month.
- 3.11 Contracted capacity is the aggregate of prevailing T1 capacity contracted for each shipper in each month.

Figure 4: DBNGP Firm Full Haul monthly utilisation



3.12 DBP submits that the above graph provides insight to how shippers utilise their contracted capacity demonstrating:

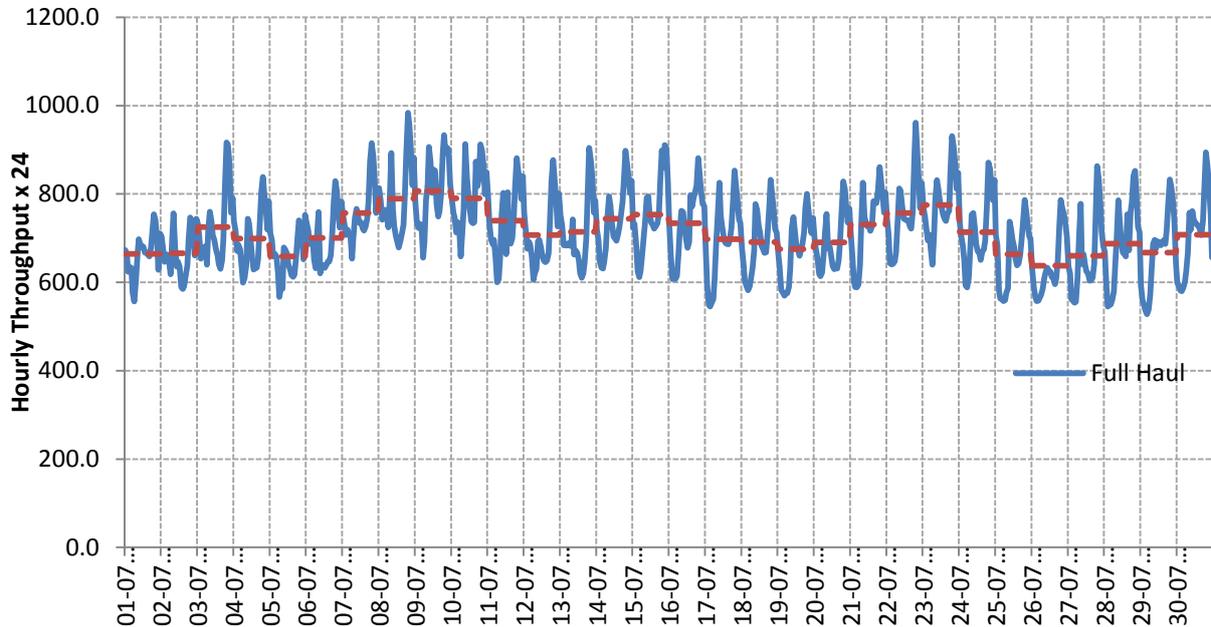
- (a) Contracted capacity is well utilised across the period;
- (b) In aggregate, there are instances T1 contracted capacity is fully utilised;
- (c) Contracted capacity on the DBNGP is likely to remain well utilised during the AA Period.

- 3.13 It should also be noted that under the terms and conditions of the T1 reference service (and the negotiated Standard Shipper Contract), the Operator:
- (a) will be liable to the Shipper for damages if it curtails the firm contracted capacity in excess of the Permissible Curtailment Limit - being any amount of capacity that is curtailed for more than 2% of the time - ie in excess of 7 days in a year;
 - (b) must be able to deliver up to each shipper's T1 contracted capacity on any given day; and
 - (c) must not contract in excess of the T1 capacity of the pipeline.
- 3.14 The T1 capacity is where the probability of delivery for the next GJ of Gas to be transported in the DBNGP to any Outlet Point downstream of Compressor Station 9 is 98% for each year
- 3.15 Shippers have certain peaking, imbalance and overrun rights in addition to the right to T1 capacity.

Peaking Rights

- 3.16 The Hourly Peaking Limits under the SSC are:
- (a) 125% in winter (1 May to 1 November) and 120% in summer (1 Nov to 1 May) of the aggregate MHQ calculated across all outlet points on the DBNGP;
 - (b) 125% in winter and 120% in summer of the aggregate MHQ calculated across all outlet points in Pipeline Zone 10; and
 - (c) 125% in winter and 120% in summer of the aggregate MHQ calculated across all outlet points in Pipeline Zone 10B.
- 3.17 DBP may require the shipper to reduce its take of gas or refuse to deliver gas to the shipper if at any time the shipper exceeds and Hourly Peaking Limit and DBP, acting as a reasonable and prudent person, considers that a continuation of that condition will:
- (a) impact on the integrity or operation of the DBNGP; or
 - (b) will impact, or is likely to impact, on any other shipper's entitlement to its Daily Nomination for T1 Capacity, Firm Capacity, or any Non-Firm Reserved Service.
- 3.18 Shipper's Outer Hourly Peaking Limits are:
- (a) 140% of the aggregate MHQ calculated across all outlet points on the DBNGP;
 - (b) 140% of the aggregate MHQ calculated across all outlet points in Pipeline Zone 10; and
 - (c) 140% of the aggregate MHQ calculated across all outlet points in Pipeline Zone 10B.
- 3.19 DBP may not exercise any rights or remedies against the shipper for exceeding an Hourly Peaking Limit, other than:
- (a) for failure of a requirement to reduce take limited to Direct Damages;
 - (b) to recover the Hourly Peaking Charge;
 - (c) to refuse to deliver to Shipper at an outlet point; or
 - (d) any combination of those options.
- 3.20 The following graph provides a sample of intra-day peaking data from July 2014 demonstrating intra-day peaks of up to 1000 TJ/day.

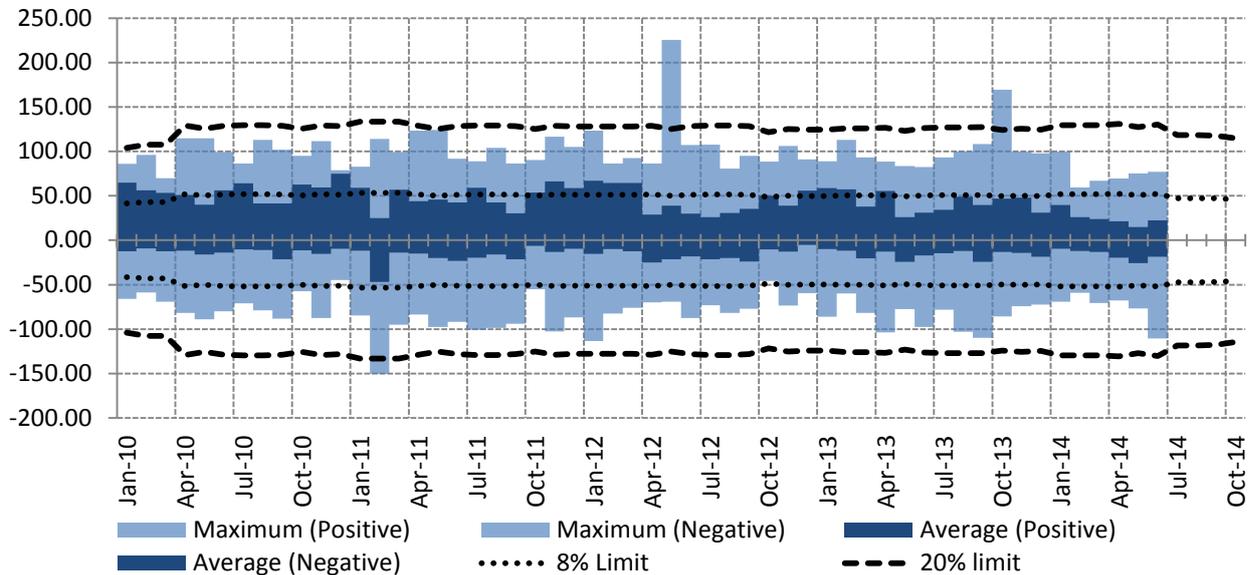
Figure 5: Intra-day peaks for full haul throughput



Imbalances

- 3.21 Shipper's Accumulated Imbalance Limit for a day is 8% of the sum of the shipper's quantities referred to as Contracted Capacity across all of Shipper's Capacity Services (including T1 Service and any Capacity under Spot Transactions) for that day. Where this limit is exceeded, Operator may require the shipper to reduce its imbalance or refuse receipt or delivery of gas.
- 3.22 Shipper's Outer Accumulated Imbalance Limit for a day is 8% of the sum of the shipper's quantities referred to as Contracted Capacity across all of Shipper's Capacity Services (including T1 Service and any Capacity under Spot Transactions) for that day. If the absolute value of Shipper's Accumulated Imbalance at the end of a day exceeds the Outer Accumulated Imbalance Limit for the day just finished then (subject to certain exceptions (e.g. curtailment), the shipper must pay the Excess Imbalance Rate (which is 350% of the Base T1 Tariff) for each GJ of gas in excess of Shipper's Outer Accumulated Imbalance Limit.
- 3.23 The following graph provides:
 - (a) Maximum positive/negative,
 - (b) Average positive/negative,
 - (c) Imbalances, against the 8% accumulated imbalance limit and 20% outer accumulated imbalance limit.

Figure 6: Imbalances and imbalance limits (Total)



Overrun

- 3.24 Overrun Gas for a particular day and for a particular shipper, means gas received by the shipper (across all outlet points) less the aggregate of the quantities referred to as Contracted Capacity across of the shipper's Capacity Services (including T1 Services and any Capacity under Spot Transactions) (across all outlet points) on that day, and, if this calculation produces a negative result, Overrun Gas for that day equals zero.
- 3.25 In respect of each GJ of Overrun Gas received by Shipper on a day, Shipper must pay the greater of:
- 115% of the Base TI Tariff; and
 - the highest price bid for Spot Capacity which was accepted for that day.
- 3.26 Additionally, under the terms and conditions of the reference service the shipper is entitled to exercise these rights without notifying the operator in advance and that the operator not only has very limited contractual rights to limit the imbalance and peaking rights of the shippers, it has very limited rights to ensure that the shippers don't abuse these rights.

Design assumptions

- 3.27 The determination of the firm full haul capacity on the DBNGP is based on certain assumptions including the extent to which shippers exercise their peaking and imbalance rights. These are as follows:
- 3.28 Mainline North
- Loop lengths and/or compression are initially sized to provide the contracted T1 capacity under steady state condition.
 - The initial loop lengths and/or compression are then adjusted (as required) to meet the current contracted hourly peak or 120% for summer months and 125% for winter months. However, Stage 5B was designed to meet a lower coincidental peak of approximately 115% to take into account that not all shippers will peak at the same time.

3.29 Pipeline South

- (a) As Pipeline South stores minimal linepack compared to Mainline North, the (Stage 5B) pipeline has been designed using the methodology adopted since Stage 3A to provide for 108% of T1 contracted capacity for all delivery points.¹

¹ Stage 5B FEL Study, page 16 (provides as attachment 14 of Submission 9 14 April 2010)

4. BASIS OF THROUGHPUT AND CAPACITY FORECASTS

- 4.1 This section contains DBP's statement of the bases on which both the Capacity Forecast and the Throughput Forecast for the AA Period have been derived as required by NGR 72(2)(d).

Basis for derivation of Throughput Forecast

- 4.2 It should be noted that the Throughput Forecast in the Proposed Revised AAI is a forecast of average annual usage of contracted capacity. It is not practical to provide a usage forecast for a more frequent period given that the lack of information in the market would not make seasonal, monthly or daily usage forecasts any more accurate than the annual forecasts.
- 4.3 There are a number of sources of information that have been relied on by DBP to derive the Throughput Forecast. Firstly, DBP maintains records of each of its shippers' throughput of contracted capacity within its Customer Reporting System (CRS) database. The CRS database is used to calculate average annual throughput levels and historical annual changes in throughput for each of DBP's current shippers and end-user industry groups. This data analysis is a key input to the Throughput Forecast.
- 4.4 Secondly, a range of external data sources is also used in developing forecasts of average annual throughput. DBP attempts to use a comprehensive range of external sources, including confidential information received direct from shippers, the Gas Statement Of Opportunities (GSOO) reports, the Electricity Statement of Opportunity Reports (SOO), Department of State Development (DSD) reports, submissions made to the Economic Regulation Authority (ERA), local news articles, the Australian Bureau of Statistics (ABS), Chamber of Minerals and Energy (CME) annual resources and economics reports and reports from the federal Bureau of Resource and Energy Economics (BREE).
- 4.5 A range of future annual rates of change in throughput for each end-user industry group is calculated from collated data. For example, forecasts for retail gas use are calculated by combining population growth projections from the ABS with trends in average gas use per customer which are extracted from annual performance reports for energy retailers submitted annually to the ERA.
- 4.6 These forecasts are then back tested against the historical throughput data held by DBP in the CRS for each shipper fitting within the relevant industry group.
- 4.7 They are also tested against third party generated throughput forecasts where available (e.g. the IMO's GSOO).
- 4.8 Thirdly, certain external data sources also contain shipper specific information. This information is used to test the forecast usage of each relevant shipper that DBP derived based on the actual usage from the CRS database (and which is referred to in the first source above). For example, the CME and BREE provide information about potential new loads from new mining/resource projects. Individual shipper forecasts are adjusted to reflect the information contained in these reports. Section 5 of this submission shows the specific factors that have been considered.
- 4.9 Finally, the forecast of annual average throughput for each shipper is compared against historical intra-year throughput profiles to determine forecasted maximum and minimum throughput for each forecast year. In general, intra-year trends are relatively stable due to the operating environment of the underlying end-user.

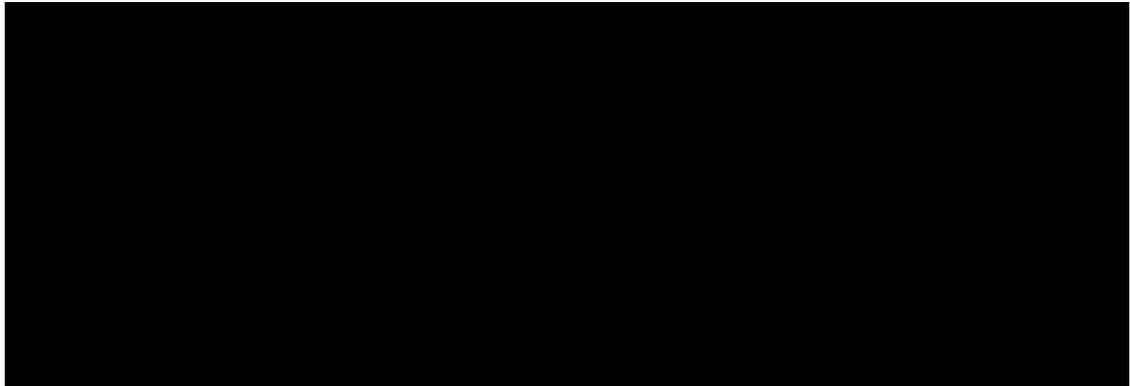
Basis for derivation of Capacity Forecast

- 4.10 There are a number of sources of information that has been relied on by DBP to derive the Capacity Forecast. Firstly the key basis for the derivation of the Capacity Forecast is the amount of T1, P1 or B1 capacity that is presently contracted on the DBNGP for the AA period. Contracted capacity is generally very predictable and stable: The Standard Shipper Contracts for T1, P1 and B1 services each require a 15 year commitment to an agreed amount of T1, P1 or B1 capacity, expressed as an amount of TJ's per day. DBP examines the termination dates, relinquishment rights and contracted capacity for each shipper to develop an initial index of existing shipper contracted capacity. The initial capacity index is then compared to the Throughput Forecast for each shipper that has been prepared as above.
- 4.11 Secondly, for each of DBP's current shippers, the Throughput Forecast for the shipper is interrelated with the Capacity Forecast developed for the shipper. For example, it is unlikely that throughput will substantially exceed contracted capacity for an extended period of time because there are mechanisms within the SSC to incentivise against this behaviour. Similarly, the fixed capacity charge for the T1 service implies that shippers have an economic incentive not to 'over' contract (or underutilise contracted capacity) for extended periods. The capacity utilisation or throughput of each shipper is considered against capacity contracted to identify whether capacity is 'over' or 'under' contracted. The capacity utilisation analysis involves identifying peak, trough and average utilisation, business requirements and industry type to determine each shipper's likely future capacity utilisation.
- 4.12 Thirdly, the initial capacity forecast referred to in paragraph 4.10 is adjusted to reflect any expected relinquishment, termination or additional capacity (that is either allowable within the SSC or is currently being negotiated with the shipper). DBP reaches a view on the amount of capacity forecast to be relinquished, terminated or added during the AA Period by reference to a number of sources of information.
- (a) in considering whether there are any prospective shippers likely to contract for capacity during the AA Period or any existing shippers likely to contract for incremental capacity during the AA Period, DBP has regard to any access requests that have been received and any discussions that have been held or are being held with prospective and existing shippers. DBP then assesses the likelihood of these requests and discussions materialising into contracts for additional capacity.
 - (b) DBP's direct discussions of shippers may also indicate a likelihood that a particular shipper is likely to relinquish capacity or terminate its capacity during the AA Period.
- 4.13 Once throughput and capacity forecasts have been finalised, they are peer reviewed within DBP's commercial division (at least 2 times a year) to determine the reasonableness of forecasts and whether any final adjustments need to be made.

Other issues

- 4.14 The reference tariff model has in the past included both a forecast of contracted capacity and throughput that could be attributable to the Special Purpose Access Contract (SPAC) for the purpose of determining both components of the applicable reference tariff (ie the capacity reservation tariff and the commodity tariff).
- 4.15 DBP submits that, during the AA Period, it would not be reasonable to include a forecast of contracted capacity under the SPAC in the forecast of Firm Full Haul contracted capacity used to calculate the T1 capacity reservation tariff that makes up the T1 reference tariff for the following reasons:
- (a) There is no certainty that any capacity will be made available under the SPAC to the relevant shipper.

- (b) The capacity contracted under the SPAC is therefore not the same as the capacity contracted for under either the T1SSC or the T1 Reference Service [REDACTED]



4.16 However, DBP submits that, during the AA Period, it is reasonable to include a forecast of throughput under the SPAC (and for that forecast to equal the forecast of SPAC provided by DBP in its volume forecasts) as part of the demand forecasts provided by DBP that are used to calculate the T1 commodity tariff that makes up the T1 reference tariff. [REDACTED]

4.17 DBP has included the Macedon Pipeline Impact Agreement (PIA) contract in forecast contracted capacity and throughput.

4.18 The DBNGP is declared to be covered by the provisions of the Gas Supply (Gas Quality Specifications) Act 2009 (“GQS Act”). As such, a gas producer wanting to supply gas into the DBNGP that does not meet the current specifications must enter into a PIA.

4.19 From July 1, 2012, the GQS Act enabled gas producers to supply gas outside the specifications that are currently prescribed for transmission pipelines in WA. Transporting gas with characteristics that do not comply with the current specifications could result in reduced capacity and increased operating and maintenance costs for pipeline operators. Under the GQS Act, producers that take advantage of the broader specifications when shipping gas along gas transmission pipelines in WA are required to enter into an agreement known as a PIA to compensate pipeline owners for any loss of capacity, impact on contractual obligations or increased operations and maintenance costs.

4.20 DBP therefore submits that the AA Period should include a forecast of contracted capacity and throughput (with the forecast of throughput being nil).

Forecast contracted capacity and throughput

4.21 The following tables show DBP’s Capacity Forecast and Throughput Forecast for each year of the AA Period, broken down as follows:

- (a) Total firm Full Haul;
- (b) Total firm Back Haul
- (c) Total firm Part Haul

Table 1: Average Annual Contracted Capacity (TJ per day - yearly average)

	2016	2017	2018	2019	2020
Total Full Haul	727.1	718.5	718.5	716.4	716.4
Total Part Haul	259.3	259.3	259.3	259.3	259.3
Total Back Haul	217.7	216.6	216.6	216.6	216.6

4.22 It should be noted that part haul and back haul contracted capacity figures provided in the table above are used on a full haul equivalent basis in the reference tariff model.

Table 2: Average Annual Throughput (TJ per day - yearly average)

	2016	2017	2018	2019	2020
Total Full Haul	626.3	622.0	625.7	629.5	633.1
Total Part Haul	119.6	130.0	135.5	136.2	136.1
Total Back Haul	183.2	182.6	182.6	182.6	182.6

4.23 The following tables below break down the Capacity Forecast and Usage Forecast, by shipper, for each year of the AA Period.



Table 3: Capacity Forecast by Shipper (TJ per day)

	2016	2017	2018	2019	2020
Total Full Haul	727.1	718.5	718.5	716.4	716.4
Total Part Haul	259.3	259.3	259.3	259.3	259.3
Total Back Haul	217.7	216.6	216.6	216.6	216.6

Table 4: Throughput forecast by shipper (TJ per day)

	2016	2017	2018	2019	2020
Total Full Haul	626.3	622.0	625.7	629.5	633.1
Total Part Haul	119.6	130.0	135.5	136.2	136.1
Total Back Haul	183.2	182.6	182.6	182.6	182.6

5. ASSUMPTIONS

- 5.1 As outlined in Section 4 of this submission, there is certain shipper specific information that informs DBP in the development of both the Capacity and Usage Forecasts for the AA Period. This section of the submission further explains that shipper specific information.

Capacity Forecast

- 5.2 As also outlined in Section 4, the Capacity Forecast is based on actual contracted capacity as of August 2014, plus anticipated new contracted firm capacity during the AA Period, and minus anticipated relinquishment of contracted capacity by shippers during that same period.

Full Haul

- 5.3 Aggregate firm Full Haul Contracted capacity is expected to remain stable between August 2014 and January 2016. Aggregate firm Full Haul Contracted Capacity is expected to decline during the 2016-2020 forecast period. This is so for the following shipper specific reasons:

- (a) During the first half of 2014, DBP engaged all firm full haul shippers in negotiations to renegotiate their Standard Shipper Contracts (SSC). The majority of shippers (Participating Shippers) agreed to amend their contracts in a number of respects. The key amendments agreed to with the Participating Shippers were as follows:

- (i) All Participating Shippers agreed to extend the period during which the tariff payable under the contract sits outside the regulatory framework of the NGL and NGR. Effective from 1 July 2014, the parties have agreed to a fixed tariff and tariff path until 1 January 2021 at which time, the tariff under the contract will revert to the reference tariff for the reference service that is the most similar to the service provided under the SSCs;
- (ii) Certain Participating Shippers also were allowed to reduce the amount of contracted capacity - effectively bringing forward relinquishment rights that they would have had from 1 January 2016 had the SSCs not been amended. These reductions - totalling 63.5TJ/d of contracted capacity (on an annual average basis) took effect mostly from 1 July 2014;
- (iii) All Participating Shippers agreed to defer the right to relinquish capacity that they would have had from 1 January 2016 had the SSCs not been amended. This right has largely been deferred to 1 January 2021.

(b)

(c)

Griffin Transport was placed in liquidation in 2012. As a result, the capacity has not been utilised largely since that time. Furthermore, there were little or no assets remaining in the liquidation from which DBP could be paid the charges owed to it under the contract. In addition, attempts were made by both DBP and the Liquidator to have third parties take over the rights to the capacity. These attempts were unsuccessful. Accordingly, in August 2014, DBP terminated Griffin's SSC under clause 22.4(b) following the issuance of a default notice for shipper insolvency.

- (d) DBP currently advertises 88.5 TJ of spare firm full haul capacity on the Spare Capacity Register. DBP has not received any inquiries for a pipeline service that would utilise this spare capacity. In accordance with the DBNGP access arrangement, DBP maintains an access queue (See Queuing Requirements, Section 5 of current access arrangement).

There were no shippers in the queue for a T1 Full Haul capacity Service at the time of this report.

- (e) When forecasting potential demand for additional T1 Contracted Capacity, DBP only takes into account those projects which it reasonably believes have a likelihood of proceeding. There are currently no projects that meet this criterion

5.4 The following table summarises the preceding paragraphs demonstrating the current and expected levels of contracted capacity.

Table 4: Summary of relinquishment

Event	Relinquished contracted capacity (TJ/day)	Entity	Contracted capacity (TJ/day)
Spare capacity (pre-recontracting)	7		
Recontracting reduction	81.5	Participating shippers	
Subtotal (current day)	88.5		756.5
Forecast relinquishment			
Forecast relinquishment			
Subtotal (2017)	126.5		718.5
Forecast relinquishment			
Subtotal (2019)	128.68		716.4

Part Haul and Back haul

5.5 Aggregate Part Haul P1 and Back Haul B1 Contracted capacity is expected to realise minimal growth during the forecast period due to the following shipper specific reasons:

- (a) All pre-existing P1 Part Haul and B1 Back Haul SSCs for existing shippers on the DBNGP extend for terms beyond 2019.
- (b) Outside of the Pilbara, the location of potential customers and geographical proximity to the DBNGP imply limited feasible opportunities for transportation demand. DBP actively approaches potential loads, but has not received any firm interest outside of the Pilbara.
- (c) In accordance with the DBNGP access arrangement DBP maintains an access queue (See Queuing Requirements, Section 5 of current access arrangement). At the time of writing this report, there was only one access request in the queue - for Part Haul capacity in the Pilbara region from January 2015.
- (d) Within the Pilbara, there are several potential customers which may require new capacity for iron ore projects. However, the geographical location of the projects underpinning any new capacity implies that the construction of pipeline laterals will be required. Accordingly, any increase in contracted capacity relating to these projects is only expected in the latter years of the AA Period.

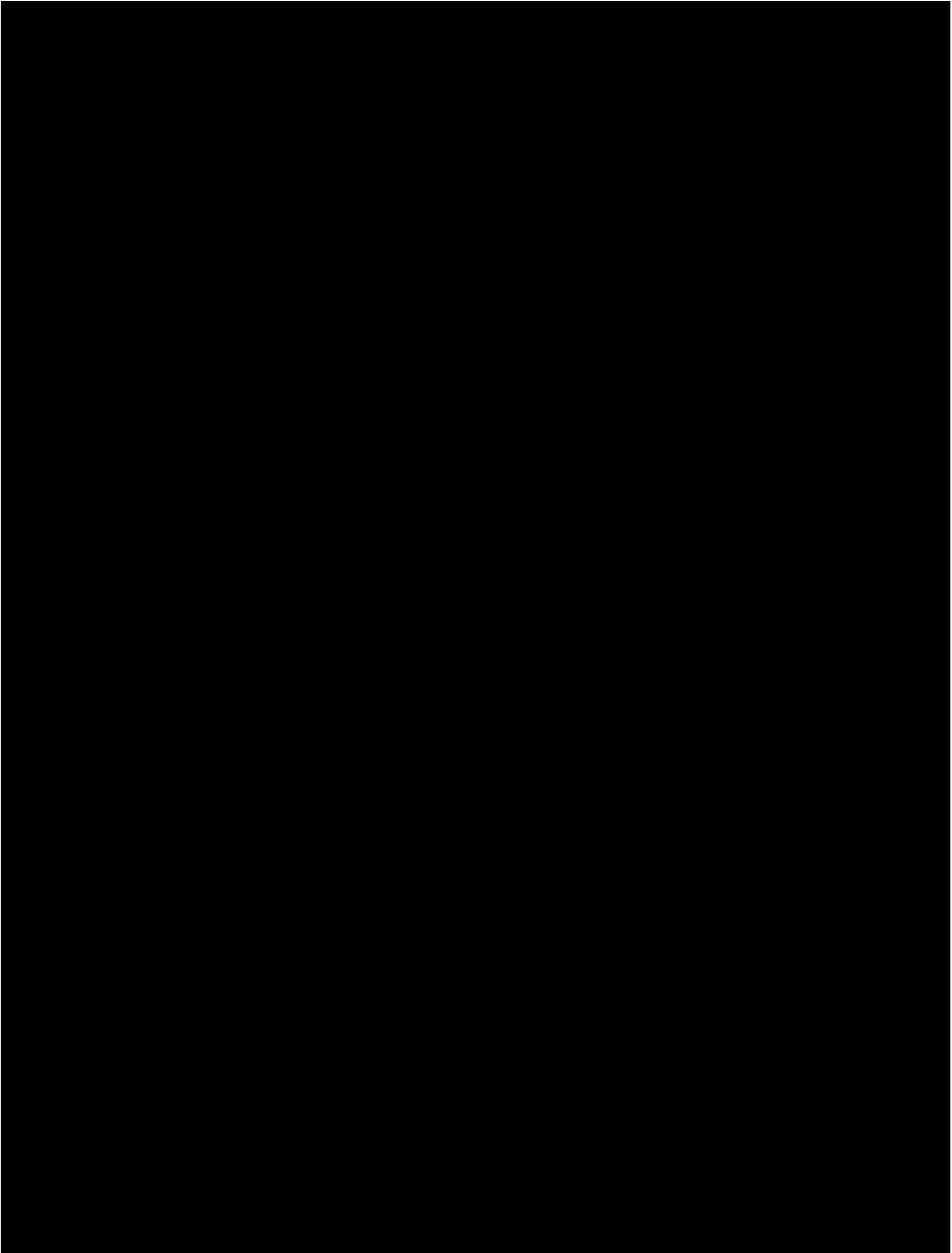
Throughput Forecast

5.6 As outlined in Section 4, the Throughput Forecast is based on a combination of current usage levels, contracted capacity, historical throughput growth rates, publicly available information and shipper provided throughput forecasts.

Full Haul

- 5.7 Average annual firm full haul transportation throughput is forecast to be lower during the AA Period than the forecast in the current AA Period and is expected to remain constant during the forecast period for the following reasons:
- (a) Since completion of the Stage 5B expansion on the DBNGP, T1 full haul throughput has contracted by approximately 2.0%. This is despite annual population growth of 3.3% and WA's annual GSP growth exceeding 6.0%.
 - (b) The contraction of throughput has been driven by a decline in load from electricity generation and retail gas. Combined, these industries represent 52% of T1 throughput demand. Flat to negative growth is expected to continue in these industries for the following reasons:
 - (i) Population growth for Western Australia is predicted to decrease from an average 3.3% between 2010 and 2013 (ABS) to a long term average of 2.2% between 2014 and 2026 (Department of Planning Western Australia);
 - (ii) NIEIR forecasts that WA's GSP growth will steadily decline over the next four years to average 3.0% for the period 2013 to 2022;
 - (iii) The IMO's GSOO reports that there has been a fall in underlying demand for electricity over the last 4 years. This trend is expected to continue due to increasing domestic regulated electricity tariffs for residential customers (tariffs increased 78% since March 2009), increasing impact of energy efficient appliances and the introduction of energy efficient programs and public awareness campaigns that are driving behavioural changes amongst consumers. In addition, the penetration of small scale photovoltaic generation has decreased electricity grid demand. The GSOO forecasts that existing generation capacity will exceed electricity demand till at least 2019;
 - (iv) In addition to flattening electricity demand growth, the GSOO identified that 'gas fired power generation is being displaced by newly commissioned (large scale) renewable generation;
 - (v) DBP has also observed displacement of gas generation by coal fired power generation, following the recent commissioning of Verve's Muja A and B coal fired generators; and
 - (vi) The IMO SOO is largely consistent with the GSOO which forecasts less than 0.5% per annum growth in gas demand in the SWIS/metropolitan area.
 - (c) Alumina production and other direct processing industries account for the remaining (45%) proportion of forecast firm full haul throughput. Since the completion of the BHP Billiton Worsley Alumina upgrade project in 2011, throughput for the alumina industry has stabilised. Given current energy costs and exchange rates, further capacity expansions are considered unlikely during the AA Period.
 - (d) The renegotiation of the SSCs referred to in paragraph 5.3 of this submission will see lower throughput for all Participating Shippers than was included in the forecast usage in the current AA Period. Based on the discussions held with shippers about their expected demand during the renegotiations, this revealed that the Participating Shippers usage will either slightly reduce or remain constant for the duration of the forecast period.

Specific factors influencing the forecasts for the five largest shippers on the DBNGP





6. FURTHER SUBSTANTIATION

Internal Verification

- 6.1 In 2012, DBP explored several time series forecasting methods to determine if forecast accuracy could be increased by applying advanced statistical modelling to internal data. The results of the analysis indicated that the current method provides the best mix of accuracy, computational complexity and model robustness. Annual throughput forecasts are tracked against actual throughput to determine accuracy. To date, annual throughput forecasts indicate an average standard error of less than 4%.

External verification

- 6.2 DBP engaged Jacobs (formerly SKM) to undertake an independent review of DBP's Capacity Forecast and Throughput Forecast for the AA Period. The following scope was provided to Jacobs:
- 6.3 DBNGP (WA) Transmission Pty Ltd (DBP) engaged Jacobs to undertake an independent review of the capacity and throughput forecasts to be proposed in the Dampier Bunbury Natural Gas Pipeline (DBNGP) access arrangement proposal for the 2016 to 2020 regulatory period, assessing DBP's forecasts against the criteria set out by the National Gas Rules (NGR).
- 6.4 NGR rules 74 and 75 provide guidance on preparing forecasts for the purposes of an access arrangement:
- (a) NGR 74 Forecasts and estimates
 - (1) *Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate;*
 - (2) *A forecast or estimate:*
 - (a) *must be arrived at on a reasonable basis; and*
 - (b) *must represent the best forecast or estimate possible in the circumstances.*
 - (b) NGR 75 Inferred or derivative information
 - (1) *Information in the nature of an extrapolation or inference must be supported by the primary information on which the extrapolation or inference is based.*
- 6.5 Jacobs assessment included a review of the basis (assumptions and methodology) used by DBP in determining the Capacity Forecast and Throughput Forecast and compared DBP's Capacity Forecast and Throughput Forecast to:
- (a) The Independent Market Operator's Gas Statement of Opportunities; and
 - (b) Historical information available in access arrangement documentation pertaining to utilisation.
- 6.6 Jacobs concluded that in their view DBP's Capacity Forecast and Throughput Forecast have met the requirements of the NGR specifically that they have been arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances.
- 6.7 Jacobs report is provided as Appendix A.

Updates made to forecasts after the preparation of Jacobs report

6.8 It should be noted that DBP has made a small number of updates to forecast throughput and contracted capacity to reflect the most up to date information to hand prior to filing supporting submissions with the ERA. The following changes were therefore not considered by the Jacobs review:

- (a) Forecast full haul contracted capacity attributed to the [REDACTED]
[REDACTED]
- (b) Forecast part haul contracted capacity attributed to [REDACTED]
[REDACTED] and is not expected to be recontracted;
- (c) The forecast part haul contracted capacity attributed to [REDACTED]
[REDACTED]

APPENDIX A: HISTORICAL CAPACITY AND THROUGHPUT

Table 5: Actual contracted capacity 2012 and 2013 (annual average capacity - TJ/d)

	2012	2013
Total Full Haul	819.3	819.3
Total Part Haul	213.10	271.1
Total Back Haul	174.6	180.6

Table 6: Actual throughput 2012 and 2013

	2012	2013
Total Full Haul*	619.2	628.0
Total Part Haul	84.1	97.4
Total Back Haul	129.3	139.4

Excludes SPAC



APPENDIX B: JACOBS DBNGP FORECAST REIVEW



APPENDIX C: CONFIDENTIALITY TABLE