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Dear Tyson

DBP SUBMISSION TO ATCO DRAFT DECISION

DBNGP (WA) Transmission Pty Limited (**DBP**) is the operator of the Dampier to Bunbury Natural Gas Pipeline (**DBNGP**). DBP recently submitted an access arrangement revision proposal for the DBNGP Access Arrangement (**DBNGP AA Proposal**). While DBP has made detailed submissions to the ERA in support of its revision proposal, there are aspects of the ERA's draft decision (**Draft Decision**) on the Mid-West and South-West Gas Distribution System access arrangement revision proposal (**ATCO AA Proposal**) that are likely to be relevant to the ERA's assessment of the DBNGP AA Proposal. These related matters are:

- the ERA's determination of the rate of return for the ATCO AA Proposal;
- the labour escalation rate assumption used to determine forecast operating expenditure; and
- the ERA's rejection of significant amounts of forecast capital expenditure as conforming capital expenditure.

Accordingly, it is important that DBP makes submissions on these related matters in connection with both the ATCO AA Proposal and the DBNGP AA Proposal¹.

Following are DBP's submissions on these related matters.

Rate of Return Related Matters

There are two related matters in the Draft Decision concerning the rate of return which are dealt with in this submission. The first is the extent to which evidence of the actual rate of return on equity earned in the past by firms who have a level of systematic risk similar to that which the ERA has calculated for ATCO is to be used in the process of estimating the return on equity under the National Gas Rules (**NGR**).

The second of the related matters is the extent to which information from the return on debt is to be used to estimate the return on equity.

DBP considers that these matters are central to the process of estimating the overall rate of return for any access arrangement proposal so as to ensure that it achieves the allowed rate of return objective in accordance with Rule 87(3) of the National Gas Rules.

¹ *The fact that DBP has not made submissions on other aspects of the Draft Decision should not be construed to mean that DBP is in agreement with these other aspects of the Draft Decision.*

Not only are they central to ensuring there is an objective and transparent way of estimating the overall rate of return in accordance with Rule 87(3), they also minimise, to the greatest extent possible, the use of regulatory judgment in the estimation process.

In DBP's submission on the return on equity filed in support of the DBNGP access arrangement revision proposal (**DBP ROR Submission**), DBP considered these two matters at length, and formalised them into a series of tests of the outputs from asset pricing models – the Model Adequacy Test and the Consistency Test². DBP's ROR Submission is appended to this letter as Appendix A, and contains the details of those tests, and the background to the results presented in this submission.

Model Adequacy Test

It is DBP's submission that, in order to test which asset pricing models should be used in stages 2 and 3 of the ERA's five stage process developed to estimate the return on equity, the models must not only be theoretically relevant, also be capable of being shown to be empirically relevant.

DBP has developed a test to demonstrate whether a model is empirically relevant - the "model adequacy test". The test is based upon the notion that, when model predictions are compared with actual subsequent outcomes, the predictions should not exhibit any statistically significant upward or downward bias. Assessing models against a benchmark such as this is consistent with, and is indeed a mathematical representation of, the ERA's own NPV=0 condition outlined in the rate of return guidelines of November 2013 (**Guidelines**).

If a model theoretically relevant and does not demonstrate any statistical bias when applied in the Model Adequacy Test, then it is a model capable of being used in stages two and three in the Guidelines.

The test involves the formation of a series of portfolios of listed companies, sorted by beta, and uses the actual returns from these portfolios over a four decade period as the basic tool for assessing the statistical relevance of the rates of return on equity that were estimated using various asset pricing models. The summary statistics for these portfolios are presented below.

Table 1: Portfolios formed on the basis of past estimates of beta - summary statistics

Portfolio	Average number of stocks per annum	Size in \$ billions	Beta	Annualised mean return in excess of the risk free rate of return (%)
1	27.5	5.287	0.536	8.278
2	28.0	5.984	0.608	8.641
3	28.5	6.634	0.576	7.947
4	28.3	11.714	0.766	9.617
5	28.3	15.832	0.857	7.982
6	28.7	10.319	0.882	6.583
7	28.3	11.618	0.966	4.461
8	28.3	14.396	1.182	5.213
9	28.4	7.591	1.362	1.474
10	27.9	3.577	1.384	2.765

Source: DBP analysis; see submission 12 for further details. Note that, because the portfolios are formed on past estimates of beta (as per Black, Jensen & Scholes (1972)) the ranking order changes slightly because betas are not stable. Thus, for example, whilst the stocks in Portfolio Three have higher betas than those in Portfolio Two when the portfolios are formed, by the time the betas of the portfolios are calculated, this ordering has, on average, changed. The summary statistics are computed using data from January 1979 to December 2013.

² DBP Submission 12, sections 5 and 6, submitted with the ERA on 31 December 2014.

The ERA's calculation of beta for the benchmark efficient entity (BEE) portfolio is roughly the same as that for the average of the companies that form Portfolio One in Table 1³.

As is demonstrated from the results in Table 1, a portfolio which has the same level of systematic risk as the BEE – being Portfolio One – has, in reality over the past four decades, earned an annualised mean return of 8.278 percentage points more per annum than the risk-free rate. This is not an anomaly associated with a particular portfolio, as is clear from the other portfolios with low betas in the table above. Nor is the result an anomaly associated with a short time series. By contrast, with a return on equity of 6.8% determined in the Draft Decision by solely applying a single theoretical asset pricing model (being the Sharpe Lintner CAPM (SL-CAPM)), the ERA believes that ATCO ought to be able to earn a rate of return around 3.8 percentage points more than the risk free rate. This is a very large difference.

The implication of relying solely on a mechanical application of a model such as the SL-CAPM to estimate the return on equity without considering evidence of how such a model performs relative to the actual return on equity derived from companies exposed to a similar degree of risk as the BEE is clear. If investors solely use theoretical models and do not consider actual returns in developing expectations about rates of return, then they will expect returns similar to those the ERA has estimated in the Draft Decision (particularly if they solely use the SL-CAPM the way the ERA has applied it in the Draft Decision). However, if they take account of returns that are actually earned in the marketplace by portfolios with similar levels of risk to a firm like ATCO, they will form very different expectations. Indeed, by considering the information contained in the table above, investors, examining an investment proposition like ATCO, might conclude that, bearing the same level of systematic risk, they could roughly double their returns by investing elsewhere in the economy compared to an investment in a covered gas pipeline with a similar degree of risk to the BEE.

The logical consequence therefore is that investors are most likely to not invest in ATCO (or any similarly regulated business). It is hard therefore to see how, if this rate of return on equity is used to estimate the rate of return for ATCO, the rate of return can be considered to achieve the allowed rate of return objective.

DBP would therefore urge the ERA, when estimating the return on equity in accordance with Rule 87 (particularly when deciding which capital asset pricing models should be used in stages 2 and 3 of the process for estimating the return on equity), to consider what firms with appropriate levels of systematic risk actually earn for their equity investors and how this evidence compares with the returns on equity derived from theoretical models, rather than relying solely on theoretical models whose outputs are never checked against reality.

Consistency Test between Debt and Equity

The second rate of return related matter is the extent to which information from the return on debt is to be used in the process of estimating the return on equity.

It is DBP's submission that an assessment between the return on debt and the return on equity must be undertaken in order to comply with the requirements of Rule 87 and that this assessment should be undertaken as part of stage four of the ERA's five stage process used to estimate the return on equity (as outlined in the Guidelines).

Moreover, DBP submits that it is sound economics for this assessment to be undertaken. This is so because debt and equity are options on the same underlying asset. This is supported by Merton (1974) who developed the proposition that a basic mathematical relationship exists between debt and equity such that they are contingent claims on the same underlying asset. Over the past 40-years, Merton's proposition has developed, and DBP has used Merton's framework to establish a consistency test between debt and equity, to ensure that both are being estimated based on a consistent understanding of

³ *While, in the Draft Decision, the ERA uses 0.7 as the value for beta in the Sharpe Lintner CAPM, this is the 95th percentile of an estimate of the distribution of an ordinary least squares (OLS) estimator for beta rather than an estimate of the mean of the distribution (the OLS point estimate). The ERA uses the 95th percentile purportedly to account for bias in the empirical estimates of the cost of equity that the SL-CAPM generates.*

the underlying relevant risks associated with the asset in question. This is detailed further in DBP's submission on the DBNGP AA Proposal⁴.

The consistency test is based around the expected costs of debt and equity (for debt, the promised cost minus a default risk premium) and the elasticity of the expected value of equity with respect to the expected value of debt. In work for DBP, SFG has calculated that a conservative number for the default risk premium is 82 basis points, and the lowest feasible number for the elasticity between debt and equity is six.

The equity risk premium proposed by the ERA in the Draft Decision is only 3.8% (being the premium for equity above the risk free rate of return). If this were a true reflection of the premium for risky equity, it would imply either that the elasticity of the expected value of equity with respect to the expected value of debt was 3.8 or that the premium investors expect to earn from investing in risk debt is only 60 basis points above the risk-free rate (the premium is actually around 130 to 140 basis points for the BEE in DBP's analysis).

However, setting the elasticity to 3.8 is not possible – there is no combination of parameters used in the formula for estimating the return on debt that makes this possible. Setting the expected debt risk premium to 60 basis points suggests that debt investors expect to receive a return of only 60 basis points above the base risk-free rate. This is only possible if the expected probability of default is 50% higher than the observed empirical default probability, which would be an unreasonable assumption in DBP's view.

Based on the Merton framework, a cost of equity which would be consistent with the cost of debt the ERA allowed in the Draft Decision would be 11.65%. This is based on a debt risk premium of 227 basis points as allowed by the ERA in the Draft Decision, an elasticity of six, a default risk premium of 82 basis points and the ERA's estimate of the risk-free rate of 2.95 percent. This is in-line with the returns actually made by Portfolio One in the table above, but well and truly out of line with the allowance for a return on equity given to ATCO in the Draft Decision.

Given the return on debt at the outset of the proposed access arrangement period has been estimated by the ERA in the Draft Decision using a methodology that is not dependent on as much exercise of regulatory judgment as was used by the ERA in estimating the return on equity, it would appear to DBP that the return on equity estimated by the ERA in the Draft Decision needs to be adjusted in the final decision in order for the provisions of Rule 87 to have been properly applied.

Labour Escalation Rate Related Matter

It is noted that the Draft Decision does not allow any escalation of forecast labour cost rates greater than CPI. According to the ERA, this is on the basis that, in putting forward a proposal for the escalation of labour cost rates at 2% above CPI in the ATCO AA Proposal:

- ATCO has not demonstrated how it has used the evidence provided to derive the labour cost estimate; and
- based on available WPI and EGWWS information, the proposed 2% above CPI could be expected to be the highest increase rather than a prudent average over the access arrangement period.

As the ERA would be aware, in its DBP AA Proposal, DBP also proposed that the labour cost rates used in its forecast operating expenditure for the 2016-20 access arrangement period should be increased at 2% above CPI for each year of that access arrangement period.

DBP notes that, in response to the Draft Decision, ATCO provided the following further submissions to demonstrate why a forecast of operating expenditure for its access arrangement period that includes labour cost rates that were to escalate at 2% above CPI for each year of the access arrangement period is the best forecast in the circumstances and meets the requirements of Rule 91:

- a further explanation of the approach followed by ATCO in deriving the CPI+2% escalation rate; and
- a review of information such as updated WPI data and more recent regulatory forecasts and determinations of labour escalation rates that continues to support the use of a real labour escalation rate of 2% per annum.

⁴ DBP Submission 12, section 6, submitted with the ERA on 31 December 2014.

While DBP's workforce is not subject to enterprise bargaining arrangements, DBP endorses the content of these further submissions and the approach adopted to demonstrate the proposed escalation rate.

In addition, DBP refers the ERA to paragraphs 5.20 to 5.30 of its submission 10 filed with the ERA in connection with the DBNGP AA Proposal, a copy of which is appended as Appendix B to this submission.

Forecast Conforming Capital Expenditure Related Matter

It is noted that in the Draft Decision, the ERA requires a 53% cut in the forecast capital expenditure proposed in the ATCO AA Proposal. The level of expenditure included in the ATCO AA Proposal was proposed to fund both expansions and the maintenance of the current covered pipeline system.

DBP would be most concerned if the reduction in forecast expenditure were to have an adverse effect on the safe and reliable maintenance of a covered pipeline system. This has direct consequences for other pipelines such as the DBNGP. If this percentage cut were to be applied to the forecast capital expenditure proposed by DBP in the DBNGP AA Proposal, it would result in less than \$15m per annum being allowed to maintain an asset with a regulatory value of over \$3.5 billion.

The proposed reduction also has consequences for the wider WA economy in the following respects:

1. To the extent that the risk of system reliability manifests itself, users of gas will be more likely to face gas outages. As was demonstrated in the Varanus Island outage in 2008, this has a significant adverse impact on the WA economy.
2. The future uptake of gas is at risk and the cost of gas usage for at least retail customers (but potentially users of gas more generally (including but not limited to gas fired generation)) is expected to increase in the medium term if the ERA does not allow appropriate levels of growth capital expenditure where appropriate.
3. Such a significant reduction is unsustainable – it will need to be followed with a significant increase in future Access Arrangement periods to ensure the safety and reliability of the network is maintained. This will lead to higher costs to consumers.
4. It also has the risk of resulting in a minimalistic level of investment, as it would not be commercially viable to expand covered pipelines in circumstances where the costs are not recovered through reference tariff.

For these reasons, DBP submits that the ERA should err on the side of caution before it makes any final decision that adversely affects the levels of forecast capital expenditure to be included in the capital base.

DBP does not object to the above submission being made public by the ERA.

In the meantime, if there are any questions in relation to this submission, please contact Nick Wills-Johnson on 08 9223 4902.

Yours sincerely

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General Manager, Corporate Services

Appendices -

Appendix A – DBP Submission 12

Appendix B – DBP Submission 10 (public version)