DAMPIER TO BUNBURY NATURAL GAS PIPELINE

REQUEST FOR THE REGULATOR'S AGREEMENT UNDER SECTION 8.21 OF THE CODE

SUBMISSION SUPPORTING SECTION 8.21 REQUEST

PUBLIC VERSION

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1. INTRODUCTION

1.1 The Dampier to Bunbury Natural Gas Pipeline ("DBNGP") is a Covered Pipeline for the purposes of the *Gas Pipelines Access (Western Australia) Act 1998*, which incorporates the *National Third Party Access Code for Natural Gas Pipeline Systems* ("Code"). The DBNGP is operated by DBNGP (WA) Transmission Pty Ltd ("DBP"), and is owned by DBNGP (WA) Nominees Pty Ltd ("DBPWAN") as Trustee for the DBNGP WA Pipeline Trust.

1.2 DBP is currently expanding the capacity of the DBNGP, and is planning further expansion in response to applications for capacity it has received from shippers and prospective shippers.

1.3 DBP's expansion of the DBNGP is made in the context of the increasing capacity and throughput forecasts of the revised Access Arrangement for the DBNGP drafted and approved by the Economic Regulation Authority ("ERA") on 15 December 2005 ("Revised DBNGP Access Arrangement"), and in the context of the corresponding New Facilities Investment forecast to occur during the Access Arrangement Period, and used to determine the Reference Tariff of the Revised DBNGP Access Arrangement.

1.4 The Access Arrangement Information accompanying the Revised DBNGP Access Arrangement indicated forecast New Facilities Investment amounting to $969.25 million (real, 31 December 2004) for expansion of the full haul capacity of the DBNGP by 206 TJ/d during the Access Arrangement Period.

1.5 The installation of eight new gas turbine driven compressor units, and 217 kilometres of pipeline looping, – the Stage 4 expansion of the DBNGP – is already well advanced.

1.6 DBP is now planning a further stage of expansion – Stage 5 – which will increase the full haul capacity of the pipeline by 310 TJ/d, and require New Facilities Investment currently forecast to be between $1,457,000,000 and $1,521,000,000.

1.7 Most of the forecast increase in capacity for Stage 5 is being sought by shippers in accordance with the terms and conditions of existing contracts and from prospective shippers who DBP expects will have entered into standard shipper contracts prior to a decision being made by DBP to fund the Stage 5 expansion. The terms and conditions of these contracts determine, among other things, the date on which DBP must make the additional capacity available to a shipper making a valid application. In so far as shippers under existing contracts are concerned, DBP is, in these circumstances, now committed (subject to its being able to finance pipeline expansion) to providing additional capacity late in 2007, during 2008, and early in 2009.

1.8 For DBP to fund the Stage 5 expansion, DBP's owners, and the banks which will provide the debt finance, require, in addition to long terms contracts with the shippers and prospective shippers applying for the expanded capacity, reasonable certainty that the large investment they must finance can be recovered through the reference tariffs of the access regime of the Code.

1.9 The need for certainty is made more important given the impact on the capacity of the pipeline that will be caused should any key assumptions, such as gas quality composition and specification, change from that upon which the design for Stage 5 is based.

1.10 Section 8.21 of the of the Code allows the relevant regulator, in the case of the DBP, the ERA, in its discretion, to agree, at any time, with or without conditions or limitations, that forecast New Facilities Investment proposed by a service provider will meet the

requirements of section 8.16(a) of the Code. The effect of this agreement is the binding of the ERA when it must approve revisions to an access arrangement submitted by the service provider that seek to roll in the investment to the Capital Base..

1.11 In its *Request for the Regulator's agreement under section 8.21 of the Code* ("Request"), DBP has formally requested that the ERA exercises its discretion under section 8.21 of the Code, and agrees that New Facilities Investment forecast for the Stage 5 expansion of the DBNGP will meet the requirements of section 8.16(a), thereby binding the ERA when it must approve revisions to the DBNGP Access Arrangement.

1.12 The precise configuration and costs for Stage 5 have not yet been finalized. Detailed planning for the expansion, and the negotiation of commercial arrangements with prospective shippers, shippers, equipment suppliers and construction contractors, are still proceeding. Nevertheless, DBP must now request the ERA's agreement under section 8.21 so that finance can be secured, compressors and line pipe can be purchased, and the construction and installation of facilities, can all be completed in time for DBP to make available the additional capacity to meet shippers' and prospective shippers' requirements.

1.13 In this submission, DBP sets out information supporting the Request. DBP:

(a) reviews recent developments in the sector of the Western Australian gas market served by the DBNGP;

(b) advises of the obligations it has to expand the pipeline under its Standard Shipper Contracts, in accordance with the terms and conditions of an agreement with the Government of Western Australia, and in accordance with undertakings given to the Australian Competition and Consumer Commission, and explains that these expansion obligations directly influence the scoping and, therefore, the forecast costs, of Stage 5;

(c) summarizes the principal Code requirements governing the making of the Request, and the Code processes to be followed once the Request has been made, and considers their implications for the timing of the Stage 5 expansion;

(d) analyses the key provisions of the Code relevant to agreement under section 8.21;

(e) describes the Stage 5 expansion, and the principal assumptions made in expansion planning and in particular, identifies the ranges of values for these assumptions with respect to which DBP is seeking the ERA's agreement under section 8.21;

(f) analyses the options for the scope and cost of the Stage 5 expansion to confirm that the requirements of section 8.16(a)(i) – the investment does not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice; and the investment achieves the lowest sustainable cost of providing services – are satisfied;

(g) considers whether the capacity provided by the expansion is needed to meet the contracted capacity of services in accordance with section 8.16(a)(ii)(C);

(h) applies the system-wide benefits test of section 8.16(a)(ii)(B);

(i) assesses whether the Anticipated Incremental Revenue generated by the additional capacity exceeds the (forecast) New Facilities Investment in accordance with the test of section 8.16(a)(ii)(A); and

(j) concludes that the forecast New facilities Investment for the Stage 5 expansion of the DBNGP is expected to meet the requirements of section 8.16(a), opening the way for the ERA's agreement under section 8.21.

2. GAS MARKET DEVELOPMENT

Overview

2.1 A significant expansion of pipeline capacity, in response to forecast shipper demand, was anticipated when DBP submitted proposed revisions to the DBNGP Access Arrangement to the ERA in January 2005. During the Access Arrangement approval process there were changes in the scale of expansion, as shipper requirements were firmed up and New Access Requests were received. There were also changes to the cost estimates as planning progressed and commercial arrangements for Stage 4 (the first stage of expansion dealt with in the Revised DBNGP Access Arrangement) were settled with equipment suppliers and construction contractors.

2.2 The Revised DBNGP Access Arrangement for the DBNGP, issued by the ERA on 15 December 2005, forecast New Facilities Investment of $969.25 million (real, 31 December 2004) for four stages of expansion expected to be required during the period 2005 to 2010. The forecast investment for each stage, and the additional capacity to be provided, are summarized in the following table.

Revised DBNGP Access Arrangement: forecast New Facilities Investment

Stage	Forecast Investment $million (31 Dec 2004)	Additional Full Haul Capacity TJ/d	Forecast New Facilities
4	432.67	96	8 compressors 217 km of looping
5	311.70	55	2 compressors 275 km of looping
6	81.62	17	73 km of looping
7	143.26	38	145 km of looping
Total	**969.25**	**206**	

2.3 Stage 4 was expected to provide 96 TJ/d of additional full haul capacity. However, with the work now well advanced, DBP has been able to establish that the new configuration of compressors increases system reliability, reducing interruptible capacity by about 31 TJ/d, and increasing firm (Tranche 1) capacity by a similar amount. **[deleted – confidential & commercial in confidence]**.

2.4 Demand for capacity is now very different from the forecast made, in May 2005, for revision of the DBNGP Access Arrangement. Shippers and prospective shippers have brought forward their future requirements for capacity, and have significantly increased those requirements.

2.5 From its recent marketing activities, DBP became aware, during the second half of 2005, that once the Stage 4 expansion was completed (expected in late 2006), there would still be a substantial demand for pipeline capacity from power generation, minerals processing and other projects which were expected to proceed within the next five years. To ensure that this demand could be met in accordance with parties' expectations, DBP advised all shippers and prospective shippers, in October 2005, that if they required pipeline capacity in the period 2007 to 2010, they should apply for that capacity by 31 December 2005.

2.6 **[deleted – confidential & commercial in confidence]**

2.7 **[deleted – confidential & commercial in confidence]**.

2.8 **[deleted – confidential & commercial in confidence]**:

2.9 Shippers and prospective shippers from whom confidential Access Requests have been received, the capacities they require, whether shippers are applying for additional capacity under their existing contracts, and the timings of their requirements, are shown in the following tables.

Stage 5 full haul Access Requests: confirmed

Shipper	Existing Standard Shipper Contract	Capacity required (TJ/d)	Requested start date	Earliest date DBP obliged to provide Capacity
[deleted – confidential & commercial in confidence]				
Total: confirmed		**172**		

Stage 5 full haul Access Requests: likely but not yet confirmed[1]

Shipper	Existing Standard Shipper Contract	Capacity required (TJ/d)	Requested start date	Earliest date DBP obliged to provide Capacity
[deleted – confidential & commercial in confidence]				
Total: not yet confirmed		**167.5**		

Stage 5 part haul Access Requests: confirmed and likely but not yet confirmed

Shipper	Existing Standard Shipper Contract	Capacity required (TJ/d)	Requested start date	Earliest date DBP obliged to provide Capacity
[deleted – confidential & commercial in confidence]				
Total:		**118.92**		

2.10 On the basis of these Access Requests and discussions with shippers and prospective shippers, DBP is now planning the next stage of pipeline expansion – Stage 5 – which DBP expects will increase the full haul capacity of the DBNGP by 310 TJ/d. **[deleted – confidential & commercial in confidence]**.

2.11 There is uncertainty in the total capacity requirement because a number of the shippers and prospective shippers have indicated that that they are unable to contract for the capacity requested until internal approval processes have been completed. This is expected to lead to minor changes in capacity requirements and timing and means that the final capacity requirement supporting the Stage 5 expansion of the DBNGP will not be known with certainty before March 2006, and possibly not until May 2006.

2.12 DBP notes that, although there is uncertainty in amount of capacity required, its planning for Stage 5 is proceeding on the basis of specific advice from shippers and prospective shippers supported, in a number of cases, by commitments to contract. Given these discussions, DBP believes that 310TJ/day full haul T1 is the most probable demand and the most appropriate capacity on which to base the design for Stage 5. Unlike the expansion proposals in other access arrangements, it is not proceeding on the basis of forecasts derived from broad economic trends, or from trends in the gas market.

3. EXPANSION OBLIGATIONS

3.1 At the time of the sale of the DBNGP in October 2004, much was made of the commitment given by the new owners to expand the capacity of the pipeline, and its implications for energy supply in Western Australia. The commitments then given by the owners remain in effect.

3.2 In fact, the existence of some of these commitments is driving the extent and timing, and as a direct result, the scope and cost, of the Stage 5 expansion program.

3.3 The commitments are in the form of:

(a) obligations DBP and DBPWAN have to expand the capacity of the DBNGP under existing access contracts that were renegotiated with shippers immediately prior to the sale of the pipeline in 2004 ("Standard Shipper Contracts");

(b) obligations the owners, DBP and DBPWAN have to expand the capacity of the DBNGP under a Financial Assistance Agreement with the State of Western Australia; and

(c) obligations the owners and DBP have to expand the capacity of the DBNGP in accordance with enforceable undertakings given to the Australian Competition and Consumer Commission ("ACCC") pursuant to the *Trade Practices Act 1974*.

Standard Shipper Contract expansion obligations

3.4 The Standard Shipper Contracts were, initially, the outcome of contract renegotiations with existing shippers in October 2004. Now, if any Shipper seeks a T1 service, DBP will make that service available on the terms and conditions of a Standard Shipper Contract.

3.5 Clause 16 of the Standard Shipper Contract obliges DBP to expand the pipeline for an existing shipper requiring additional Tranche 1 capacity subject to:

(a) the shipper giving DBP 30 months notice of its additional capacity requirement;

(b) the shipper and DBP agreeing an amendment to the existing Standard Shipper Contract which includes a capacity commencement date which can be no earlier than 24 months from the date of the agreement (unless otherwise agreed by the parties);

(c) the shipper meeting certain commercial requirements of DBP (for example, creditworthiness); and

(d) DBP being able to secure finance for the expansion on reasonable commercial terms and conditions for a verified amount.

3.6 Under a Standard Shipper Contract, the obligation on DBP to fund an expansion to provide additional Tranche 1 Capacity ceases on 1 January 2016 or if, prior to that time, the pipeline is fully looped and compressed.

Financial Assistance Agreement expansion obligations

3.7 Schedule 1 to the Financial Assistance Agreement, an agreement through which the State of Western Australia provided certain financial assistance to the owners of the DBNGP, requires that DBP expand the pipeline to the extent, and in accordance with the timetable, set out in Schedule 1.

3.8 Clause 2 of Schedule 1 requires that DBP "offer all Shippers and Prospective Shippers access to Gas Transmission Capacity on a non-discriminatory basis on the terms and conditions of, and at the price specified in, the Standard Shipper Contract".

3.9 DBP is obliged, by Clause 5 of Schedule 1, to use reasonable endeavours to enter into a Standard Shipper Contract with a shipper or prospective shipper who has submitted a request for access within a reasonable time of receiving the request.

3.10 Initial expansion commitments to Western Power Corporation, and to other shippers who lodged access requests prior to completion of the sale of the DBNGP in October 2004, were set out in Clause 9 of Schedule 1 to the Financial Assistance Agreement. These initial commitments were for additional full haul capacity of 127 TJ/d. They are being met by the Stage 4 expansion of the pipeline. With completion of Stage 4, DBP will also satisfy the obligations it has under Clause 10 of Schedule 1 to expand by no less than 100 TJ/day, and to invest up to $400 million, within 5 years of the completion of the sale in October 2004, subject to contracts being entered into with shippers for the additional capacity.

3.11 Clause 11 of Schedule 1 sets out "Future Expansion Commitments" which require that DBP expand the DBNGP, for a shipper or prospective shipper, in accordance with clause 16 of the Standard Shipper Contract.

3.12 DBP is required by Clause 12 of Schedule 1 of the Financial Assistance Agreement, to use reasonable endeavours to finance the expansion.

3.13 These obligations cease on 1 January 2016, unless otherwise indicated in the Standard Shipper Contract.

ACCC Undertakings expansion obligations

3.14 On 22 October 2004, the current owners of the DBNGP, and DBP itself, gave undertakings in accordance with section 87B of the *Trade Practices Act 1974*, whereby they allayed concerns the ACCC had with the potential implications of their acquisition of the pipeline for competition in energy markets.

3.15 Undertakings were given to invest up to $400 million to expand the capacity of the DBNGP to provide not less than 100 TJ/d to meet the known capacity requirements of shippers who enter into Standard Shipper Contracts and for that expansion to be completed within five years of the date of the owners' acquisition of the pipeline. This undertaking should be satisfied on completion of the Stage 4 expansion.

3.16 However, a general obligation to expand will remain in effect. In clause 5.6, the owners undertook to ensure that DBP offers to all prospective shippers who require a T1 service, a Standard Shipper Contract that contains capacity expansion rights which are not materially less favourable than the capacity expansion rights in any other shipper contract for a T1 service.

The extent and timing of expansion are driven by these obligations

3.17 Under the Financial Assistance Agreement and the ACCC Undertakings, DBP has a general obligation to expand the capacity of the DBNGP. Furthermore, DBP must offer shippers and prospective shippers access to capacity on a non-discriminatory basis on the terms and conditions of, and at the price specified in, the Standard Shipper Contract.

3.18 DBP has offered shippers access to capacity on the terms and conditions of the Standard Shipper Contract. In accordance with those terms and conditions, DBP is now obliged to provide additional capacity within 30 months of its receiving a notice of an additional capacity requirement. The Access Requests DBP has received are the notices of additional capacity requirements required under the Standard Shipper Contract. The dates on which these notices were received are such that DBP must, subject to its being able to secure the finance on reasonable commercial terms, expand the DBNGP to provide additional capacity late in 2007, during 2008, and early in 2009.

3.19 It is therefore the case that the expansion for Stage 5 is being driven largely by the timing requirements by shippers and prospective shippers. If it is the case that DBP is able to secure funding on reasonable commercial terms and conditions (which will be taken to be reasonable if the terms and conditions are similar to the funding made available to DBP for the funding of the Stage 4 expansion, allowing for changes in financial market conditions since 27 October 2004), DBP will fund the expansion and be required to provide the Capacity in accordance with the provisions of the relevant Standard Shipper Contracts.

4. CODE REQUIREMENTS AND PROCESSES

4.1 Section 8.21 of the Code allows the relevant regulator to agree (with or without conditions or limitations), at any time, at its discretion, that forecast New Facilities Investment proposed by a service provider will meet the requirements of section 8.16(a). The effect of this agreement is the binding of the relevant regulator's decision when approval must subsequently be given to revisions to an access arrangement submitted by the service provider.

4.2 Before giving its agreement under section 8.21, the relevant regulator must conduct public consultation in accordance with the requirements for a proposed revision to the access arrangement submitted under section 2.28.

4.3 In this section of this submission, DBP sets out its understanding of the processes which must be followed by the ERA in agreeing to the Request.

4.4 In setting out its understanding, DBP notes that section 8.21 requires the ERA to conduct public consultation in accordance with the requirements for a proposed revision to an access arrangement submitted under section 2.28 of the Code. A request under section 8.21 is not, however, a proposed revision to an access arrangement and the linking, via the requirements of section 8.21, to the access arrangement approval process of sections 2.28 to 2.48 of the Code introduces ambiguity. On an alternative reading of the Code, in which a request for agreement under section 8.21 is not a proposed revision to an access arrangement, and the link to section 2.28 has more limited role, that ambiguity may be avoided. In its requiring that the regulator conducts public consultation in accordance with the requirements for a proposed revision to the Access Arrangement submitted under section 2.28, section 8.21 may be seen as requiring that the regulator do no more than call for submissions, which it may consider, before concluding on the section 8.21 request. On this reading, there is no requirement for a draft decision, for submissions on the draft decision, and for a final decision.

4.5 Even if the ERA considers that section 8.21 requires it to issue a draft decision, and to call for submissions on that draft decision, DBP submits that its request for agreement under section 8.21 should not be treated by the ERA as a revision required by the Access Arrangement and, therefore, that parts of the processes to be followed in accordance with sections 2.28 to 2.48 do not apply. In particular, there is no opportunity, in the event of the ERA not approving the proposed revisions, for the regulator to propose the amendments which would have to be made in order for the Request to be approved.

4.6 In effect, DBP understands that the ERA interprets sections 2.28 to 2.48 of the Code as establishing a two-stage process in which:

(a) DBP makes a proposal to the ERA (the Request) and, following public consultation, the ERA makes a preliminary assessment of that proposal in the form of the draft decision; and

(b) submissions are sought on the draft decision and, after considering these submissions, the ERA decides whether to agree or not agree, and reports the outcome in its final decision.

Process: Stage 1

4.7 Section 2.28 of the Code relevantly permits the submission of proposed revisions to an access arrangement, either at the revisions submission date of the access arrangement, or at any other time.

4.8 Section 2.31 requires that the relevant regulator initiate a public consultation process after receiving proposed revisions submitted in accordance with section 2.28. In particular, the relevant regulator must inform each person it believes has sufficient interest in the matter, and publish a notice in a national daily newspaper requesting submissions by a specified date (section 2.31(b)).

4.9 The period for making submissions must be at least 28 days between the publication of a notice under section 2.31(b) and the last day for submissions specified in that notice (section 2.43).

4.10 The relevant regulator must, in accordance with section 2.34, consider submissions received by the date specified in the published notice, but is not obliged to consider any submission received after that date.

4.11 After considering submissions received, the relevant regulator is to issue a draft decision under section 2.35, which either proposes to approve the revisions to the access arrangement, or proposes not to approve the revisions and provides reasons for non-approval.

Process: Stage 2

4.12 Section 2.36 of the Code requires that the relevant regulator:

(a) provide copies of its draft decision to the service provider, to any person who has made a submission, and to any person requesting a copy of the decision; and

(b) requests submissions on the draft decision by a specified date.

4.13 There must be a period of at least 14 days between the publication of the draft decision and the last day for submissions on the draft decision specified by the relevant regulator (section 2.43).

4.14 The relevant regulator must, in accordance with section 2.37, consider submissions received by the date specified under section 2.36, but is not obliged to consider any submission received after that date.

4.15 After considering submissions received, the relevant regulator is to issue a final decision under section 2.38, which either approves the revisions to the access arrangement originally proposed by the service provider, or does not to approve the revisions.

4.16 The relevant regulator is to then provide a copy of its final decision to the service provider, to any person who has made a submission, and to any person requesting a copy of the decision (as required by section 2.39).

4.17 These provisions of the Code dealing principally with process, are critically important to the ERA reaching agreement on DBP's request by the end of May 2006, allowing DBP to obtain the finance required, and to complete the Stage 5 expansion, by the time the users of the capacity to be provided require deliveries of gas.

Agreement by early June 2006

4.18 DBP anticipates that the ERA would be able to publish the notice required under section 2.31 of the Code at the end of the week in which it received this submission.

4.19 If the notice were published on 24 February 2006, the last date for submissions from other parties would be, in accordance with the requirement for a consultation period of 28 days under section 2.43, 24 March 2006.

4.20 The ERA's consideration of the submissions received, and its preparation of the draft decision, required by sections 2.34 and 2.35, respectively, might then take a further four weeks (from the receipt of submissions), or nine weeks from ERA receipt of DBP's section 8.21 request. (DBP notes that the *Access Arrangement process guideline* issued by the Australian Competition and Consumer Commission and the Australian Energy Regulator, in December 2005, proposed eight weeks for the period from the last day for receipt of submissions to issue of a draft decision on comprehensive revisions to an access arrangement.) The draft decision could then be issued by the ERA by 21 April 2006.

4.21 If a request for submissions on the draft decision were made by the ERA on the same day, the last date for submissions would be, in accordance with the requirement for a consultation period of 14 days under section 2.43, 5 May 2006.

4.22 If a further three weeks were then allowed for consideration of submissions received in accordance with section 2.37, and for preparation of a final decision, the final decision might be issued, in accordance with section 2.38, by the beginning of June 2006.

4.23 In this two-stage process of agreement or non-agreement, there is no scope for the DBP to offer alternatives to the conclusions reached by the ERA in its draft and final decisions, and no scope for any judicial reviews of these decisions.

4.24 The Code processes initiated by DBP's submission of a request for the ERA's agreement, under section 8.21, that New Facilities Investment forecast for the Stage 5 expansion of the DBNGP will meet the requirements of section 8.16(a) could, therefore, conclude at the beginning of June 2006. This should then allow DBP to obtain the finance required, and to complete the Stage 5 expansion, by the time the users of the capacity to be provided require deliveries of gas.

5. KEY PROVISIONS OF THE CODE

5.1 DBP is seeking the ERA's agreement that New Facilities Investment forecast for the Stage 5 expansion of the DBNGP meets the requirements of section 8.16(a) of the Code. If the ERA agrees, it will then be bound when it must approve revisions to the DBNGP Access Arrangement. In particular, it will be bound in respect of an amount which is to be added to the Capital Base for the pipeline. In this section of this submission, DBP identifies and discusses key provisions in the Code governing the way in which the Capital Base is to be established (section 8.9), and guiding the decision on whether, and to what extent, the Capital Base may be increased by New Facilities Investment (sections 8.15 and 8.16).

Section 8.9: establishing the Capital Base

5.2 Once the initial Capital Base for a covered pipeline has been established, that initial Capital Base, and the Capital Base subsequently, are to be adjusted over time, as a result of the addition or removal of capital assets used to provide services, in accordance with section 8.9 of the Code.

5.3 The Reference Tariff Policy of the DBNGP Access Arrangement indicates that the total revenue for the pipeline is calculated using the cost of service method.

5.4 In these circumstance, section 8.9 requires that, consistent with the principles of sections 8.15 to 8.29, the Capital Base of the DBNGP, at the commencement of each access arrangement period after the first, be determined as:

(a) the Capital Base at the start of the immediately preceding access arrangement period; plus

(b) subject to section 8.16(b) and sections 8.20 to 8.22, the New Facilities Investment or recoverable portion (whichever is relevant) in the immediately preceding access arrangement period (adjusted as relevant as a consequence of section 8.22 to allow for the differences between actual and forecast New Facilities Investment); less

(c) depreciation for the immediately preceding access arrangement period; less

(d) redundant capital identified prior to the commencement of that access arrangement period;

subject to such adjustment for inflation (if any) as is appropriate given the approach to inflation adopted pursuant to section 8.5A.

5.5 DBP will show, in subsequent sections of this submission, that all of the New Facilities Investment forecast for the Stage 5 expansion of the DBNGP satisfies the requirements of section 8.16(a). The recoverable portion of that investment will, therefore, be 100%, and there will be no component of speculative investment.

5.6 Furthermore, none of the options which DBP is considering for Stage 5 is expected to result in any of the capital assets which are currently used to provide services becoming redundant.

5.7 DBP's request for the ERA's agreement that New Facilities Investment forecast for Stage 5 meets the requirements of section 8.16(a) is then, in effect, a request for addition of that

forecast to the Capital Base of the pipeline when the DBNGP Access Arrangement is revised.

Section 8.15: New Facilities Investment

5.8 Addition of New Facilities Investment to the Capital Base, in accordance with section 8.9 of the Code, must be consistent with the principles of sections 8.15 to 8.29.

5.9 Consistency with section 8.15 is a matter of concern for DBP.

5.10 Section 8.15 states, as a matter of principle:

The Capital Base for a Covered Pipeline may be increased from the commencement of a new Access Arrangement Period to recognise additional capital costs incurred in constructing, developing or acquiring New Facilities for the purpose of providing Services (New Facilities Investment).

5.11 DBP's concern arises from the view expressed by the Economic Regulation Authority in paragraph 174 of its Final Decision on proposed revisions to the DBNGP Access Arrangement issued on 2 November 2005. The ERA advised:

Section 8.15 of the Code, which provides for New Facilities Investment to be added to the Capital Base, is discretionary. That is, section 8.15 states that the Capital Base may be increased for New Facilities Investment. Section 8.15 does not automatically provide for New Facilities Investment to be added to the Capital Base, even if that New Facilities Investment satisfies the requirements of section 8.16(a) of the Code.

5.12 DBP is of the view that this reading of section 8.15 is unduly narrow. Section 8.15 must be read in the context of section 8.16 and subsequent sections, in particular section 8.21, of the Code. The ERA appears to read ". . . may be increased . . ." in section 8.15 as giving it discretion as to whether or not the Capital Base might be increased. DBP believes that this is not correct, particularly in the case of costs that have been approved pursuant to an application under section 8.21. This is so for the following reasons:

(a) section 8.15 makes no reference to any action by the Regulator;

(b) section 8.16 indicates that the increase in the Capital Base contemplated by section 8.15 is conditional on certain tests being satisfied; and

(c) section 8.16 makes no reference to any discretion on the part of the regulator in applying these tests.

5.13 Rather than implying discretion, the use of the phrase ". . . may be increased . . ." in section 8.15 implies conditionality: the increase in the Capital Base which can be effected under section 8.15 is conditional on the tests of section 8.16 being satisfied.

5.14 Moreover, it ignores the requirement in section 8.21 of the Code which stipulates that any agreement by the ERA that forecast New Facilities Investment will meet the requirements of section 8.16(a) will bind the ERA's decision when the ERA considers revisions to an Access Arrangement submitted by DBP.

5.15 Were section 8.15 to incorporate discretion of the type inferred by the ERA, one of the fundamental objectives of the Code would be undermined. If inclusion of New Facilities Investment in the Capital Base were at the discretion of the regulator – rather than being automatic, subject to certain objective tests – service providers would have no certainty as

to the return of, or on, investment. The access regime of the Code would not provide rights of access to natural gas pipelines on conditions that were fair and reasonable for both service providers and shippers.

5.16 This is a matter of fundamental importance to DBP in its present circumstances. DBP is seeking to ensure sufficient certainty in respect of future outcomes of the regulatory process so that its owners, and the banks which will provide the debt finance required, will have confidence to now commit to the financing of Stage 5. If, as paragraph 174 of the November 2005 Final Decision seems to imply, the ERA ultimately has discretion in respect of additions to the Capital Base, the owners and the banks cannot be provided with the degree of certainty which they now require, and DBP will be unable to secure financing for the expansion. Stage 5 will not, then, proceed.

Section 8.16: overview

5.17 Section 8.16(a) of the Code provides, subject to sections 8.16(b) and sections 8.20 to 8.22, for the addition of New Facilities Investment into the Capital Base of a covered pipeline only if two conditions are satisfied. The first of these two conditions is set out in section 8.16(a)(i); the second is in section 8.16(a)(ii).

5.18 Section 8.16(a)(i) requires that the amount of the New Facilities Investment added to the Capital Base not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice and to achieve the lowest sustainable cost of providing services. The ACCC has referred to the test of section 8.16(a)(i) as the "prudent investment test".

5.19 New Facilities Investment, which meets the requirements of the prudent investment test, can be added to the Capital Base only if it is expected to satisfy one of the three tests set out in section 8.16(a)(ii). The three tests for New Facilities Investment in section 8.16(a)(ii) are:

(a) the Anticipated Incremental Revenue test (section 8.16(a)(ii)(A)): the Anticipated Incremental Revenue generated by the New Facility must exceed the New Facilities Investment;

(b) the system wide benefits test (section 8.16(a)(ii)(B)): the relevant regulator must be satisfied that the New Facility has system-wide benefits that, in the relevant regulator's opinion, justify the approval of a higher reference tariff for all shippers; and

(c) the maintenance of the safety, integrity or contracted capacity of services test (section 8.16(a)(ii)(C)): the new facility must be necessary to maintain the safety, integrity or contracted capacity of services.

Section 8.16(a)(i): the prudent investment test

5.20 Section 8.16(a)(i) sets out two conditions which must be met by New Facilities Investment if that investment is to be considered prudent and, therefore, eligible for addition into the Capital Base (if at least one of the tests of section 8.16(a)(ii) is satisfied).

5.21 These two conditions for prudence are:

(a) the amount of New Facilities Investment does not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice; and

(b) the amount of New Facilities Investment has been established in a way which allows the service provider to achieve the lowest sustainable cost of providing services.

5.22 In subsequent sections of this submission, DBP demonstrates that its planning for Stage 5, and its planned execution of the expansion project, are those of a prudent service provider acting efficiently, in accordance with accepted good industry practice. Consideration is also given to the questions of:

(a) whether the New Facilities created by Stage 5 exhibit economies of scale or scope;

(b) the increments in which pipeline capacity can be added; and

(c) whether the lowest sustainable cost of delivering services over a reasonable time frame may require the installation of New Facilities with capacity sufficient to meet forecast demand over that time frame.

5.23 The answers to these three questions, which are posed by section 8.17 of the Code, are necessary to ascertaining whether the amount of New facilities Investment has been established in a way which allows the service provider to achieve the lowest sustainable cost of providing services not only in the short term, in response to immediate requirements, but also over a longer period.

Section 8.16(a)(ii)(A): Anticipated Incremental Revenue test

5.24 Section 8.16(a)(ii)(A) of the Code requires that, before the Capital Base of a covered pipeline is increased by New Facilities Investment, the Anticipated Incremental Revenue generated by the New Facilities exceeds the New Facilities Investment.

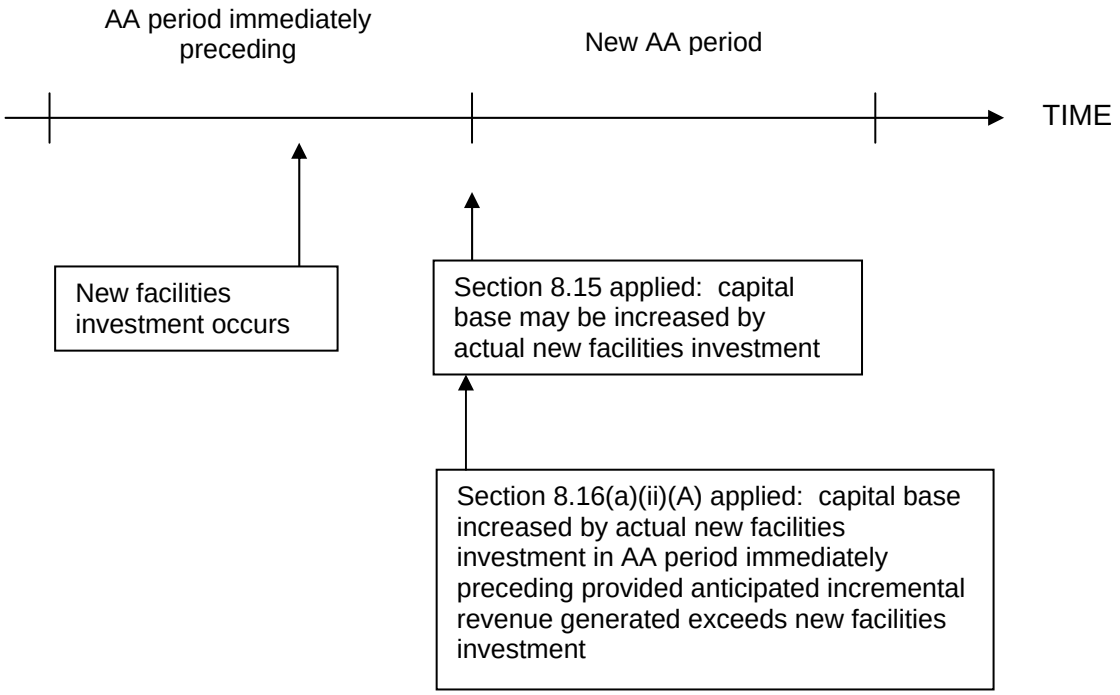
5.25 Anticipated Incremental Revenue is, according to the definition in section 10.8 of the Code, the difference between two present values, each of which is calculated using the rate of return as the discount rate. The two present values are:

(a) the present value of the reasonably anticipated future revenue from the sale of services at the prevailing tariffs which would not have been generated without the incremental capacity; and

(b) the present value of the best reasonable forecast of the increase in non-capital costs directly attributable to the sale of those services.

5.26 “Prevailing tariff” is also defined in section 10.8. It means, for a reference service, the applicable reference tariff, and means for any other service, the equivalent tariff. “Equivalent tariff” means, in relation to a service that is not a reference service, the tariff that is reasonably likely would have been set as the reference tariff had the service been a reference service.

5.27 The application of the test of section 8.16(a)(ii)(A) in ascertaining whether the Capital Base of a covered pipeline can be increased in accordance with section 8.15 of the Code is shown in the following diagram.



5.28 Although the application of the test may appear simple, it is made complex by ambiguity in the Code. Presumably, the prevailing tariff is the tariff prevailing during the access arrangement period in which the New Facilities Investment occurs. If it is, it may have been determined in accordance with section 8.20: the prevailing tariff may have been determined using a forecast of New Facilities Investment for the access arrangement period during which the New Facilities Investment is forecast to occur.

5.29 Forecast New Facilities Investment passes the test of section 8.16(a)(ii)(A), applied via section 8.20, only if the average incremental cost is less than the prevailing tariff (presumably, the tariff in the access arrangement period preceding the period in which the New Facilities Investment is forecast to occur). If the average incremental cost of the forecast New Facilities Investment is less than the then prevailing tariff, taking that investment into account for the purpose of determining the reference tariff for the access arrangement period in which the New Facilities Investment is forecast to occur will have the effect (other things being equal) of lowering the tariff. When the test of section 8.16(a)(ii)(A) is then applied a second time (via section, 8.15 for the purpose of adding the New Facilities Investment to the Capital Base), that investment will be evaluated at a lower tariff. In consequence, the actual New Facilities Investment is unlikely to pass the test.

5.30 This seems anomalous: the test required by the Code would seem to preclude addition into the Capital Base of New Facilities Investment which lowers average cost.

5.31 An obvious remedy is removal from the prevailing tariff, before the test of section 8.16(a)(ii)(A) is applied, of the effect of the New Facilities Investment which is to be evaluated.

5.32 In this way, the problem of New Facilities Investment which lowers average cost not being included in the Capital Base might be avoided. However, there is a further problem with the test in question. Not all pipeline expansions have average incremental costs which are less than system average costs. Expansions for which the average incremental cost is higher than system average cost may not satisfy the test of section 8.16(a)(ii)(A) even though the New Facilities Investment required may satisfy the prudent investment test of

section 8.16(a)(i). Furthermore, such expansions may not give rise to system-wide benefits and, in these circumstances, efficient expansion will not proceed.

5.33 These ambiguities in the Code cannot be quickly resolved. In applying the test of section 8.16(a)(ii)(A) for the purpose of this submission, DBP works within the Code framework by comparing the forecast New Facilities Investment for Stage 5 with the Anticipated Incremental Revenue determined at the tariff which would prevail if the Stage 5 expansion were not undertaken.

5.34 DBP sees this approach as being similar to the assessment of forecast New facilities Investment in accordance with the test of section 8.16(a)(ii)(A) made by the ERA for its November 2005 Final Decision on proposed revisions to the DBP Access Arrangement.

5.35 DBP's application of the test of section 8.16(a)(ii)(A) in the context of the Stage 5 expansion of the DBNGP, and the results obtained, are presented in a subsequent section of this submission.

Section 8.16(a)(ii)(B): system-wide benefits test

5.36 Prudent investment in new facilities – that is, investment which meets the requirements of section 8.16(a)(i) of the Code – may be added into the Capital Base of a covered pipeline if, in accordance with section 8.16(a)(ii)(B), the relevant regulator is satisfied that the new facility has system-wide benefits which, in the regulator's opinion, justify the approval of a higher reference tariff for all shippers.

5.37 The Code provides no guidance on what a regulator might consider to be system-wide benefits.

5.38 In its deliberations on the test of section 8.16(a)(ii)(B) in its Final Decision on proposed revisions to the access arrangement for the Victorian Principal Transmission System, the ACCC accepted GPU GasNet's contention that benefits from enhanced system security, and from increased competition in gas supply, would, at least in the context of that decision, justify investment in New Facilities.

5.39 The Victorian Regulator-General was more explicit in its May 1998 Draft Decision on Access Arrangements for gas distributors Multinet, Westar, and Stratus. New Facilities Investment which satisfied the test of section 8.16(a)(ii)(B) would need to satisfy the following principles:

(a) the New Facility creates an identifiable benefit to users of the system other than those served by that facility or, in economic terms, generates a positive externality (an example of such an externality would be lower gas prices to all gas consumers resulting from increased competition made possible by a pipeline extension which adds another source of gas supply to the system);

(b) the estimated total benefit (including the external benefits) from the New Facility exceeds the total cost of the new facility; and

(c) the way in which reference tariffs are increased reflects the accrual of the external benefit so that there is a close match between those who would make a contribution to the investment in the new facility and those who receive the benefit.

5.40 Unlike the ACCC decision on revisions to the access Arrangement for the Victorian Principal Transmission System, which only provides (two) examples of what may be system-wide benefits, the Victorian Draft Decision provides a general principle for

identifying those benefits. System-wide benefits from New Facilities are identified as positive externalities resulting from the creation of those facilities. These positive externalities are, however, in the view of the Regulator-General, to be limited to benefits accruing to users of the pipeline system. This would seem to be unnecessarily restrictive.

5.41 Externalities arise where the activity of one party affects the consumption or production activities of others, and the effects are not priced by the market. They are not usually considered as being limited to parties which transact in the same market. Indeed, common externalities – such as pollution (a negative externality), and literacy (a positive externality) – extend across parties transacting in many different markets.

5.42 This seems to have been recognized by the ERA. Paragraph 228 of the November 2005 Final Decision on proposed revisions to the DBNGP Access Arrangement advises:

The Authority considers, however, that consideration of system-wide benefits may reasonably extend beyond simply the operation of the DBNGP, and include benefits to users of gas that rely on the DBNGP. In this regard, the Authority is aware that the expansion in Capacity of the DBNGP is in the interests of a substantial number of the Users of the DBNGP and correspondingly in the public interest, and that such expansion may be frustrated by risk that the investment would not be rolled into the Capital Base.

5.43 In this paragraph, the ERA identifies system-wide benefits as positive externalities resulting from DBNGP expansion, but considers their scope to extend beyond shippers using the pipeline to users of gas. This extension of scope brings the public interest into the consideration of system-wide benefits.

5.44 A somewhat broader view of system-wide benefits, as proposed by the ERA, rather than a narrow view which focuses solely on the benefits to pipeline users, is necessary to the integrity of the Code and consistent with the overarching objectives of the Code and the access arrangement assessment process. The (incremental) cost of expanding capacity typically rises as compressors are added to an already compressed pipeline system, and in the early stages of expansion by looping. In the absence of a broad system-wide benefits test, prudent New Facilities Investment (investment which satisfies the requirements of section 8.16(a)(i)) which did not satisfy the test of section 8.16(a)(ii)(A) would not proceed, even if that investment were beneficial to pipeline users and, ultimately, to users of gas. This would not be in the public interest.

5.45 DBNGP expansion offers a range of benefits to users of gas. In a subsequent section of this submission, DBP argues that securing these benefits from Stage 5 is in public interest in that it has system-wide benefits which justify addition of the New Facilities Investment into the DBNGP Capital Base even though this may result in a higher reference tariff.

Section 8.16(a)(ii)(C): safety, integrity or contracted capacity of services

5.46 Section 8.16(a)(ii)(C) provides a further test, whereby prudent New Facilities Investment may be added into the Capital Base of a covered pipeline, if the New Facility created is necessary to maintaining the safety, integrity or contracted capacity of services

5.47 The application of the test of section 8.16(a)(ii)(C) is, however, restricted to New Facilities Investment which has as its purpose maintenance of the capability of an existing pipeline system to provide services. The test does not have a role to play in deciding whether New Facilities Investment which increases the capability of the system to provide services should be added into the Capital Base.

5.48 To the extent that a part of the New Facilities Investment of Stage 5 is necessary to maintain DBP's ability to meet its existing contractual obligations to provide capacity in circumstances of capacity reduction resulting from declining gas quality, that part of the investment may be added into the Capital Base of the DBNGP in accordance with section 8.16(a)(ii)(C). This is discussed later in this submission.

6. PARAMETERS CRITICAL FOR STAGE 5 CAPACITY AND INVESTMENT

Overview

6.1 DBP is now proposing to expand the DBNGP to meet the needs of:

(a) those shippers who have confirmed their capacity requirements, and who have entered into long term contracts for access to capacity; and

(b) those prospective shippers who DBP considers will, by the time a decision is made by DBP to finance the Stage 5 expansion project, have entered into long term contracts for access to capacity.

6.2 Although the provision of services is a function of the size of development, the capacity requirement for Stage 5 can be provided only with a reconfiguration of existing and adding more compression as well as further looping of the pipeline.

6.3 In this section of this submission DBP sets out the principal assumptions it has made in developing its proposed expansion program. These assumptions are in the form of assumed values for certain parameters which are critical for the amount of capacity which is to be provided by Stage 5, and for the total investment. If actual New Facilities Investment is subsequently found to be different from that which is now forecast, at least part of the difference may be attributable to (actual) values for these critical parameters which are different from the values which were assumed.

6.4 These parameters critical for the capacity to be provided by, and DBP's total investment in, Stage 5 are:

(a) timing for provision of additional capacity

(b) capacity to be provided;

(c) system reliability;

(d) compressor unit availability;

(e) gas composition;

(f) pipeline pressures;

(g) unit costs for compression;

(h) unit costs for pipeline looping;

(i) costs for other New Facilities.

6.5 The value, or range of values, assumed for each of these parameters is discussed in the following paragraphs of this submission.

Timing for provision of additional capacity

6.6 As outlined earlier in this submission, the timing for the delivery of the additional capacity is being driven by the need to meet the shippers' and prospective shippers' requirements.

6.7 When coupled with the expansion obligations DBP owes to various entities (see section 3 of this submission), it is critical for DBP to ensure that design and construction can occur in accordance with the shippers' expectations.

6.8 As outlined in the tables in section 2 of this submission, the additional capacity has been requested by shippers to be available from the period from November 2007 to the first quarter of 2009.

6.9 However, under the terms of the Standard Shipper Contracts pursuant to which shippers have lodged access requests, DBP is not obliged to provide the additional capacity until 30 months after the access requests were lodged. Accordingly, the earliest time that DBP is obliged under its Access Contracts to provide the additional capacity is early 2008. While the proposed costings included in this submission have been prepared on this basis, DBP is working with those shippers seeking capacity at an earlier time with a view to meeting their expectations. Although, it should be noted that any need to accelerate the commissioning of capacity ahead of the contractual timetable is likely to increase significantly the costs of providing the additional capacity. However, at this stage, DBP has been unable to quantify these acceleration costs.

Capacity to be provided

6.10 Engineering design work for Stage 5 has proceeded on the assumption of a full haul Tranche 1 capacity requirement of 310 TJ/d, and a requirement for an additional Pilbara part haul of 76 TJ/d **[deleted – confidential & commercial in confidence]** and an additional Mid West part haul of 35 TJ/day. This is based on DBP management's view as to the volumes that are likely to be the subject of executed Access Contracts by the time DBP has to make a decision to fund the expansion of the DBNGP for stage 5.

6.11 As outlined in section 2 of this Submission, while there is a possibility that there may be additional volumes the subject of executed Access Contracts by the required time for DBP to make its investment decision, these volumes are not sufficiently certain, based on the information that DBP has available, to meet DBP managements' criteria for a probable project.

6.12 There may well be further changes – both positive and negative – in the total capacity requirement prior to construction commencing and, provided these are small, they can be easily accommodated by varying the length of looping required.

6.13 As outlined above, the design of Stage 5 is also proceeding on the assumption that an additional 76 TJ/d of part haul capacity will be required **[deleted – confidential & commercial in confidence]**.

Tranche 1 capacity

6.14 Stage 5 is being designed to provide 310 TJ/day of full haul Tranche 1 Capacity.

6.15 Tranche 1 Capacity is defined, in clause 3.2(b) of the Standard Shipper Contract, in terms of the probability with which it will be supplied.

6.16 In accordance with clause 3.2(b)(i) of the Standard Shipper Contract, the Tranche 1 Capacity in the DBNGP is the amount of capacity which lies between zero and the T1 cut-off.

6.17 The T1 cut-off is the amount of capacity at which the probability of supply for the next GJ of gas to be transported in the DBNGP is 98% for each month of a gas year.

6.18 Historically, average ambient temperatures have been highest, and the thermal efficiency of gas turbines has been lowest, during January. Stage 5 is therefore being designed to provide 310 TJ/day of full haul capacity with 98% probability of supply in January average conditions.

6.19 DBP notes that by designing for Tranche 1 capacity, no specific allowance is, or can, be made for interruptible capacity or a semi interruptible service in addition to those which are already the subject of existing transportation contracts.

Compressor unit availability

6.20 A compressor unit availability of 98.0% is being assumed for the design of Stage 5.

Gas Quality composition

Gas Composition and Gas Quality Specification

6.21 Gas composition is a critical factor in determining the capacity of the DBNGP – if composition changes, so does capacity. Hence those stakeholders that determine gas composition also determine a pipeline's capacity and thus have a major influence on the operating and capital costs associated with operating and expanding the DBNGP.

6.22 While generally a pipeline owner is able to set the bounds to the composition of the gas to be transported through a pipeline by imposing a gas quality specification in gas transportation contracts (or Access Contracts), this does not determine the gas composition. Rather it simply sets the maximum and minimum capacity of the pipeline (all other things being equal). Given that the range of the gas quality specification is generally quite broad, there will generally be a broad range between the maximum and minimum capacity of the pipeline. This is the case for the DBNGP.

6.23 The key stakeholders that influence gas composition are producers and shippers, by way of their gas supply agreements. The pipeline owner has no part in these arrangements and is required to accept any gas that meets the quality specification set out in Access Contracts. Given the broad range of values that is set for each element in the gas quality specification in Access Contracts, this implies a highly variable gas composition and, as a result, a highly variable capacity of the pipeline. This has been outlined by DBP in prior submissions to the ERA as part of the assessment of proposed revisions to the DBNGP Access Arrangement. Hence producers and (to a lesser practical extent but still, to an important contractual extent) shippers have a significant influence over the capacity of a pipeline.

6.24 In so far as the DBNGP is concerned, the existing Standard Shipper Contracts that have been entered into on the DBNGP generally contain the following gas quality specification ("**Operating Specification**"):

Component		Inlet Points	Outlet Points
Maximum carbon dioxide (mol %)		3.6	4.0
Maximum inert gases (mol %)		5.5	6.0
Minimum higher heating value (MJ/m3)		37.3	37.3
Maximum higher heating value (MJ/m3)		42.3	42.3
Minimum Wobbe Index		47.3	47.3
Maximum Wobbe Index		51.0	51.0
Maximum total sulphur (mg/m3)	Unodorised Gas	10	10
	Odorised Gas	n/a	20

Maximum Hydrogen Sulphide (mg/m3)	2	2
Maximum Oxygen (mol %)	0.2	0.2
Maximum Water (mg/m3)	48	48
Hydrocarbon dewpoint over the pressure range 2.5 to 8.72 MPa absolute	Below 0^0C	Below 0^0C
Maximum radioactive components (Bq/m3)	600	600
Minimum Extractable LPGs (t/TJ)*	1.45 until 08:00 hours on 1 July 2005 and zero thereafter	n/a

*Extractable LPG means LPG that can be extracted from Gas without causing the Gas to fail to comply with the Operating Specifications for Outlet Points.

6.25 However, the ERA, in the Revised DBNGP Access Arrangement that it drafted and approved, and which became effective on 30 December 2005, included in the terms and conditions for Reference Services on the DBNGP, a gas quality specification that was broader than the Operating Specification ("**AA Specification**"), the details of which are outlined below:

Gas specification	
Component	**Inlet Points and Outlet Points**
Maximum carbon dioxide (mol %)	4.0
Maximum inert gases (mol %)	7.0
Minimum higher heating value (MJ/m^3)	37.0
Maximum higher heating value (MJ/m^3)	42.3
Minimum Wobbe Index	46.5
Maximum Wobbe Index	51.0
Maximum total sulphur (mg/m^3) — Unodorised gas	10
Maximum total sulphur (mg/m^3) — Odorised Gas	20
Maximum Hydrogen Sulphide (mg/m^3)	2
Maximum Oxygen (mol %)	0.2
Maximum Water (mg/m^3)	48
Hydrocarbon dewpoint over the pressure range 2.5 to 8.72 MPa absolute	Below 0 C
Maximum radioactive components (Bq/m^3)	600
Minimum extractable LPGs (t/TJ)	0

6.26 Generally, when designing for the operation or expansion of the capacity of a pipeline and when estimating the costs of operating or expanding, a service provider will need to make an assessment as to the likely composition of the gas to be transported through the pipeline over the period that the service provider expects (or is allowed to) to recover the investment associated with the expansion.

6.27 However, the gas quality specification also plays an important part, particularly in circumstances where the specification in Access Contracts differs from the specification in gas supply contracts entered into between gas producers and their customers.

Historical basis for determining capacity of DBNGP

6.28 As has been previously outlined by DBP in submissions made during the ERA's assessment of revisions to the Access Arrangement[1], in their engineering design work to expand pipeline capacity, the prior – public and private – owners of the DBNGP made the assumption that the composition of the gas to be transported through the pipeline would be an average of the composition of the gas which was actually transported in the immediate past.

6.29 Operator subsequently adopted this assumption, and has used it in planning the expansion of capacity to take place during the period 2005 to 2010.

6.30 In consequence, the assumption that the composition of the gas to be transported would be an average of the composition of the gas which was actually transported through the DBNGP has been fundamental to pipeline capacity determination for the purpose of establishing the regulated access prices of:

(a) the access regime of the *Gas Transmission Regulations 1994*, the regime applied by the State prior to the Code coming into effect in Western Australia;

(b) the Access Arrangement drafted and approved by the ERA's predecessor, the Western Australian Independent Gas Pipelines Access Regulator ("ERA's predecessor"), in December 2003 ("prior AA"); and

(c) the Revised DBNGP Access Arrangement drafted and approved by the ERA in December 2005 ("current AA").

6.31 Since 1994, the DBNGP has been designed on the assumption that the quality of the gas to be transported through the pipeline is an average of the quality of the gas which has actually been transported in the immediate past, and access prices have been determined on the basis of the pipeline capacity determined using this assumption.

6.32 In particular, this assumption was made – either implicitly or explicitly - by the ERA's predecessor and the ERA for the purpose of establishing the Reference Tariffs of the prior AA and the current AA. The ERA's predecessor and the ERA both proceeded from a view that shippers using the Reference Service would benefit from Reference Tariffs established on the basis of a level of pipeline capacity determined assuming an average of the quality of gas actually transported, and that DBP would have the opportunity of earning a revenue stream which recovers the efficient costs of providing that level of capacity. Both the economic and the commercial outcomes of access regulation under the Code were to follow from the assumption that the quality of all of the gas to be transported in the DBNGP in the future would be an average of the quality of the gas which was actually transported at the time of filing of the prior AA and the current AA.

6.33 The initial Capital Base was established by the ERA's predecessor having regard to levels of maximum and firm capacity determined assuming the average quality of gas actually delivered shown in the second column of Table 1.

[1] Submissions 49 and 60 made by DBP to ERA, dated September and October 2005

[deleted – confidential & commercial in confidence]

6.34 That the average actual composition of gas was used in determining the levels of maximum and firm capacity to which the ERA's predecessor had regard was made clear in a response, by the previous owners of the DBNGP, to a request for information made in September 2000. In September 2000, the ERA's predecessor sought from the previous owners of the pipeline information regarding the calculation of the capacity they had used in developing the proposed Access Arrangement they had submitted in December 1999.

6.35 **[deleted – confidential & commercial in confidence]**.

6.36 **[deleted – confidential & commercial in confidence]**.

6.37 That capacity had been determined on the assumption that the quality of the gas to be transported would be an average of the quality of the gas which was actually transported was again made clear to the Regulator's predecessor in the previous owners' submission **[deleted – confidential & commercial in confidence]**.

Basis for determining capacity of DBNGP for present Access Arrangement Period

6.38 As noted above, DBP continued to assume, for the purpose of pipeline capacity determination, that the quality of the gas to be transported would be the average quality of the gas which was actually transported. Although it has made this assumption for its planning for the period 2005 to 2010, DBP has also recognized the State's desire to allow a broadening of the quality of gas transported in the DBNGP, and has acknowledged that this may be in its own commercial interest.

6.39 Accordingly, in January 2005, DBP proposed a broader gas quality specification in the Proposed Revised Access Arrangement (being the "Operating Specification").

6.40 Although DBP proposed a broader specification, it continued to plan capacity expansion on the basis of an average of the quality of the gas actually received into the pipeline. DBP's expectation was that, with the removal of the minimum LPG requirement, and a broadening of other components of the specification, the quality of the gas transported in the DBNGP would shift to the outer envelope of the new specification as existing producers adjusted their operations in response, and as new producers entered the market. However, the change was expected to be gradual, and would be far from complete before 2011.

6.41 As the quality of gas transported in the DBNGP gradually changed over an extended period, DBP expected to offset the associated reduction in the capacity of the pipeline by compensating capacity expansions during this period. The capital costs of these compensating expansions would be included in the pipeline's Capital Base, and thereby recovered, at least in part, from shippers paying the Reference Tariff.

6.42 Were there to be, at any time, a "step change" in the quality of the gas actually transported, rather than the gradual change which was assumed, DBP would consider either making an application under section 8.21 of the Code or initiating changes to the DBNGP Access Arrangement between reviews in accordance with section 2.49 of the Code. This would allow the previously unanticipated costs of the capacity expansion required to compensate for the step change in quality to be recovered through the Reference Tariff.

6.43 The assumptions made by DBP, in January 2005, concerning the way in which it expected the quality of gas transported in the DBNGP to change in the future, are summarized in the following diagrams.

[deleted – confidential & commercial in confidence]

[deleted – confidential & commercial in confidence]

[deleted – confidential & commercial in confidence]

[deleted – confidential & commercial in confidence]

6.44 As DBP has previously demonstrated, its assumption of a gradual change to the outer envelope of the Operating Specification has been shown to be incorrect. There has been a step change in gas quality, and that step change effectively took place on 1 July 2005 (as shown in the graphs in Attachment 2).

A change in approach to the gas composition assumption is required for future expansions of the DBNGP

6.45 DBP considers that it is prudent for it to reassess its approach to the setting of the gas quality assumption that will be used for the purposes of designing and estimating the costs for future expansions to the DBNGP.

6.46 The key imperatives for DBP in reassessing its approach were:

- The declining HHV and Wobbe Index and greater variability in gas specification generally experienced since July 2005 is impacting on DBNGP capacity and DBP's ability to meet existing contractual commitments;
- Pressure from gas producers and the ERA to lower the range of permissible gas quality to make the DBNGP accessible to a greater range of potential gas field developments;
- Standard Shipper Contract provisions which allow Shippers to propose the delivery of lower quality gas than the Contractual Specification subject to DBP receiving adequate compensation;
- Demand from Shippers and Prospective Shippers for significant new capacity (Stage 5) for delivery between late 2007 and early 2009;
- The need for DBP to be confident that the Stage 5 Expansion Project will be viable and will meet the reasonable requirements of Shippers over the long term;
- DBP's desire to ensure adequate capital investment to meet contractual obligations without over-investing;
- A need to obtain a long term commitment from the ERA for an appropriate gas specification for use in designing DBNGP facilities, Reference Services and Reference Tariffs – and for the costs associated with Stage 5;

- A need to develop a compensation package (as envisaged by Clause 7.14 of the Standard Shipper Contracts) if a material broadening of gas quality is generally anticipated by industry stakeholders.

The Kimber Consultants Report

6.47 To facilitate the reassessment of its approach, DBP commissioned a study from an independent consultant in connection with the gas composition to assume for future expansions. It commissioned MJ Kimber & Associates Pty Ltd ("Kimber Consultants") to prepare a report on the most appropriate gas composition to use in the determination of DBNGP capacity and services to be delivered from the DBNGP.

6.48 The work undertaken by Kimber Consultants is outlined below:

- Conduct discussions with Producers and Prospective Producers to obtain their views on gas quality projections for their respective fields; production capabilities; the likely sequencing of field development; their ability to modify gas quality through processing in order to provide a forecast of gas quality trends for up to 20 years;
- Conduct discussions with Shippers and the ERA (including consultant, PB Associates) on their views on gas specification and future demand in order to provide a forecast of required gas quality trends;
- In conjunction with the DBNGP Asset Manager (ANS) examine historic gas quality trends, and consider the influence of short term variability on service reliability;
- Assist Alinta Network Services ("ANS") in the development of a modeling tool that can be used to predict the most appropriate gas composition;
- Prepare a report that presents the findings suitable for issue to the key participants, DBP's banks and Owners
- Review of submissions to the ERA, and the reports of PB Associates on matters associated with the gas quality;
- Hold discussions with all Producers, Shippers and the ERA to develop a long term view on movements in gas quality at each of the Receipt points;
- Prepare a report which addresses:
    - The range of circumstances which can potentially impact on the gas quality to be transported by the DBNGP in the long term – and hence on capacity and service reliability;
    - In aggregated form if necessary, the information provided and views expressed by particular stakeholders or stakeholder groups;
    - The supporting arguments for recommending a particular gas specification as the most appropriate basis for the design of Stage 5 and future expansions.

6.49 The scope of the work was limited to the technical issues associated with reaching a resolution on gas specification.

6.50 A copy of the report prepared by Kimber Consultants ("Kimber Consultants Report") is attached as Attachment 1.

6.51 The Kimber Consultants Report postulates 3 gas compositions which could be used for the design of the Stage 5 Expansion (which implicitly requires a review of the existing

pipeline configuration) and to define capital and operating costs that will in turn determine the haulage tariffs applicable. The three approaches are:

(a) A very conservative approach where the lowest quality allowable is the AA Specification ("Very Conservative Composition". In this case, the shippers will pay a higher tariff than in either of the following approaches for capacity certainty. This would ensure that the capacity of the DBNGP will not be reduced below contracted capacity as a result of changes in gas composition within the AA Specification and the pipeline owner is able to meet all contractual obligations to shippers, whilesoever the gas at the inlets meets the ERA AA Specification.

(b) A conservative approach where the lower end of the most likely of gas composition is used for the design. The composition postulated in this approach has been derived from predictions of gas composition provided on a confidential basis by the gas producers to Kimber Consultants. This gas composition is referred to in the Kimber Consultants Report as the "Recommended Design Composition" and has a HHV of 37.7 MJ/m^3 and a Wobbe Index of 47.9 MJ/m^3. The quality of this gas composition is within, by a small margin, the lowest quality allowable under that shown in the gas specification as defined in the AA Specification. In this case, there is some risk that contracted capacity will not be available on any day when gas delivered into the DBNGP by shippers does not comply with the Recommended Design Composition, even though it may be within the AA Specification. Shippers would logically be required to manage this risk through accepting a greater level of Permissible Interruption than provided under the SSC T1 Service.

(c) An optimized or economically efficient approach where the most likely or "median" gas composition is used for the design. This composition has been developed by reference to predictions of gas composition provided on a confidential basis by the gas producers to Kimber Consultants. It contains around 0.85 tonnes/TJ of LPG, has a higher heating value of 38.7 MJ/m^3 and Wobbe Index of 48.6 MJ/m^3.Use of this composition implies that capacity cannot be guaranteed by the pipeline and the pipeline cannot take any responsibility for shortfalls of capacity if gas quality falls below the median gas composition. However, shippers get the lowest transport cost for an uncertain capacity.

6.52 The derived values for the key elements of the composition for each of the 3 options are set out below in the following tables:

Very Conservative Composition

Component	ERA AA Composition
Methane	87.850
Ethane	5.756
Propane	0.000
Iso-Butane	0.000
N-Butane	0.000
Iso-Pentane	0.000
N-Pentane	0.000
Hexane	0.000
Heptane	0.000
Octane	0.000
N_2	2.394

CO_2	4.000
Total	100.000
Derived Values	
HHV (MJ/m^3)	37.0
WI (MJ/m^3)	46.5
LPG (t/TJ)	0
Inerts (%)	6.39%

Recommended Design Composition

Component	Mole%
Methane	88.396
Ethane	6.554
Propane	0.000
Iso-Butane	0.000
N-Butane	0.000
Iso-Pentane	0.000
N-Pentane	0.000
Hexane	0.000
Heptane	0.000
Octane	0.000
N2	3.190
CO2	1.860
Total	100.000
Derived Values	
HHV (MJ/m^3)	37.734
WI (MJ/m^3)	47.940
LPG (t/TJ)	0.00
Inerts (%)	5.05%

Median Gas Composition

Component	%mole
Methane	88.39
Ethane	5.52
Propane	1.22
Iso-Butane	0.11
N-Butane	0.19
Iso-Pentane	0.06
N-Pentane	0.02
Hexane	0.01
Heptane	0.00
Octane	0.00
N2	1.95
CO2	2.53
Total	100.00

Derived Values	
HHV (MJ/kg)	49.95
SG	0.63
HHV (MJ/m3)	38.70
Wobbe (MJ/m3)	48.61
LPG (t/TJ)	0.85
Inerts (%)	4.5%
CO2 (%)	2.5%

6.53 The Kimber Consultants Report then recommends a gas composition – the Recommended Design Composition – for the design of Stage 5 Expansion. In making this recommendation, Kimber Consultants states that:

(a) it represents the most realistic composition available to the DBNGP while recognising contractual obligations related to the Wesfarmers LPG plant.

(b) It provides for a high, but not absolute, level of certainty for shippers that the contracted firm capacity will be available to them.

(c) It also ensures that DBP can meet its contractual commitments for firm service to shippers at the expected gas composition, but it does not ensure DBP can meet its contractual commitments for any service to shippers if the gas quality is at the lowest quality permitted under the AA Specification.

(d) If this option is chosen, shippers must understand that their firm capacity entitlements will be reduced if the heating value of the gas presented for transport in the DBNGP is less than that of the Recommended Design Composition, namely, 37.7 MJ/m3.

(e) New and amended contracts will have to be drawn up to ensure that the management of risk in the supply chain (both financial and physical) is vested in those firms in the best position to manage the risk.

(f) If either of the conservative approaches is used for the design of Stage 5 Expansion, then shippers will need to understand that the cost of transport will be higher than that which would apply under the optimised approach, but they will be assured that their contracted capacity will be available when required unless the producers allow the heating value to fall below the agreed contractual lower limit.

(g) that at present all quality risk that affects current pipeline capacity[2] rests with DBP under the SSC with the mitigation being "negotiation or compensation" under clause 7.14.

DBP's proposed gas composition assumption

6.54 Notwithstanding the recommendation from the Kimber Consultants Report, DBP proposes to adopt the "Very Conservative Approach" for gas composition as the basis for future designing future expansions of the pipeline.

[2] In this context "current pipeline capacity" refers to the capacity of the DBNGP calculated using previous design criteria which included a heating value of the gas of **[deleted – confidential & commercial in confidence]**MJ/m^3.

6.55 This is so for the following reasons:

(a) The data provided to Kimber Consultants, which can reasonably be assumed to be the best available data in the market, is speculative beyond 5 years whereas DBP is required under the terms of the SSC to contract for T1 capacity for a minimum term of 15 years. Furthermore, the Gas Code only enables DBP to recover its investment over a longer period.

(b) Based on operational experience and comments in the Kimber Consultants Report, DBP expects that the composition of gas supplied into the DBNGP will fall outside the Recommended Design Composition on occasions due to producer plant upset conditions and, accordingly, there will be occasions when the capacity of the DBNGP will fall below contracted capacity at the Recommended Design Composition.

(c) experience over the last 12 months has demonstrated that:

(i) the composition of gas in the DBNGP has changed dramatically for reasons which extend beyond the removal of the minimum LPG requirement. In particular, the levels of inerts in the gas has been higher than at any time in the past and has, on occasions, exceeded the maximum allowable specification at certain inlet points;

(ii) fluctuations in the quality of the gas have become more volatile;

(iii) the quality of the gas is broader than that assumed by certain producers for this period; and

(iv) some of the components of some gas supplied for receipt into the DBNGP have exceeded the outer limits of the Operating Specification for these components.

(d) there is a significant capability within the existing operations of the producers to manipulate the quality of the gas to be supplied to the DBNGP;

(e) the fact that the AA Specification included by the ERA in the Access Arrangement is broader than the Operating Specification in the Standard Shipper Contracts, thereby facilitating gas of a composition broader than that which could reasonably be expected to be the case if the specification in the Access Arrangement had been the Operating Specification;

(f) the reasonable risk that the gas quality specification in the Access Arrangement may be broadened further than the AA Specification in future revisions to the Access Arrangement given that the composition of gas from any possible new gas field likely to be commercially produced in the foreseeable future is not expected to meet the AA Specification;

(g) DBP's ability to recover the investment it makes in future expansions of the pipeline's capacity will need to be assessed over the expected life of the asset (as established in the Access Arrangement). The existing Standard Shipper Contracts are scheduled to expire in 2019, thereby giving rise to Spare T1 Capacity at that point in time, which Capacity could be accessed by way of the Reference Service. If the composition of the gas at that point in time is broader than that to be assumed by DBP in configuring the Stage 5 expansion and the composition of the gas that is supplied for receipt into the DBNGP is broader than the Operating Specification, DBP will be deprived of the opportunity to recover its investment.

(h) The existing Standard Shipper Contracts provide that the contractual tariff reverts to the nearest equivalent Reference Tariff as at 2016. Given that the total revenue in the current Access Arrangement only assumes costs associated with a gas

composition that is narrower than what is being experienced in relation to gas currently being transported in the pipeline, if the composition of the gas in 2016 is broader than that to be assumed by DBP in configuring the Stage 5 expansion, the Reference Tariff at that time will not be sufficiently high to recover the costs of providing the services.

(i) The terms and conditions of the existing Reference Service in the existing Access Arrangement do not enable DBP to provide sufficient services that enable DBP to recover the Total Revenue set by the ERA.

(j) The fact that the ERA has concluded in its assessment of the revisions to the Access Arrangement that there is minimal difference in capacity between a pipeline that is designed based on the outer limit of the Operating Specification and one designed based on the outer limit of the AA Specification.

(k) If DBP chooses to assume a composition for the gas in its design that is of a higher quality than the gas that is actually shipped, then the pipeline's increased capacity will be "under-designed" and DBP will not have the pipeline capacity to sell as a firm service and will incur penalties; and the incremental tariffs will not result in cost recovery – a double loss. This could expose DBP to indirect damages if it failure to design for the Very Conservative Composition was considered to be a wilful default.

(l) The extent of the need for shippers to have a reliable supply of gas, which DBP considers can not be met by designing for anything other than the Very Conservative Approach.

Gas composition since July 2005

6.56 As is stated earlier in this submission, the change in the gas composition and corresponding reduction in quality has been faster and more acute than was anticipated at the time of acquisition and for the purposes of the Stage 4 configuration and costing. Average HHV (and hence maximum capacity) has reduced by approximately 5% since July 2005. Details of the changes in the composition are outlined in Attachment 2.

6.57 As is also stated earlier, in some instances, some of the components of some gas supplied for receipt into the DBNGP have exceeded the outer limits of the Operating Specification for these components.

6.58 While the reduction has generally been to levels that fall within the limits of the current "operating specification" as set out in the shipper contracts for the DBNGP (subject to the exception outlined in the immediately preceding paragraph), the quality is continuing to decline. Given that there is only 7 months of data, there is a real risk that the composition will continue to decline.

6.59 **[deleted – confidential & commercial in confidence]**.

Impact of changes in gas quality

6.60 The result of the changes in the gas composition since June 2005 has had the following adverse impacts for DBP:

- DBP is experiencing problems in supplying all contracted capacities within the requirements of the shipper contracts;
- Given that the reduction has been greater and faster than that assumed for the purposes of the Stage 4 and existing pipeline configurations and costings, the design and costings for Stage 5 will need to include a complete review to enable DBP to meet

current firm capacity commitments (including Stage 4) as well as incremental, firm capacity commitments.

- Changes in gas quality – whether under the Access Contracts or the regulated regime – not only have the effect of reducing the capacity of the pipeline but also increasing operating costs;
- Capacity (of the pipeline under the Stage 4 configuration) lost to date must be reinstated as part of the Stage 5 expansion project;
- Further capacity of the pipeline (under the Stage 4 and Stage 5 configuration) which might be lost from future quality reductions must also be estimated and provided for as part of Stage 5.

Impact of the ERA's position on gas quality

6.61 The ERA's final decision on the gas quality specification in the Access Arrangement is likely to have the following adverse impacts on DBP over and above those outlined above.

- It differs from the specification that is in the standard shipper contracts and provides the producers with negotiating leverage to reduce the specification of gas under new or existing shipper contracts.
- The ERA has required part haul, back haul and spot capacity as Reference Services and if they are entered into at the AA Specification, it is likely to cause DBP to breach either the capacity or quality commitments in the existing shipper contracts. This is considered to be likely given the availability of capacity for all of the above three Reference Services and the likelihood of new shippers for at least the spot service and the part haul service.
- In the longer term – after the current capacity shortfall has been made up as part of Stage 5 and until 2019 when most of the SSC's potentially terminate – the likelihood of breaching contracts will depend on the magnitude and quality of the new supply (and on the reference gas specification applicable at the time).
- The ERA has indicated that there could be a further lowering of the gas specification in the Access Arrangement at future resets.
- After 2019, existing Standard Shipper Contract shippers will be free to switch to regulated contracts – at whatever gas quality applies to reference services at that time. This creates long term uncertainty as to the design parameters to adopt for Stage 5 and future expansions and to the extent DBP provides for a range of possible outcomes, could add significantly to future expansion costs.
- The current Reference Tariffs have not been set having regard to the composition of gas that is actually being experienced in the pipeline since July 2005.

Pipeline pressures

6.62 A maximum allowable operating pressure ("MAOP") of 8,480 kPa has been assumed for the design of Stage 5, although looped line and new compressors will be rated for operation at up to 10,200 kPa (see paragraph 7.40 below).

6.63 DBP has, for some time, been investigating the implications of an increase in the MAOP to 9,300 kPa for the main line between Dampier and Kwinana Junction. These investigations have shown that the increase in MAOP can be implemented with relatively minor modifications to existing compression and metering facilities, and should provide an additional 40 TJ/d of full haul capacity. However, changes in Australian Standard 2885.1 would be required for DBP's approach to be compliant. Those changes have been opposed by the Western Australian and Queensland technical regulators, the standard has not been changed, and DBP is no longer considering DBNGP expansion options which incorporate into the design of the existing DBNGP system an increase in MAOP.

6.64 In addition to the pipeline licence restrictions placed on the MAOP of the DBNGP, DBP has certain contractual obligations to shippers which require delivery of gas at certain outlet points to meet certain minimum and maximum pressures.

6.65 Within this context, the following specific assumptions about pressures have been made for the design of Stage 5:

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New Facilities Investment

6.66 the range of the estimated New Facilities Investment is as shown in the following table:

Dampier to Bunbury Natural Gas Pipeline
Stage 5 expansion
New Facilities Investment (real, 31-Dec-2005)

		Low	High
Looping			
Mainline North	$m	1,111.30	1,170.14
Mainline South	$m	58.82	62.14
Compression			
Mainline North	$m	111.54	111.13
Mainline South	$m	29.05	28.94
Compressor station upgrading	$m	101.66	103.61
Active cooling	$m	17.43	17.36
Restaging	$m	27.30	27.20
Total	$m	1,457.10	1,520.53

7. STAGE 5 EXPANSION OPTIONS AND SECTION 8.16(A)(I) OPTIONS ANALYSIS

Expansion options

7.1 It is important to reinforce DBP's prior submission that the expansion of the capacity of the DBNGP needs to be undertaken in order to meet the timing requirements of shippers and prospective shippers, with which DBP envisages it will have executed Standard Shipper Contracts prior to DBP committing to fund the expansion. Accordingly, any option for the design, construction and commissioning of an expansion must be able to be provide the requested capacity in time.

7.2 With the above in mind, an efficient Stage 5 expansion of the DBNGP builds on, rather than makes redundant, the infrastructure that is being provided by Stage 4, and which has been provided by earlier expansion projects. A key element of the design for Stage 4 was the upgrading and reinforcement of compression for efficient operation with the northern looping that would commence with that stage of expansion, and which would be continued to provide the in capacity expected to be required from subsequent stages of expansion (see the table in paragraph 2.2 of this Submission). **[deleted – confidential & commercial in confidence]**.

7.3 Contrary to earlier expectations, the capacity required from Stage 5 (310 TJ/day) is far from "incremental", and the physical volume of gas to be transported is proportionately larger because the gas quality specification for the DBNGP Access Arrangement now permits a minimum HHV of 37.0 MJ/m^3.

7.4 There are three broad options available for expansion of the capacity of the DBNGP to meet this "non-incremental" capacity requirement, and a reduction in the energy density of the gas to be transported. These are:

(a) completion of the looping of the pipeline which incorporates additional modifications and upgrades to existing compression fleet;

(b) further looping, plus mid-line compression (the installation of additional compressors at new stations to be located between the existing DBNGP compressor stations which also includes upgrades and modifications to existing compression fleet); and

(c) an optimal combination of looping and compression (with upgrades and modifications to the current fleet (including the introduction of parallel operation), additional compressors at critical sites, and the continuance of series operation at other existing DBNGP compressor station sites).

7.5 A range of sub-options exists within each of these three options and, where relevant, the sub-options are being investigated.

7.6 One sub-option, which has been investigated for each of the three broad options, is the use of "active cooling" at compressor stations.

7.7 Active cooling increases the power output of a gas turbine driver by lowering the temperature of the air thus increasing its thermal efficiency. This may be achieved by air intake cooling using refrigeration.

7.8 Active cooling has recently become a viable means of enhancing pipeline capacity as escalating steel costs have made additional looping less attractive. However, it is less viable in locations where water is scarce or expensive to transport.

7.9 Each of the three broad options for expansion is discussed in the paragraphs which follow. In each case, the expansion has been designed to provide an additional 310 TJ/d of full haul capacity.

Option 1 - Complete looping

7.10 The "complete looping" option relies, primarily, on completing the looping of the DBNGP to provide the additional capacity for Stage 5.

7.11 The high Stage 5 gas flows will, however, require, in addition to the looping, significant modifications to existing facilities. In particular, compressor units currently configured to operate in series are either redundant and must be replaced with new compressors or significant restaging must be carried out to accommodate the higher flows. Furthermore, scrubbers, after-coolers and power generation equipment at existing compressor stations must be upgraded to remove the capacity constraints they impose with the higher Stage 5 flows.

7.12 The New Facilities required for "complete looping" to provide 310TJ/day of additional full haul capacity, and the investment in those facilities, are shown in the table on the following page.

7.13 The nature of the work to be undertaken for the looping component of the option would be comparable to the scope of the looping work being undertaken as part of the Stage 4 project.

7.14 The modifications required for the compressors would be as follows:

(a) existing Solar Mars C505 compressor bodies (in units at Compressor Stations 1,3, 5 and 8) cannot be operated in series or parallel under Stage 5 flow conditions; they cannot be retained in service, and have to be replaced with new compressor units; and

(b) existing Solar Mars units with C652 and C452 bodies (installed during the Stage 2 and Stage 3A expansions) can be operated in series (the current configuration), but will require significant restaging.

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7.15 In these circumstances and in order to provide 310 TJ/day of additional full haul capacity, the "complete looping" design requires, in addition to the pipeline looping shown in the table above:

(a) the installation of a new 7 MW unit and conversion of all units at CS10 to parallel operation and restaging;

(b) replacement of all C505 compressor on Solar Mars units at Compressor Stations 1, 3, 5 and 8 with C652 compressors and retention of series operation;

(c) retention of compressor units in series configuration at Compressor Stations 2, 4, 6, 7 and 9, but with restaging of the compressors wheels;

(d) upgrading of scrubbers, after-coolers and gas engine alternators (requirement to be confirmed by review) at every existing compressor station; and

(e) active cooling on all compressor units.

Option 2: Mid-line compression

7.16 Engineering design work has indicated that a Tranche 1 capacity requirement of 310 TJ/d could be provided by:

(a) Looping with 908 km of 26 inches diameter loop line;

(b) and nine 10 MW compressors at nine new compressor stations intermediate between existing stations.

7.17 The New Facilities required for "mid-line compression", and the investment in those facilities, are shown in the following table.

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7.18 The "mid-line compression" option requires, in addition to the pipeline looping shown in the table above:

(a) the installation of nine (9) additional compressors to be located at the midline compressor stations between CS1 and CS9;

(b) the installation of a new 7 MW compressor unit and conversion of all units at CS10 to parallel operation, and restaging;

(c) replacement of all C505 compressors on Solar Mars units at Compressor Stations 1, 3, 5 and 8 with C652 compressors and retention of series operation;

(d) retention of compressor units in series configuration at Compressor Stations 1, 2, 3, 4, 6, 7 and 9, but with restaging of the compressors as recommended by Solar Turbines;

(e) upgrading of scrubbers, after-coolers and gas engine alternators (requirement to be confirmed by review) at every existing compressor station; and

(f) active cooling on all compressor units.

Option 3 - Optimization: looping and compression

7.19 For reasons outlined later in this submission, this is the preferred option currently under consideration by DBP for providing 310TJ/day of full haul capacity.

7.20 The "complete looping" and "mid-line compression" options described above are the extremes of a range of options for pipeline expansion. Within this range are other combinations of looping and compression which have the potential to provide the required additional capacity. DBP has sought to identify, within the range (considering, at this time, active cooling as a sub-option), an optimal combination of looping and compression. (DBP notes that active cooling reduces the length of looping required.)

7.21 The New Facilities required for "looping and compression", and the investment in those facilities, are shown in the table on the following page.

7.22 The "optimized design" requires, in addition to the pipeline looping shown in the table below:

(a) new 10 MW compressor units at Compressor Stations 1, 3, 5 and 8 in parallel configuration;

(b) the installation of a new 7 MW compressor unit and conversion of all units at CS10 to parallel operation and restating;

(c) upgrading of scrubbers, after-coolers and gas engine alternators (requirement to be confirmed by review) at existing compressor stations;

(d) installation of active cooling on large compressor units at Compressor Stations 2, 4, 6, 7 and 9; and

(e) restaging of compressors at Compressor Stations 2, 4, 6, 7 and 9 (as recommended by Solar Turbines for Mars units, and by GE for PGT units).

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Comparison and preferred option

7.23 While the Board of DBP is yet to formally approve a preferred option, DBP management, together with its asset manager Alinta Network Services, has considered various options. However, before options for the Stage 5 expansion could be considered by DBP, they are required to meet the following criteria:

(a) The expansion was capable of being built and commissioned in time to meet the timing requirements of shippers.

(b) The expansion had to meet the reliability criteria required as a result of pre-existing contracts.

(c) The expansion had to meet certain key internal financial benchmarks, such as compliance with key bank covenants.

7.24 In comparing the options to select the preferred option, DBP has applied the following assessment criteria:

(a) The option that could be designed, constructed and commissioned for the lowest capital cost would be preferred.

(b) To the extent that there was no clear preferred option as a result of the assessment under paragraph (a), the option which required expending the lowest operating costs would be preferred.

(c) The extent to which the configuration could be adjusted in the event that some of the key assumptions for the project were to change.

7.25 Of the 3 options outlined in this section, option 2 (midline compression) was considered the inferior option based solely on a consideration of the capital cost estimate. It should be noted however, that in addition, the operating costs for this option would be higher than the other options because it involves the construction of additional compressor units, therefore increasing the fuel gas costs of the pipeline.

7.26 The first option (that is, full looping) was considered to be less preferable to the other option (that is, option 3) because it would require an additional $50m of capital expenditure. In addition, consideration is to be given to the practicalities and the disruption levels associated with the replacement of redundant C505 compressors while maintaining the existing level of transportation service. This option will involve significant shutdowns of the existing compressor units which would result in unprecedented and supply restrictions to shippers on the DBNGP. This is considered by DBP to be unacceptable to shippers.

7.27 The option described above as the “optimized design” is the lowest capital cost option. DBP submits that, through the way in which it has been developed, the costs associated with this option do not exceed the amount that would be invested by a prudent service provider acting efficiently in accordance with accepted good industry practice.

7.28 Furthermore, DBP has developed this option so as to allow low cost expansion when further demand for pipeline capacity materializes by reconfiguring the 3 compressor units in parallel operation Compressor Stations 1, 3, 5 and 8 to support the new high pressure designed loop to subsequently be operated at pressures than those of the existing

mainline. DBP has been concerned to achieve the lowest sustainable cost option of delivering gas transportation services both in the short run and in the long run.

Range of costs and cost breakdown for preferred option

7.29 As previously outlined in this submission, given the stage of development of this project DBP has not been able to refine its cost estimates for every element of the preferred option for the proposed Stage 5 expansion to such a level where, as a reasonable and prudent service provider, it could provide a single cost estimate for each element. Accordingly, DBP is only able to provide an estimated range of costs for certain elements of the Stage 5 expansion.

7.30 The following table outlines the costs for the various elements of the preferred option and the elements for which ranges of values have been adopted.

Dampier to Bunbury Natural Gas Pipeline
Stage 5 expansion
New Facilities Investment (real, 31-Dec-2005)

		Low	High
Looping			
Mainline North	$m	1,111.30	1,170.14
Mainline South	$m	58.82	62.14
Compression			
Mainline North	$m	111.54	111.13
Mainline South	$m	29.05	28.94
Compressor station upgrading	$m	101.66	103.61
Active cooling	$m	17.43	17.36
Restaging	$m	27.30	27.20
Total	$m	1,457.10	1,520.53

7.31 The following table then breaks down the cost estimates for the low end of the range of the preferred option in accordance with the cost categories against which DBP reported for the stage 4 forecast cost estimates in the proposed revised Access Arrangement (it is also noted that these categories are those set out in the Standard Shipper Contract for the purposes of recording the costs associated with each expansion that is undertaken under such contracts).

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Section 8.17 issues: economies of scale and scope

7.32 Section 8.17 of the Code requires that, in the administration of section 8.16(a)(i), the ERA consider whether:

(a) the New Facilities exhibit economies of scale or scope, and the increments in which capacity can be added; and

(b) the lowest sustainable cost of delivering services over a reasonable period may require the installation of New Facilities with capacity sufficient to meet forecast sales of services over that period.

7.33 Gas transmission pipelines generally exhibit economies of scale. These economies of scale arise principally because of indivisibilities in equipment.

7.34 Economies of scope arise where fixed costs can be spread over a wider range of services. Expansion of the capacity of the DBNGP will not widen the range of services which can be offered by DBP, and scope economies are of little or no relevance for the Stage 5 expansion.

7.35 Economies of scale are important in assessing the pipeline expansion options. Both the addition of compression, and pipeline looping, have high initial set-up costs, and average costs which decline as additional capacity is provided using the same facilities.

7.36 In the case of compressor units, there is also usually some degree of indivisibility: addition of a single compressor provides a fixed amount of additional capacity which may, at the time the compressor is installed, exceed the demand for capacity. In planning for least cost expansion, choices may then have to be made between a compressor which can satisfy the current requirement for additional capacity, and addition of further compressors when the requirement for capacity rises, and the initial installation of a larger compressor unit which will satisfy increased requirements for capacity over some future period.

7.37 These issues are not of importance for the Stage 5 expansion. The addition of compression alone will not provide the capacity which is now required, and the DBNGP must also be looped. Looping, unlike the addition of compressor units, has a high degree of divisibility. The length of looping required can be determined to meet a specific requirement for capacity. If that requirement for capacity increases (or decreases), the length of looping required can be increased (or decreased) to provide, more or less exactly, the capacity that is required.

7.38 DBP's preferred option for Stage 5 – the "optimized design" – does not provide capacity over and above what is needed to meet the requirements of the applications received from shippers, and no consideration has been given to the installation of New Facilities with capacity sufficient to meet forecast sales of services over a reasonable future period.

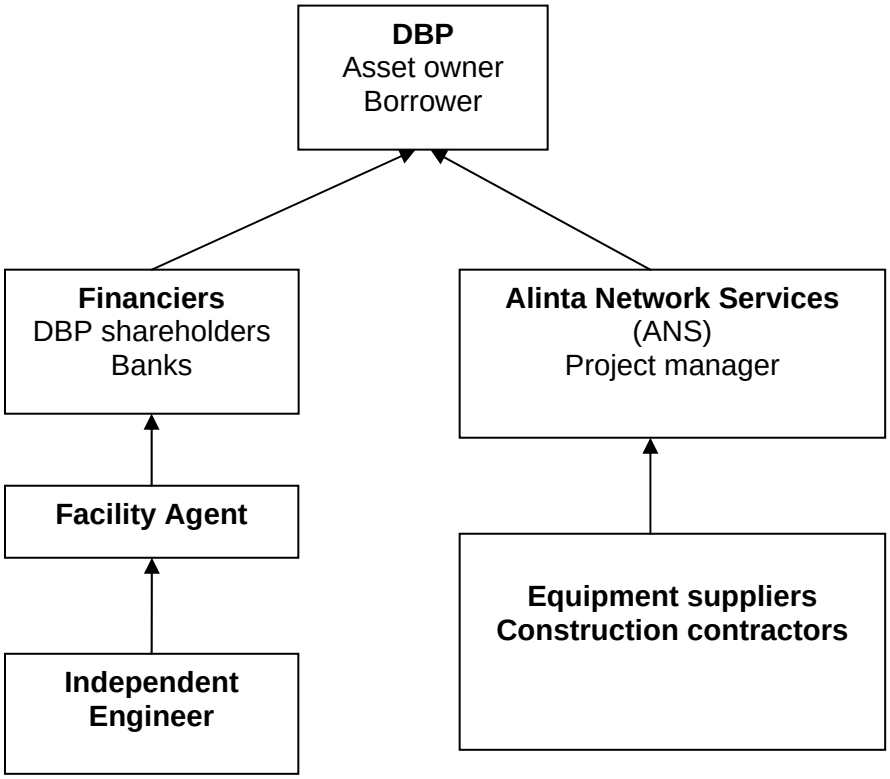
7.39 DBP has, however, been concerned to achieve the lowest sustainable cost of delivering services, not only in responding to the applications for capacity which it now has from shippers, but also in the expectation that further expansion of the DBNGP will be required once Stage 5 has been completed.

7.40 The "optimized design" provides for three compressor units (in parallel configuration) at each of Compressor Stations 1, 3, 5 and 8, and for looping, and other pipework and equipment which is rated for operation at pressures up to 10.2 MPa. This will allow, in the future, expansion by completion of the looping of the DBNGP, and the operation of a dual pipeline system with the looped line able to be operated at higher pressures than the existing DBNGP mainline. In the longer term, the new looped line can be expanded with further compression.

Project organization and management

7.41 The Stage 5 expansion of the DBNGP will be a major engineering project. The principal participants in the project are shown in the following diagram.

DBNGP Stage 5 expansion: project organization



7.42 DBP, as asset owner:

(a) will be the party contracting with the financiers, and will be primarily responsible for the management of the financing arrangements;

(b) will be the party entering into all major construction contracts, in order to comply with the terms of the financing agreements;

(c) is the party to whom all licences and authorisations will be issued;

(d) will be responsible for all communications with government; and

(e) will be responsible for all economic regulatory issues arising from the proposed expansion program.

7.43 The Facility Agent will co-ordinate and manage all issues relating to Stage 5 financing as agent for the Financiers. DBP will be the primary interface with the Facility Agent.

7.44 The Facility Agent will appoint an Independent Engineer required under the financing arrangements. The Independent Engineer is to verify key project information prior to the release of funds by the Facility Agent to DBP. The Independent Engineer will liaise with both DBP and Alinta Network Services (the Stage 5 project manager) to certify the phases of the project for the Financiers.

7.45 Alinta Network Services (ANS) has expertise in the construction and operation of gas transmission pipelines, and in the provision of corporate services for pipeline businesses. Subject to the terms and conditions of the Operating Services Agreement ("OSA") it has

with DBP, ANS will manage the Stage 5 expansion, ensuring that additional capacity is available when it is required by shippers.

7.46 A Project Director appointed for Stage 5 reports to the Chief Operating Officer of ANS.

7.47 The Project Director:

(a) has overall responsibility for project direction and progress against an approved workplan for Stage 5 (setting out the scope of the project, the budget, project timeframe, occupational health, safety and environmental issues, and client service requirements);

(b) directs project team, and any other ANS activity required for project delivery;

(c) monitors and controls performance against project key performance indicators;

(d) with DBP, negotiates procurement and construction contracts;

(e) develops and maintains project management reporting, and reports on trends, issues and productivity impediments to DBP and its Board on a timely basis;

(f) ensures that all DBP and Alinta Corporate policies and procedures are implemented and followed.

7.48 The Project Director has the resources of:

(a) Project office:

(i) manages project schedule and processes;

(ii) manages project communications;

(iii) assists with the development of the detailed workplans for project workstreams;

(iv) ensures timely resolution of workstream issues and risks;

(v) provides quality control;

(vi) provides a central repository for all project documentation;

(b) Gas modelling group:

(i) detailed hydraulic modelling of all capacity scenarios to ensure that the proposed work schedule will enable all commitments to shippers to be met;

(ii) input into project technical specifications;

(iii) liaise with party providing independent verification of modelling/Independent Engineer (as appropriate);

(iv) develop of detailed budget information for project;

(c) Project Manager – Compression:

(i) manages and co-ordinates delivery of compressors from suppliers, including TCE, schedule, authority to construct certification, HELM

(ii) interfaces with EPCM contractor

(iii) provides weekly report to Project Director;

(d) Project Manager - Pipeline Looping:

(i) manages pipe delivery from mills, pipe coating, and the transportation of pipe to site (ensuring suitable vessels etc are utilised to minimise risk of damage to pipe).

(ii) interfaces with EPCM contractor, and construction contractor regarding pipe installation;

(iii) provides weekly report to Project Director;

(e) Health, safety and environment group: ensures all aspects of the project comply with the safety case, environmental policy and cultural policy;

(f) Project finance group:

(i) tracks actual spend against forecast spend;

(ii) manages of DBNGP bank account;

(iii) preparation of monthly and six monthly operational and financial reports;

(iv) liaises with internal audit processes;

(v) manages day to day transaction services;

(g) Project commercial group:

(i) negotiates terms and conditions for new contracts;

(ii) manages alliance contracts;

(iii) manages construction contracts;

(iv) assists with tendering processes (which will be managed by the Contracts Administration group within ANS);

(v) interface with DBP in relation to OSA terms and conditions.

Scope of work: new compressor units at Compressor Stations 1, 3, 5 and 9

7.49 Mechanical:

(a) supply and install 10 MW turbine/compressor unit complete with on skid enclosure;

(b) supply and install remote lube oil cooler for new turbine/compressor unit;

(c) supply and install fuel gas filter rack for new turbine/compressor unit;

(d) supply and install below ground waste water transfer tank;

(e) supply and install new double skinned above ground lube oil storage/waste water collection tank complete with vacuum transfer pump for new turbine/compressor unit;

(f) supply and install air inlet filter/ducting for new turbine/compressor unit; and

(g) supply and install exhaust silencer/ducting for new turbine/compressor unit.

7.50 Piping:

(a) compressor process piping:

(i) supply and install suction and discharge piping for new compressor unit;

(ii) supply and install new check valve in the station header between tie-in for new compressor suction and the station after cooler; and

(iii) supply and install recycle piping for new compressor;

(b) waste water piping: supply and install waste water drain piping between new compressor enclosure and new transfer/collection tanks;

(c) lubricating oil piping: supply and install lubricating oil piping from turbine/compressor unit to lubricating oil coolers;

(d) fuel gas piping: supply and install fuel gas piping (including filter and PRV's) to new turbine.

7.51 Instrument gas piping:

(a) supply and install instrument gas pressure reduction skid for the new turbine/compressor unit; and

(b) supply and install instrument gas piping to instrument gas consumer points associated with the new turbine/compressor unit.

7.52 Civil and concrete:

(a) clear ground, prepare finished ground levels, and excavate and backfill for new turbine/compressor installation;

(b) install concrete footings for new turbine/compressor unit and enclosure, turbine inlet filter and ducting, turbine exhaust silencer, enclosure ventilation inlet filter and ducting, and enclosure ventilation exhaust;

(c) install concrete ground slab apron around new turbine/compressor enclosure;

(d) install concrete raft footing for new turbine/compressor lube oil cooler;

(e) install concrete raft footing for the fuel gas skid associated with the new turbine/compressor;

(f) install concrete raft footing for the instrument gas skid associated with the new turbine/compressor;

(g) install concrete footings for pipe supports, valve platform and pipe crossovers for process gas piping associated with the new turbine/compressor installation;

(h) excavate and backfill trenches for piping, cable ducts and pits, and electrical, instrument and control cabling; and

(i) install concrete footings for off-site fabricated 'local' unit switchgear and control room.

7.53 Structural:

(a) supply and install new off-site fabricated 'local' unit switchgear and control room;

(b) supply and install structural steel to support turbine inlet filter and enclosure ventilation inlet filter associated with the new turbine/compressor unit; and

(c) supply and install structural steel to support the lubricating oil cooler associated with the new turbine/compressor unit.

7.54 Electrical:

(a) supply and install new unit MCC c/w with the following drives:

(i) new compressor unit starter motor feeder and Solar supplied VFD;

(ii) new compressor enclosure DOL ventilation fans;

(iii) new compressor unit lube oil cooler fans;

(iv) new compressor unit lube oil pump;

(v) new compressor lube oil sump decant pump;

(vi) miscellaneous ventilation/air conditioner feeders; and

(vii) new compressor enclosure lighting and small power panel feeder;

(b) cabling, ducts and ladders:

(i) supply and install power, control and instrumentation cabling to new turbine/compressor unit and ancillary drives;

(ii) supply and install A/G cable ladder system within switchgear / control room; and

(iii) supply and install U/G cable duct system to the new compressor enclosure.

(c) 24V DC power supply:

(i) install Solar supplied 24V DC UPS system in switchgear/control room;

(ii) supply and install new compressor unit 24V DC distribution board; and

(iii) modify existing station 24V DC system to accommodate new equipment;

(d) 110V DC power supply: modify existing 110V DC power supply system to provide feeder to the new turbine/compressor unit emergency lubricating oil pump;

(e) lighting and small power:

(i) supply and install new turbine/compressor unit lighting and small power distribution panel;

(ii) supply and install lighting and small power to new turbine/compressor unit enclosure and surrounds;

(f) earthing and cathodic protection:

(i) modify existing cathodic protection TRU to provide new circuits;

(ii) supply and install cathodic protection cables and test points; and

(iii) supply and install new earthing and lightning protection to new turbine/compressor enclosure and surrounds;

7.55 Instrumentation and control systems:

(a) supply and install pressure, differential pressure, temperature and level transmitters; indicators and switches to the new turbine/compressor unit off-skid piping and ancillary equipment;

(b) supply and install new ultrasonic flow meter in pipeline at entrance to compressor station;

(c) supply and install additional hardware and modify existing unit control systems to suit installation of additional turbine/compressor unit; and

(d) supply and install additional ACF/load shed PLC hardware and cabinet, to be integrated with existing ACF/load shed PLC;

7.56 SCADA and telecommunications:

(a) modify and upgrade existing SCADA system to suit installation of additional compressor unit and associated station equipment; and

(b) provide additional public address and telephone circuits for new facilities;

7.57 Fire and gas systems:

(a) supply and install new fire and gas system for new turbine/compressor unit; and

(b) supply and install new fire and gas system for unit switchgear and control room.

Scope of work: pipeline looping

7.58 Supply all equipment, materials, labour and camp facilities necessary to construct the 26” loop sections, including:

(a) prepare areas for line pipe stockpiles near the right-of-way;

(b) receive and stockpile line pipe;

(c) survey the right-of-way and pipeline route;

(d) clear and grade;

(e) string the line pipe;

(f) weld and non destructive test joints;

(g) coat joints;

(h) trench;

(i) tie-ins;

(j) lower in, repair coating;

(k) backfill;

(l) construct crossings;

(m) hydro test, clean and dry the pipeline;

(n) reinstate and rehabilitate the right-of-way, borrow pits and camp areas;

(o) remove and dispose of surplus material from the right-of-way;

(p) carry out DCVG survey; and

(q) carry out geometry pig survey.

7.59 Fabricated pipework: fabricate and install:

(a) main line valves:

(i) fabricate valve assembly, including by-pass;

(ii) pre-test by hydrostatic testing;

(iii) coat uncoated elements and repair coating on equipment coated; and

(iv) deliver to site and tie-in into the pipeline;

(b) other valve assemblies:

(i) fabricate valve assembly, including by-pass;

(ii) pre-test by hydrostatic testing;

(iii) coat uncoated elements and repair coating on equipment coated; and

(iv) deliver to site and tie-in into the pipeline.

(c) pipework;

(d) insulating joints and flanges;

(e) pig receiver facilities including:

(i) installation of isolation valve;

(ii) installation of DN300 line and valve; and

(iii) installation of small bore pipe work;

(f) tie-in to the existing DBNGP:

(i) weld split tee;

(ii) assist in carrying out hot-tap operation;

(iii) install the isolation valve; and

(iv) install connection between the existing pipeline and the end of loop.

7.60 Civil and structural:

(a) construct valve supports where required; and

(b) construct valve compounds, including fences and site works.

(c) cathodic protection: provide cable connections for test posts;

7.61 Instrumentation and controls: provide pressure and temperature transmitters, lay cables, connect with the existing facilities at main line valve sites.

Contracting strategy

7.62 Once DBP has identified the lowest sustainable cost expansion path for Stage 5, it must ensure that the expanded capacity will be provided at – or below – the forecast cost, and on time. An appropriate contracting strategy is essential to achieving these outcomes.

7.63 As a prudent service provider, acting efficiently, DBP does not maintain its own engineering and technical staff capable of undertaking all of the design, development, acquisition and construction of facilities required to expand the capacity of the DBNGP. For the technical services required for pipeline expansion, DBP draws on the technical expertise of ANS, via the Operating Services Agreement (noted in paragraph 7.45 above), and on its alliances with other suppliers of equipment and engineering services. This has become standard industry practice within the pipeline industry.

7.64 A range of methods is available for securing the services of suppliers of equipment, and of engineering and technical services. At one end of the spectrum, that equipment or those services may be secured through fixed price contracts with suppliers. Somewhere along this spectrum is the method of engaging a supplier under a schedule of rates contract so that the contractor is better able to exclude contingencies from its pricing. At the other end of the spectrum, equipment, and engineering and technical services, are secured through relational, or alliance, contracts

7.65 In alliance contracting, the party requiring equipment, or engineering and technical services, forms an alliance with the contractor, enabling both parties to work co-operatively to deliver required facilities of the desired quality at the best possible price.

Alliance contracting delivers these outcomes through its facilitation of knowledge flow between the parties, and the provision of incentives for the sharing of knowledge.

7.66 Alliance contracts provide beneficial cost and service related outcomes relative to lump sum contracts (even when those contracts are the results of tender process) for the following reasons:

(a) the supplier is able to mobilise quickly;

(b) the buyer of services (that is, DBP) can exert a high level of control over any contract work carried out by the supplier (that is. the alliance partner);

(c) the buyer can more readily change the delivery approach to accommodate project changes;

(d) alliance partners usually have a good understanding of projects and risks;

(e) there is the greatest likelihood of meeting tight deadlines;

(f) under lump sum or schedule of rates contracts, there is a steep learning curve for the supplier which will be factored into the pricing, resulting in an increased price for service provision;

(g) lump sum and schedule of rates agreements take time to formalise, and this may not be appropriate in circumstances where (as is the case with Stage 5) a New Facility must be designed, and constructed or acquired, in a short period; and

(h) specification of the full scope of work for inclusion in a lump sum or schedule of rates contract takes time, and the buyer bears the risk of later scope change.

7.67 DBP has, through its Stage 5 project manager, ANS, relationship contracts with:

(a) WorleyParsons, for engineering, procurement and construction management (EPCM) related services;

(b) Solar Turbines, for compressor-related services;

(c) HPS for construction services; and

(d) MetalOne/Mitsubishi for manufacture, coating transport, delivery of pipeline.

7.68 These relationship contracts, whilst not exclusive, will be essential, not only to ensuring the expansion of capacity at lowest cost. They will also be essential to ensuring timely completion of Stage 5, allowing DBP to make available the additional capacity when it is required by shippers.

7.69 The benefits of adopting an alliance contracting strategy have been demonstrated in DBP's Stage 4 expansion of the DBNGP:

(a) the accumulated knowledge of the project managers, designers and constructors has been passed on from one phase of the work to the next phase, allowing better optimization in facilities design as lessons learned are continuously incorporated into ongoing work, and enhancing productivity in project execution;

(b) the speed with which the alliance team has been able to respond to emerging issues and changes has been exceptional, allowing work to begin quickly and progress rapidly without the owners being burdened with the need to prepare water-tight scopes of work, and to negotiate remuneration;

(c) an "open" environment has permitted different project participants (whether from ANS, WorleyParsons or HPS) to perform project roles on a "best fit" basis for each project task identified, and to complement each other to enhance the overall effectiveness of team performance;

(d) the project team has been able to focus on the prompt and effective implementation of design changes required during project execution, rather than on the preparation of extensive documentation for change justification (in adversarial – rather than alliance – contracting, such documentation is essential for negotiating changes to costs and schedule, but it has little residual value once cost and schedule issues are resolved);

(e) significant cost and schedule benefits have been achieved: although Stage 4 is being executed in an extremely buoyant market with rapidly escalating prices, the first two stages of the project (work at Compressor Stations 3 and 9) have been completed within baseline budget, and within baseline schedule, with a significant portion of the project contingency unused;

(f) all project participants, including DBP's representatives, work as part of an integrated team, rather as separate groups, each with its own supervision and management structure (as in traditional contracting), and this has eliminated duplicate functions across participant organizations and reduced administrative costs;

(g) under alliance contracting, there is no incentive for any project participant to "cut corners", and this has directly contributed to higher quality work in project execution, and to an outstanding safety record while delivering a fast track project under difficult conditions.

7.70 Although DBP proposes to continue its relationship arrangements for Stage 5, significant part of the materials requirement and construction work will still have to be sourced through contracting and tender processes (see paragraphs 7.73 to 7.75 below). **[deleted – confidential & commercial in confidence]**:

[deleted – confidential & commercial in confidence]

7.71 **[deleted – confidential & commercial in confidence]**.

7.72 The above is consistent with the requirements of the Operating Service Agreement between the DBP and ANS, under which contracts are to be the subject of competitive tendering where deemed appropriate by both DBP and ANS.

7.73 Requests for tender may only be issued to those parties satisfying Clause 5.8(c) of the Operating Services Agreement, namely contractors that:

(a) are properly and fully qualified and authorised to carry out the task;

(b) are reputable in the industry;

(c) are sufficiently creditworthy to meet the obligations and liabilities incurred by them in connection with the work to be performed; and

(d) carry such professional indemnity and other insurance as is prudent and customary given the nature of the work to be performed.

7.74 Evaluation of tenders will involve an assessment of each tender against the following criteria:

(a) commercial terms and provisions;

(b) technical conformance; and

(c) value, including, but not limited to, the following:

(i) financial elements (direct);

(ii) life cycle costs analysis;

(iii) product liability coverage;

(iv) total supply chain management;

(v) quality processes and systems (TQM and accreditation);

(vi) customer focus and responsiveness;

(vii) reliability of performance; and

(viii) financial capability of company.

7.75 Regardless of whether a contractor is engaged pursuant to an alliance agreement, or through a competitive tender process, it is a requirement of the Operational Services Agreement that the standard of work to be performed must:

(a) in all material respects comply with all applicable laws (including occupational health and safety legislation), codes, policy, regulations or orders or governmental bodies having jurisdiction;

(b) be in accordance with the terms and conditions of all material contracts and applicable licences;

(c) generally be in accordance with good industry practice;

(d) be undertaken in a manner which achieves the key performance indicators;

(e) be undertaken in a timely, commercial, prudent and reasonable manner;

(f) comply with the asset management plan for the DBNGP; and

(g) undertaken with the required level of expertise (namely holding all material authorisations and accreditations).

7.76 For Stage 5, DBP is currently proposing to make use of its alliance relationships for the sourcing of compressors, and for some construction work. Other equipment and construction work will be sourced by restricted tender process.

7.77 Compressor units will be sourced from alliance partner Solar Turbines because:

(a) **[deleted – confidential & commercial in confidence]**;

(b) Solar units which would be used for Stage 5 have a proven design, and have been independently service tested;

(c) testing and commissioning procedures for the Solar units are established and well understood by ANS personnel;

(d) with a number of the same units already in service on the DBNGP, the spare parts inventory can be optimized;

(e) an alliance relationship with Solar allows flexibility with front end documentation, and a later decision on specific requirements;

(f) the specification for Solar units for Stage 5 can use the specification for identical units sourced for Stage 4, reducing engineering costs, and reducing the time for decision making by at least 12 weeks; and

(g) there is an opportunity to negotiate the purchase of new units at 2004 prices, and to make use of reduction multipliers;

7.78 Compressor unit installation work at Compressor Stations 1, 3, 5 and 8 (the sites at which new units are to be installed) will be put out to competitive tender. Compressor station pipework, fittings and flanges will be sourced from Metal One (a Mitsubishi subsidiary) subject to satisfactory benchmarking of the proposed costs against Stage 4 costs for similar items, and all other compressor station equipment (scrubbers, aftercoolers, gas engine alternators, etc.) will be sourced by through restricted competitive tender processes.

Stage 4 experience: on budget and on time

7.79 DBP is currently expanding the capacity of the DBNGP to provide an additional 127 TJ/d of full haul T1 capacity. The expansion project – Stage 4 – is now well advanced (in fact, at the time of lodging this submission, it is 50% complete), and is scheduled for completion by 1 January 2007.

7.80 Stage 4 comprises:

(a) the installation of seven new 10 MW compressor units, one at each of Compressor Stations 1, 2, 3, 4, 6, 7 and 9, and one 7 MW compressor unit at Compressor Station 10; and

(b) construction of 194 km of pipeline looping in segments downstream of Compressor Stations 1 to 9, and 23 km of looping downstream of Kwinana Junction.

7.81 The 10 MW compressor units being installed are Mars units supplied by Solar Turbines, and the 7 MW unit is a Taurus unit, also supplied by Solar Turbines.

7.82 In addition to being on schedule, Stage 4's overall costs are also forecast to be on budget.

7.83 The proposed costings for Stage 5 have, where available, been estimated having regard to unit costs for the Stage 4 costs for the following reasons:

(a) The largest contract for Stage 4 has been the subject of a competitive tender process (being the looping construction contract).

(b) Contracts entered into for the supply of compressors have been benchmarked against other potential suppliers, with the results confirming that the unit cost estimate for each compressor is the lowest from potential suppliers.

(c) The costs for Stage 4 are to be passed on to shippers under the Standard Shipper Contract. However, in doing so, DBP is required, under the Contracts, to seek to minimise the capital costs of the expansions, without derogating from its obligations to act as a reasonable and prudent person and to follow standard industry practice.

Compliance with section 8.16(a)(i)

7.84 As noted earlier in this submission, section 8.16(a)(i) of the Code sets out two conditions which must be met by New Facilities Investment if that investment is to be considered prudent and, therefore, eligible for addition into the Capital Base. These two conditions are:

(a) The amount of New Facilities Investment does not exceed the amount that would be invested by a prudent service provider acting efficiently, in accordance with accepted good industry practice; and

(b) The amount of New Facilities Investment has been established in a way which allows the service provider to achieve the lowest sustainable costs of providing service.

7.85 DBP submits that its forecast of New Facilities Investment for the Stage 5 expansion of the DBNGP meets the first of the two requirements of section 8.16(a)(i). That is, DBP's forecast does not exceed the amount that would be invested by a prudent service provider acting efficiently in accordance with accepted good industry practice.

7.86 As a prudent service provider, acting efficiently, DBP does not maintain its own engineering and technical staff capable of undertaking all of the design, development, acquisition and construction of facilities required to expand the capacity of the DBNGP. DBP has, therefore, put into place a project organization and management structure in which an experienced project manager, ANS, and alliance partners, are responsible to DBP for the detailed engineering design, project planning, and execution of Stage 5. DBP is using a similar project organization and management structure for the Stage 4 expansion of the DBNGP, and its experience to date indicates that these arrangements have the capability to deliver the additional capacity of Stage 5 on budget and – critically, given the expansion obligations of DBP's Standard Shipper Contract – on time.

7.87 ANS has, with the assistance of the alliance partners (principally Solar Turbines and EPCM contractor, WorleyParsons), examined a range of options for Stage 5.

7.88 Option design was constrained by the current configuration of the DBNGP which, on completion of the Stage 4 expansion, will be a 26 inches diameter main line partially looped with 26 inches diameter pipe, with (mostly) 10 MW compressor units operating in series at nine compressor stations. With the current configuration of compressors, a further significant increase in capacity – as is required for Stage 5 - can only be achieved

with further looping of the pipeline. Preliminary investigations ruled out looping with larger diameter pipe. The shorter loop lengths made possible with 30 inches or 36 inches diameter pipe did not warrant the higher pipe cost, and the higher costs of pipeline construction resulting, in part from the fact that equipment for handling larger diameter pipe is not available in Australia, would have had to be brought in from overseas).

7.89 Three broad options for Stage 5, each based on looping with 26 inches diameter pipe, and additional compression, were identified and have been examined in detail. Each of these expansion options makes use of pipeline technologies with which DBP, and its project manager and alliance partners, have gained experience in connection with previous expansions of the capacity of the DBP. Although the scale of Stage 5 is larger than the scale of either of the two previous expansions (Stage 4 and Stage 3A), the scopes of work for the pipeline looping and additional compression now required are not dissimilar to those of the earlier expansions.

7.90 DBP and its project manager have not, however, remained entirely focused on existing looping and compression technology. Although it has not been used previously on the DBNGP, consideration has been given to the active cooling of compressor units. Active cooling is a viable means of enhancing pipeline capacity when escalating steel costs make additional looping less attractive.

7.91 DBP has estimated the cost of each of the three broad options identified for Stage 5, drawing on its current experience with the costs of its Stage 4 expansion. The option described above as – the "optimized design" – is the lowest cost option, and is now being refined. The estimated range of costs for the "optimized design" is DBP's forecast of New facilities Investment for the Stage 5 expansion of the DBNGP.

7.92 DBP submits that, through the way in which it has been developed, this forecast of New Facilities Investment for the Stage 5 meets the first of the two requirements of section 8.16(a)(i). That is, DBP's forecast range of costs does not exceed the amount that would be invested by a prudent service provider acting efficiently in accordance with accepted good industry practice.

7.93 Through its options analysis, DBP has sought to identify the lowest cost means of creating the additional pipeline capacity required from Stage 5. Furthermore, DBP has sought to create New Facilities which will allow subsequent low cost expansion when further demand for pipeline capacity materializes by reconfiguring compressor units for parallel operation, and by using loop line and other pipework and equipment which can subsequently be operated at higher pressures than the existing mainline. DBP has been concerned to achieve the lowest sustainable cost of delivering gas transportation services both in the short run and in the long run.

7.94 DBP submits that, through the way in which it has been developed, its forecast range of New Facilities Investment for the Stage 5 meets the second of the two requirements of section 8.16(a)(i). That is, DBP's forecast has been established in a way which allows the service provider to achieve the lowest sustainable costs of providing service.

7.95 DBP's forecast range of New Facilities Investment for the Stage 5 expansion of the DBNGP, therefore meets the requirements of section 8.16(a)(i) of the Code. It is eligible for inclusion in the Capital Base of the pipeline provided at least one of the tests of section 8.16(a)(ii) is satisfied.

8. SECTION 8.16(a)(ii)(A): ANTICIPATED INCREMENTAL REVENUE TEST

Application of the test of section 8.16(a)(ii)(A)

8.1 DBP has determined the present value of the Anticipated Incremental Revenue from the Stage 5 expansion of the DBNGP, and has found that it exceeds the high end of the range of forecast New Facilities Investment.

8.2 In applying the test of section 8.16(a)(ii)(A), DBP has used the volume and cost forecasts used to determine the reference tariff of the revised DBNGP Access Arrangement to calculate the reference tariff that would have applied if only the Stage 4 expansion had proceeded during the Access Arrangement Period. This tariff is, on DBP's interpretation of section 8.16(a)(ii)(A) (discussed in paragraphs 5.24 to 5.35 of this submission), the prevailing tariff to be used in calculation of the Anticipated Incremental Revenue from Stage 5.

8.3 The reference tariff that would have applied if only the Stage 4 expansion had proceeded during the Access Arrangement Period is:

Tariff	**Amount**
T1 Capacity Reservation Tariff	$0.879391/GJ MDQ
T1 Commodity Tariff	$0.117647/GJ

8.4 Anticipated Incremental Revenue is, as noted in paragraph 5.25 above, the difference between:

(a) the present value of the reasonably anticipated future revenue from the sale of services at the prevailing tariffs which would not have been generated without the incremental capacity; and

(b) the present value of the best reasonable forecast of the increase in non-capital costs directly attributable to the sale of those services.

8.5 To determine the reasonably anticipated future revenue from the sale of gas transportation service which would not have been generated without the incremental capacity of Stage 5, DBP has:

(a) applied the capacity reservation component of the prevailing tariff to the Stage 5 capacity forecast of 310 TJ/d; and

(b) applied the commodity component of the prevailing tariff to a forecast of throughput derived by applying to the capacity forecast, load factors similar to those assumed for determination of the reference tariff of the revised DBNGP Access Arrangement.

8.6 The anticipated future revenue was determined for periods of 10 years, 20, years, and 25 years from the beginning of 2008. It is discussed further below.

8.7 The increase in the non capital costs directly attributable to the increase in sale of the services which would not have been generated without the incremental capacity of Stage 5 is the sum of:

(a) the cost of any additional fuel gas expected to be used on the DBNGP in operating the New Facilities required to provide the expanded capacity of Stage 5; and

(b) the increase in other non capital costs incurred in operating the New Facilities required to provide that expanded capacity.

8.8 DBP has estimated the change in fuel costs using principles similar to those adopted for calculating the fuel costs used to determine the reference tariff of the revised DBNGP Access Arrangement. The following "fuel curve" was derived for the pipeline once Stage 5 was implemented (FLOW means the estimated throughput):

$$FUEL(TJ/d) = 0.0000004 \times FLOW^3 - 0.0007076 \times FLOW^2 + 0.5318607 \times FLOW - 132.8320907$$

8.9 The other non capital costs of the expanded pipeline system were assumed to be the average, over the period 2008 to 2010, of the other non capital costs used in Revised DBNGP Access Arrangement reference tariff determination. The increase in other non capital costs incurred in operating the New Facilities was, then, the increase relative to the other non capital costs used in determining the prevailing tariff. The other non capital costs used in determining the prevailing tariff were the other non capital costs used in Revised DBNGP Access Arrangement reference tariff determination, reduced by certain increases in field services costs after 2008. These increases were associated (in the estimates for the Revised DBNGP Access Arrangement) with the expanded pipeline system.

8.10 The results of applying the test of section 8.16(a)(ii)(A) to the low end, and the high end, of the range of forecast New Facilities Investment for Stage 5 are summarized in the following tables.

Section 8.16 (a)(ii)(A) test: low end of range of New Facilities Investment (real, 31-Dec-2004)			
Rate of return			7.24%
PV cumulative annual revenue increment			
	10 years	$m	1,012.832
	20 years	$m	1,535.561
	25 years	$m	1,687.984
PV annual non capital cost increment			
(at beginning of 2008)	10 years	$m	-18.692
	20 years	$m	6.002
	25 years	$m	19.756
Anticpated incremental revenue			
	10 years	$m	1,031.524
	20 years	$m	1,529.559
	25 years	$m	1,668.228
New facilities investment		$m	1,417.433
Difference			
	10 years	$m	-385.91
	20 years	$m	112.13
	25 years	$m	250.80

Section 8.16 (a)(ii)(A) test: high end of range of New Facilities Investment (real, 31-Dec-2004)			
Rate of return			7.24%
PV cumulative annual revenue increment			
	10 years	$m	1,012.832
	20 years	$m	1,535.561
	25 years	$m	1,687.984
PV annual non capital cost increment			
(at beginning of 2008)	10 years	$m	-18.692
	20 years	$m	6.002
	25 years	$m	19.756
Anticpated incremental revenue			
	10 years	$m	1,031.524
	20 years	$m	1,529.559
	25 years	$m	1,668.228
New facilities investment		$m	1,479.136
Difference			
	10 years	$m	-447.61
	20 years	$m	50.42
	25 years	$m	189.09

Compliance with section 8.16(a)(ii)(A)

8.11 For both the low and the high ends of the range of New Facilities Investment for Stage 5, the Anticipated Incremental Revenue (determined using the rate of return of the Revised DBNGP Access Arrangement as the discount rate):

(a) is less than the New Facilities Investment when Anticipated Incremental Revenue is calculated over a period of 10 years; and

(b) exceeds the New Facilities Investment when Anticipated Incremental Revenue is calculated over a period of 20 years or 25 years.

8.12 The Standard Shipper Contract provide for a term of 15 years with options for the shippers to extend the term of the contract by at least one 5 year period. In the case of the full haul Reference Service under the Access Arrangement, the minimum term for a contract that requires developable capacity to be developed to provide the service is 15 years.

8.13 Furthermore, it is unlikely that the Capacity which will be developed for Stage 5 will be unutilized within 20 years time. This is so, particularly given the nature of use to which the additional gas is likely to be put and the locations at which it is to be delivered. The gas to be supplied using the additional capacity is likely to be used primarily for electricity generation, minerals processing and growing residential and commercial purposes. The nature of these purposes and the location of some of the main supply points suggest that the end use of the gas will last significantly longer than 20 years.

8.14 In these circumstances, the Anticipated Incremental Revenue from the additional capacity provided by the Stage 5 expansion of the DBNGP exceeds the high end of the range of forecast New Facilities Investment. The forecast New Facilities Investment for Stage 5 satisfies the test of section 8.16(a)(ii)(A).

9. SECTION 8.16(a)(ii)(B): SYSTEM WIDE BENEFITS TEST

9.1 If the ERA does not agree that the forecast investment meets the requirements of section 8.16(a)(ii)(A) of the Code (or even if it does so agree), DBP submits that proposed expansion meets the requirements of section 8.16(a)(ii)(B) in that it affords system wide benefits.

9.2 DBP submits that in assessing the Request, in particular whether forecast New Facilities Investment offers system wide benefits, the ERA should adopt a broad approach to the interpretation of section 8.16(a)(ii)(B). Therefore, as to whether forecast investment affords system wide benefits, the ERA should take into account the following factors:

9.3 The following aspects of the above expansion obligations substantiate the system wide benefits of expansions that are to be undertaken pursuant to these obligations:

(a) All users are entitled to participate in the expansions.

(b) Because the expansions will be to satisfy full haul users, they will enhance the availability of capacity on the entire pipeline, for both full haul and part haul users.

(c) The mechanism by which shippers can require an expansion to be undertaken under the Standard Shipper Contract means that shippers will not be affected by unnecessary delays in accessing additional capacity.

(d) The ability of users and prospective users to access capacity on a certain and timely basis will benefit downstream markets, thereby creating the environment in those markets in which competition can be promoted.

9.4 The DBNGP expansion offers a range of benefits to users of gas. In a subsequent section of this submission, DBP argues that securing these benefits from Stage 5 is in the public interest. This is part of the system-wide benefits assessment.

9.5 Without the stage 5 expansion, there would be an increase in the frequency of curtailments of all shippers and therefore, the investment which results in higher Reference Tariffs justifies a sharing of the higher costs across all users.

9.6 While the tariff that will result from the Stage 5 expansion will increase from the tariff forecast following commissioning of Stage 4, the provision of additional capacity from the Stage 5 expansion should result in:

(a) lower cost generation of electricity;

(b) lower cost minerals processing;

(c) access to a wider range of potentially lower cost gas supplies; and

(d) increased security of energy supply in Western Australia.

9.7 **[deleted – confidential & commercial in confidence]**. DBNGP expansion has made possible, and will continue to facilitate, competition between suppliers of coal and gas for use as fuels in electricity generation.

9.8 **[deleted – confidential & commercial in confidence]**. Their commencement or expansion of production increases both employment opportunities and income levels in Western Australia.

9.9 Stage 5 will provide the pipeline capacity needed to allow DBP to continue to meet its existing contractual obligations as gas users take advantage of the opportunity to access gas at the new, broader specification. The ERA has concluded that with its higher levels of inert gases, and lower heating value requirements, the broader specification should enable new suppliers to enter the market, which, in turn will provide the incentives for existing suppliers to reduce the quality of the product they supply, and to reduce its cost by lowering the requirement for processing before delivery of the gas into the DBNGP.

9.10 The potential for additional pipeline capacity to make possible greater competition among producers supplying the Western Australian gas market, and to facilitate further development of the State's mineral resources and its minerals processing activities were reasons behind the inclusion of expansion obligations in:

(a) the Financial Assistance Agreement between the DBNGP owners and the State of Western Australia; and

(b) the undertakings given by the owners, to the Australian Competition and Consumer Commission, in accordance with section 87B of the Trade Practices Act.

9.11 The ERA should also give consideration to the extent to which a rejection of the Request might require a shipper to fund the investment in the expansion at a greater cost than what would otherwise be able to be secured by the Service Provider and the consequences of any delays to the commissioning of capacity that may be caused by shippers funding the expansion of capacity.

10. SECTION 8.16(a)(ii)(C): MEETING THE CONTRACTED CAPACITY OF SERVICES

10.1 To the extent that the Regulator does not consider that the Stage 5 expansion meets the requirements of sections 8.16(a)(ii)(A) or (B), DBP submits that there is part of the proposed New Facilities associated with the Stage 5 expansion which are necessary to maintain the safety , integrity or contracted capacity of Services on the DBNGP such that the requirements of section 8.16(a)(ii)(C) are met.

10.2 As has been previously outlined in this submission, all of the full haul capacity of the DBNGP that is to be provided for by way of the Stage 5 expansion will be the subject of pre-existing contracts. Although, it is noted that the definition in the Code of "Contracted Capacity" only refers to the contracted capacity of the pipeline as it is currently configured. On that basis, DBP does not believe it can rely on this part of the test to satisfy the requirements of section 8.16(a) in so far as the expansion involves the provision of additional capacity.

10.3 However, DBP submits that this part of the test can be relied on to the extent that the proposed expansion is providing for facilities which is designed to recover capacity that previously existed on the pipeline.

10.4 As has been previously noted, the existing capacity of the pipeline and that which will exist following the commissioning of the Stage 4 expansion project has been designed using an assumed "average" gas composition predicted by the current owners prior to their acquisition of the DBNGP. That composition does not reflect the actual composition that DBP has been experiencing nor does it reflect the composition of the gas that DBP expects to receive into the pipeline during the life of the investment of the Stage 5 expansion project. The result is that there is a reduction in the capacity of the DBNGP.

10.5 As has been noted earlier in this Submission the Stage 5 expansion has been designed assuming a composition consistent with the outer limit of the AA Specification. It assumes that all gas supplied for receipt into the DBNGP will be of this composition. Accordingly, there will be a requirement to provide for additional New Facilities to "recover" the capacity lost for Stage 4 due to the reduction in the gas composition.

10.6 However, it is difficult for DBP to precisely estimate these costs. This is because, if this was the sole reason for the expansion, more New Facilities to recover the capacity would be required than is currently being planned as part of a larger project that also involves the provision of additional capacity.

10.7 To the extent that the ERA needs to rely on this provision to be satisfied that the requirements of section 8.16(a) is met, DBP may be able to undertake an analysis to quantify these costs. However, to date, it has not done so.

11. FORECAST NEW FACILITIES INVESTMENT FOR STAGE 5 IS EXPECTED TO MEET THE REQUIREMENTS OF SECTION 8.16(a)

11.1 Based on the information contained in this Submission and the Request, DBP submits that:

(a) The proposed expansion option known as option 3 (optimized design) and the range of forecast costs associated with this option 3 (ie between $1,457,000,000 and $1,521,000,000) does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services on the DBNGP;

(b) The conditions in section 8.16(a)(ii)(A) are satisfied in respect of the range of forecast costs associated with Option 2 of the Stage 5 expansion project;

(c) The conditions in section 8.16(a)(ii)(B) are satisfied in respect of the range of forecast costs associated with Option 2 of the Stage 5 expansion project; and

(d) The conditions in section 8.16(a)(ii)(C) are satisfied in respect of the costs attributed to the New Facilities required to recover the lost capacity caused by the reduction in gas quality since July 2005.

Attachment 1 – Kimber Consultants Report

See Attached

Attachment 2 - Gas Composition since July 2005

[Deleted – confidential and commercial in confidence]