

BROADENING THE GAS SPECIFICATION ON PIPELINES

IN

WESTERN AUSTRALIA

ISSUES PAPER

BY

OFFICE OF ENERGY

30 SEPTEMBER 2008

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1.0 PURPOSE OF THIS ISSUES PAPER

The purpose of this paper is to canvas the issue of broadening pipeline gas quality specification, with particular reference to the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Mid West and South West distribution system. The current DBNGP specification, embodied in its standard contracts, is tighter than the Australian Standard 4564.

Government's objective is to facilitate industry in developing the least cost solution to bring on stream new gas fields to supply the domestic market. The least cost solution may be to treat the gas so that it meets the existing pipeline specification or to broaden the pipeline specification so that limited treatment of gas is required.

Government's role may be to regulate the gas specification on pipelines and to ensure the increased costs (if any) are borne by the appropriate party (such as the owner of the out of specification gas field). The latter will ensure the gas field owner takes into account all the costs when it evaluates whether the least cost option is to treat the gas to meet the existing specification or whether to supply at the broader specification.

If Government decides to regulate the gas specification on transmission pipelines¹ then Parliament will need to approve the regulation making powers. Such legislation is likely to be drafted in a flexible manner so that it could be applied to all pipelines collectively or individually in Western Australia as may be necessary or desirable.

This paper is seeking feedback from interested parties to assist and inform Government's decision making process. Government wishes to understand the implications of potential actions and options set out in the paper. Of specific importance is whether parties will be adversely affected and, if so, whether Government can facilitate an equitable compensation from the parties that benefit.

Readers are directed to the Economic Regulation Authority report titled "Gas Exchangeability in Western Australia", December 2007² for an explanation of the technical terms used in this paper.

2.0 HOW TO RESPOND

Interested parties are requested to express the comments and views of their organisation and to provide the direct impact of the options or proposals on that organisation. Specific detail of the impact will have more influence in decision making than general statements. Where possible, an estimate of the cost or benefit to the organisation of the proposal will be of great assistance.

Submissions will be made public through the Office of Energy's web site. As such, information that is to be kept confidential should be marked or in some way distinguished from the other material. It should carry an annotation that the information meets the criteria contained in Section 4 of Schedule 1 of the *Freedom of Information Act 1992*. (An extract is contained in Appendix 3 of this paper.) The Office will delete or obscure confidential information from reports

¹ The existing Gas Standards (Gas Supply and System Safety) Regulations 2000 sets the gas specification that applies on the distribution system in Western Australia.

² The report can be downloaded from the ERA's web page at www.era.wa.gov.au and searching for "Gas Exchangeability" as one phrase.

circulated widely within the Office of Energy and provided to external parties. The confidential information may be included in reports at executive level within the Office of Energy and to the Minister for Energy.

Close of submissions are 5 pm Friday 31 October 2008. Submissions are to be provided in electronic form and sent to peter.adams@energy.wa.gov.au. One printed copy is to be posted or hand delivered to:

Public Consultation
Broadening of the Gas Specification
Office of Energy
9th Floor
Governor Stirling Tower
197 St George's Terrace
Perth WA 6000.

3.0 GAS SPECIFICATION

Appendix 1 provides a historical overview of the gas specification on the DBNGP and the Mid West and South West distribution systems.

At this stage Government is only deciding whether the gas specification should be regulated not what that specification should be. If it decides the regulation of the gas specification is required, then it will firstly seek Parliament's approval for regulation making powers to set the specification.

With those powers it can then draft the regulations and apply to the Governor to issue the regulations. It is at this stage Government will consider the appropriate specification to be set, consulting with stakeholders in the process.

The Office of Energy expects there will be a move towards the Australian Standard 4564 but modified to suit Western Australian gas fields and the impact on long gas transmission pipelines. It is likely that the Wobbe Index³ would be set as contained in the Australian Standard 4564, but the level of inerts and contaminants would be set at the levels currently on the DBNGP.

Depending on the outcome of this consultation process the minimum Wobbe Index could be set at the broadest level or ratcheted down to suit new gas fields. This is discussed in Section 5 of this Paper.

For the purpose of preparing responses to this Paper, respondents are requested to assume the ultimate broader specification is the one contained in column 9 of Appendix 2.

³ Wobbe Index is an index of the combustion acceptability of a gas and is determined by dividing the heating value of the gas by the square root of its specific gravity.

Question 3.1:

Are there any potential impacts to a broadening of the gas specification to your organisation and if so, what is the magnitude of those impacts?

Feedback as to the specific components and how they can be set to reduce or eliminate any cost increases are to be answered in Question 8.2.

4.0 SHOULD THE GAS SPECIFICATION ON TRANSMISSION PIPELINES BE REGULATED?

The development of new gas fields would deliver significant benefits to the Western Australian economy and community through enabling additional gas supplies, stimulating increased competition and increasing energy supply security. This Paper is exploring how Government can facilitate the least cost solution for new gas fields supplying into the Western Australian market.

New gas fields that do not meet the current gas specification on the transmission pipeline or distribution system could treat the gas so that it meets the existing specification. Alternatively, the gas specification on the pipelines could be broadened to enable that gas to be transported. Government's role is to enable the least cost solution.

The broadening of the gas specification could be achieved by:

- changes to existing shipping contracts by commercial negotiation;
- setting of the specification in the Approved Access Arrangement; or
- Government regulating the specification.

Amending existing shipping contracts to enable a broader gas specification could be difficult given the number of contracts involved and the historical nature of some of the contracts. Some existing shippers may refuse to amend the specification even though there are wider public benefits in a broader specification.

Currently the major transmission pipelines in Western Australia are operating on contracts negotiated outside of the Approved Access Arrangement.

The Government could regulate the gas specification on transmission pipelines so that a broader specification is imposed on pipelines and therefore override existing contracts. Regulations would therefore need a mechanism that enabled the gas fields that benefited from the broader specification to compensate the parties that incurred increased costs. The owners of gas fields could then decide whether to treat the gas or to supply at the broader specification and to compensate the adversely affected parties.

An important consideration is that Government and Parliament are more likely to approve the regulating of the gas specification that overrides contracts when there is a mechanism to compensate adversely affected parties.

Question 4.1:

What comments or views would you like considered in deciding whether Government should regulate the gas specification on pipelines or whether it should be left to commercial negotiation?

5.0 OPTIONS FOR NEW REGULATION MAKING POWERS TO SET THE GAS SPECIFICATION

If Government decides to regulate the gas specification, then there are a number of different methods that all have different implications to the pipeline owners, potential and existing gas producers and the downstream gas market. The Office of Energy seeks feedback on the implications of these options to assist in advising Government as to the optimum method.

5.1 Issues to consider in deciding the preferred option

Some key issues that need consideration in deciding the preferred method for setting the gas specification by regulation are:

- whether the regulated gas specification results in the pipeline owner expanding capacity to meet only the impact of the gas supplied from new sources of broader specification gas or from the entire gas flow. The latter could occur if the existing gas producers supplied at the lower boundary of the new broader specification;
- whether the regulated gas specification results in the pipeline owner expanding capacity to the full extent of the gas specification (assuming it is set to the broadest specification) rather than the immediate needs of the new gas field. This could constitute inefficient investment and also raises the issue of who pays for this unneeded capacity in the interim until it is required;
- whether there is adequate certainty to the gas field owner that they can always meet the specification of the pipeline and for this not to be a barrier to the investment decision on whether to develop the field; and
- whether the pipeline owner and the gas field can negotiate effectively to determine the appropriate compensation and, if not, what recourse is available.

There are also issues as to which party or parties pays the increased costs to pipeline owners from gas being supplied at the lower boundary of the broader specification. This could be:

- the new, broader specification gas producer bearing the entire cost resulting from the change in specification;
- the new, broader specification gas producer bearing the cost resulting from the impact of that producer's specific gas on the pipeline;
- the existing shippers bearing the increased costs resulting from existing producers supplying at the lower bounds of a broader specification. These parties may receive no

immediate benefit from the broader quality gas. They will, however, potentially enjoy increased diversity and competition of supply;

- the existing producers bearing the increased costs resulting from those producers supplying at the lower bounds of a broader specification, which are the parties that benefit from producing the lower quality gas. This, however, may require legislation to enforce;
- the shippers bearing the increased costs determined by a formula set by regulation that adjusts the contract tariff. This formula could also enable the shippers (and therefore the gas producers) that inject gas at the upper boundaries to be compensated accordingly. An example of a potential formula is discussed in Appendix 4; and
- the pipeline owner bearing the increased cost. This is not considered practical as the pipeline owner can refuse to invest to expand capacity. It is also not consistent with the new gas field owner evaluating the least cost method to develop its out of specification gas field.

Respondents are requested to consider these issues when providing feedback to the various options discussed in Section 5.2 to 5.8 of this Paper.

The above issues can be explained further by the hypothetical example contained in Appendix 5.

5.2 Set the gas specification by regulation to the limit required by a new field

The gas specification could be set on transmission pipelines at the inlet and outlet by regulation to the limit required as each new gas field that requires a broader specification seeks access. In effect the lower boundary of the specification is ratcheted down to accommodate new fields or the decline in specification of existing fields. (In the hypothetical example in Appendix 5, it would be setting the specification to HHV of 37 MJ/m³.)

Setting the specification on a case by case basis would result in the expansion of capacity to the amount required from all fields supplying at the new specification.

It may be appropriate for the owner of a new gas field or the owner of a field with declining specification to pay the increased costs to the pipeline owner from the impact of the supply of broader specification gas from its field. It, however, could distort the analysis of the least cost solution to develop the new gas field if that owner was also required to bear the costs resulting from existing gas producers supplying at the lower boundary of the broader specification. Therefore, there is also the issue of which party or parties should bear the increased cost to the pipeline owner from existing producers supplying at the lower boundary of the broader specification.

Question 5.2:

What comments or views would you like considered in deciding whether this is the preferred option? If this option was adopted, which party should bear the increased costs to the pipeline owner from a) the impact of the new gas field's broader specification gas and b) existing producers supplying at that broader specification? Does your organisation support this option?

5.3 Regulations set the quantity and the specification of gas that can be supplied from a specific inlet point

The regulations could set the gas specification and the quantity that can be injected at a specific inlet point. Thus only the gas field at that inlet point could supply gas of the specified broader specification up to the quantity contained in the regulations. Other gas fields would be required to supply gas at the existing contract specification or this could be enforced by regulations.

This would limit the expansion of the pipeline to maintain existing capacity to the level resulting from the quantity of broader specification gas contained in the regulations. (In the hypothetical example in Appendix 5 it would involve setting the specification at the injection point for the new gas field at 37 MJ/m³ for 20 TJ/day.)

It would seem appropriate for the owner of the new gas field to pay the increased costs to the pipeline owner from the supply of broader specification gas from its proposed gas field.

There, however, may be a perception that Government would be seen as providing preferential treatment to some gas producers. It also could be detrimental to the incentive to explore for new gas fields.

Question 5.3:

What comments or views would you like considered in deciding whether this is the preferred option? If this option were adopted, which party should bear the increased costs to the pipeline owner? Would your organisation view Government as providing preferential treatment to specific gas fields? Does your organisation support this option?

5.4 Set the gas specification by regulation to the blended average specification

The regulations could set the specification on transmission pipelines to the blend resulting from the existing design specification and the new, broader specification gas field. If the existing producers supplied at the new specification, or supply was interrupted, then the gas field supplying at below the new specification would cause the blended gas to be out of specification.

This may not be a viable option as the owners of the broader specification gas may not invest to develop the field in these circumstances.

Question 5.4:

What comments or views would you like considered in deciding whether this is the preferred option? If this option was adopted, which party should bear the increased costs to the pipeline owner? Does your organisation support this option?

5.5 Set the gas specification by regulation at the inlet and outlet to the ultimate final specification

The Government could set the gas specification by regulations at the inlet and outlet to the broadest specification (as a guide, refer to the specification contained in column 9 of Appendix 2). This would be set once and therefore provide certainty to gas explorers. (In the hypothetical example in Appendix 5, it would be setting the specification to Wobbe Index of 46 or HHV 35.1 MJ/m³.)

This option would probably trigger a requirement on the pipeline owner to expand capacity to reflect the full impact of the lower limit of the specification. This would be in excess of what is necessary to enable the broader specification gas field to access the pipeline.

This appears to be a less desirable option as the expansion of the pipeline to the full extent of the broader specification would be an inefficient investment. It also raises questions as to who pays for the pipeline owners' increased costs and whether this would distort the analysis of the least cost method of developing a new, out of specification gas field.

Question 5.5:

What comments or views would you like considered in deciding whether this is the preferred option? If this option was adopted, which party should bear the increased costs to the pipeline owner? Does your organisation support this option?

5.6 Set the gas specification at the outlet and leave the inlet specification to commercial negotiation

The Government could set the gas specification on transmission pipelines by regulation at the outlet to the broadest specification (as a guide, refer to the specification contained in column 9 of Appendix 2). The inlet specification would be left to commercial negotiation between the pipeline owner and the shipper and/or gas producer. The pipeline owner could manage the impact with existing producers, and only accept broader specification gas from those producers if the shipper contracts were renegotiated.

The concept of the pipeline owner managing the inlet specification enables efficient decisions of pipeline expansion. It enables the pipeline owner to recover the costs resulting from the broader specification gas from the gas producer supplying that gas.

An issue is whether the owners of the pipeline and gas field can negotiate on an equal footing. It's arguable that it is in both parties' commercial interests to develop the gas field. The pipeline owner seeks diversity of gas supply so that the pipeline is not stranded and it seeks increased gas flow to increase its revenues. If the owner of the gas field believed the pipeline owner was exploiting a monopoly position, then it has redress to the Trade Practices Act.

Question 5.6:

What comments or views would you like considered in deciding whether this is the preferred option? Does your organisation support this option?

5.7 Set the gas specification at the outlet to the lower limit required by a gas field and leave the inlet specification to commercial negotiation.

Setting the outlet specification at the broadest specification (outlined in 5.6 above) may result in the need to expand the capacity of the pipeline to the maximum limit resulting from the broader specification to maintain existing contractual commitments.

Such an expansion could be inefficient. Consequently, a variation on option 5.6 is that the regulation sets the outlet specification to the limit required by a new gas field. In effect the outlet specification would be ratcheted down over time as new gas fields seek access.

Question 5.7:

What comments or views would you like considered in deciding whether this is the preferred option? Does your organisation support this option?

5.8 Are there any other options?

Question 5.8:

Are there any other options or variants of the above options that should be considered? If so, what are the features and the advantages of those options?

6.0 THE GAS SPECIFICATION ON THE DISTRIBUTION SYSTEM

6.1 Regulating the Gas Specification on the Distribution System

Section 5 of the *Gas Standards (Gas Supply and System Safety) Regulations 2000* sets the gas specifications that apply on gas distribution systems in Western Australia. All gas pipelines that feed distribution systems must supply gas within the parameters of that specification. Gas transmission pipelines can not have a specification that is broader than this specification.

EnergySafety is in the process of amending the *Gas Standards (Gas Supply and System Safety) Regulations 2000* to reflect the Australian Standard 4564, but the minimum level of the Higher Heating Value (HHV) will be retained at 37.0 MJ/m³. This parameter will not be lowered until older appliances that may have safety issues with lower HHV are addressed. This is discussed in Section 7 of this Issues Paper.

Removing the restriction on the minimum level of HHV and fully implementing the Australian Standard specification on distribution pipelines would be an important action to broadening the specification on transmission pipelines that feed the distribution system.

One option is that this is the only action taken by Government, effectively leaving the matter of broadening gas quality specifications on gas transmission pipelines to negotiation between the parties.

Question 6.1:

If Government were to undertake only this action would it facilitate industry in developing new gas fields at the least cost? Would it enable the parties that incurred increased costs to be compensated?

What are the advantages and disadvantages of Government taking no other action other than amending the *Gas Standards (Gas Supply and System Safety) Regulations 2000*? Does your organisation support this option?

6.2 Increased Costs to the Owner of the Distribution System.

The owner of the gas distribution system could potentially also incur increased costs if it is fed with gas with a lesser energy content. All distribution systems in Western Australia operate under an Approved Access Arrangement. The tariff setting principles enable the owner of a distribution system to pass through increased costs resulting from lower quality gas. Thus the owner of the distribution system will recover its increased costs.

Section 8 of this paper will canvass the issue of impacts on shippers and/or downstream users of broadening the gas quality specification.

Question 6.2:

What comments, issues or views would you like considered in respect to the impact on the Gas Distribution Systems and its recovery of costs?

7.0 REPLACEMENT OF OLD GAS APPLIANCES

The specification on the gas distribution system indirectly limits the specification on transmission pipelines. While the gas specification on distribution systems is in the process of being broadened to the specification set in the Australian Standard, the existing limit on the minimum HHV will be retained at 37.0 MJ/m³. Government is unlikely to broaden this element until the Director of Energy Safety advises there is negligible safety risk in relation to old appliances.

The Director of Energy Safety has estimated from a statistical survey 34,000 pre 1980 domestic gas appliances that could be unsafe if the Higher Heating Value (HHV) of the gas was lowered from 37.0 to 35.1 MJ/m³. This lower HHV is possible at a Wobbe Index of 46.0 MJ/m³. The Director of Energy Safety has made a number of recommendations to make the appliances safe, including:

- replacing 11,000 residential appliances at a replacement cost of around \$16.5 million;
- servicing 9,600 appliances at a cost of \$3.5 million or replacing them at a cost of \$7 million;
- replacing 2,900 Negas bayonet points at a cost of \$0.7 million; and
- a program to identify pre 1980 gas appliances installed in schools and institutions.

A copy of the Director's report can be downloaded from the Office Energy's website at www.energy.wa.gov.au.

Addressing these old appliances will involve significant policy issues for Government, including:

- how to replace the appliances that give rise to safety concerns with a lower HHV;
- how to ensure compliance by the appliance owners;
- how quickly to replace the appliances;
- which party or parties are to contribute to the cost; and
- should a general levy be raised from all gas consumers to pay for the replacement?

This section of the Paper seeks feedback on some of the options available for funding the replacement of these old appliances. The amount of funding required will likely include the cost of making the appliances safe for both domestic and small business customers (those consuming less than 1 TJ/year), an advertising campaign, and the administration of providing the refunds.

7.1 Owners of the appliances to contribute to the cost of the replacement appliance.

The appliances are at least 28 years old and would be completely depreciated even though the appliances are still able to function and provide a benefit to the owner. In replacing the appliance the owner would be getting a new appliance that would be safer and potentially more efficient. There may also be reliability and service improvements.

It could therefore be considered that the owner should pay for the replacement of the appliance or at least contribute to the cost of the replacement.

Prohibiting the use and sale of these appliances and providing for their replacement would not guarantee compliance by owners. Some owners may prefer to not spend the money to replace the appliance and take the risk that there are no adverse consequences. It would be costly to inspect each house to ensure compliance. It is therefore a significant consideration to provide an incentive for the owner to replace the appliance.

Question 7.1:

What comments would you like considered in deciding whether this option is to be considered?

7.2 Government to contribute to the cost of replacement of the appliances out of the Consolidated Fund

Replacement of the old appliances provide a public benefit through the removal of appliances that have safety concerns and substituted with modern appliances that have safety features incorporated into their design and are tested to operate on a wider range of natural gases.

As the replacement of these appliances is an important element to the broadening of the gas specification on the pipelines feeding the distribution system, there are also the public benefits of diversity and increased competition in the supply of gas.

These benefits may justify the expenditure of public monies to contribute to the cost of replacing the appliances.

Question 7.2:

What comments would you like considered in deciding whether this option is to be considered?

7.3 The gas fields with broader specification gas could contribute to the replacement of the appliances.

When evaluating the least cost method to develop a gas field that has broader quality gas, the owner of the gas field should take into account the full costs on the supply chain from that broader quality gas. The owner of the gas field could treat the gas and thus it will have no downstream impacts. Therefore, the owners of gas fields with gas that is below the existing gas specification should contribute to the cost of replacing old gas appliances that would be rendered unsafe with that gas.

At present there is only one field known to the Office of Energy that is seeking to connect to the transmission system which would meet this criterion. A further issue is whether the future gas fields that benefit from this broadening of the specification contribute to the cost of making the old appliances safe and how that would be implemented.

Question 7.3:

What comments or views would you like considered in deciding whether this is a suitable option? Does your organisation support this option?

7.4 Combination of parties contributing to the replacement program.

The replacement program could be funded by a combination of the parties listed in section 7.1 to 7.3.

Question 7.4:

What would be a suitable combination of parties contributing to the replacement program and the relative proportions?

7.5 New legislation to impose a special levy on gas customers.

The Government could introduce a Bill to Parliament that imposes a levy applied on gas transmission pipelines that feed the Mid and South West Distribution Systems (not the Kalgoorlie distribution system). This levy would raise funds from all consumers of gas that ultimately benefit from the diversity of supply.

It is possible that some consumers who do not immediately benefit from the diversity and increased competition from new gas supply would be required to contribute to the cost. Nevertheless, only gas consumers would be contributing to the cost as opposed to option 7.2 where the entire community contribute.

Question 7.5:

What comments or views would you like considered in deciding whether this is a suitable option? Does your organisation support this option?

7.6 Are there any other options?

Question 7.6:

Are there any other options or variants of the above options that should be considered? If so, what are the features and the advantages of those options?

8.0 ADVERSELY AFFECTED PARTIES

If the gas specification is set on pipelines by legislation, then this could override existing contracts. This could result in some parties being adversely affected, including downstream consumers of the gas that are not shippers.

Overriding contracts by legislation is a significant issue. Government and Parliament are more likely to implement such legislation if negative consequences are addressed or, on rare occasions, if the wider public interest significantly outweighs the negative impact to specific parties.

This section is focused on the increased costs to the shipper or to a downstream consumer from the gas used in their operations.

This Paper is seeking feedback on the potential impacts of a broadening of the gas quality specification and the compensation methods on the assumption that some parties will be adversely affected.

8.1 Adversely affected parties to bear the additional cost.

If it is established that the net public benefit of the broader gas specification significantly exceeds the cost to adversely affected parties, then those parties bear the additional cost.

This option would distort the owner of the gas field's analysis as to the least cost method for developing the out of specification gas as it would pass some of the cost down the supply chain.

If this option is to be adopted it is likely that Government would require a net public benefit test to establish that the wider public benefit does exceed the cost to the adversely affected parties.

Question 8.1:

What comments or views would you like considered in deciding whether this is the best option? Does your organisation support this option?

8.2 Set the specification so it does not adversely impact existing shippers or gas consumers.

It is possible the gas specification, other than minimum Wobbe Index, can be set so that no parties are adversely affected compared to the current specification. This approach will be considered first and given a higher priority than the other options discussed in this section.

Question 8.2:

If your organisation will incur a material and significant increase in costs due to the gas specification proposed in column 9 of Appendix 2, how could that specification be amended to limit or eliminate any increase in costs to your organisation?

What comments would you like considered in deciding whether this is a valid option?

8.3 Legislation to empower the Gas Disputes Arbitrator to determine a fair compensation for downstream consumers adversely affected.

The Government could introduce a Bill into Parliament that empowers the Gas Disputes Arbitrator to determine whether compensation is required and the level of the compensation. It could also establish which parties are to pay this compensation. The legislation would likely empower regulations to enable the Gas Disputes Arbitrator to carry out the function.

It is likely the legislation would provide high level principles for the Arbitrator to take into account when adjudicating an application. These could include:

- the existing gas specification to be the reference point;
- applications can only be made by shippers or gas consumers that had contractual rights in existence prior to a nominated date;
- applicants are to demonstrate the increase in costs are material;
- the applicant to provide detailed and independently audited analysis of the increased costs;

- the allocation of the cost of the arbitration is to the party ordered to pay compensation, if compensation is ordered; and
- the parties to pay the compensation are the gas fields that are supplying the gas with the components that are causing the increased costs to the applicant.

Question 8.3:

What comments or views would you like considered in deciding whether this is a suitable option?
Does your organisation support this option?

9.0 POSSIBLE TIMEFRAME

As the development of the first out-of specification gas field is planned for completion in 2011/12, there is sufficient time to put in place arrangements to address this issue of broadening the gas specification, including legislation and replacement of old appliances.

However a decision to proceed with a legislated response will need to be made soon to provide certainty to potential project proponents. A final report and recommendations are expected to be provided to Government in December 2008 for decision.

10.0 FURTHER COMMENTS AND VIEWS

Question 10.1:

Provide any other issues, options, comments or views you would like considered.

APPENDIX 1: HISTORICAL GAS SPECIFICATIONS ON THE DBNGP AND THE DISTRIBUTIONS SYSTEM

During 1995 a Standing Committee on Gas Quality (chaired by the Office of Energy) reviewed the gas specification on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Mid West and South West distribution system. The Standing Committee membership included representatives from upstream producers, gas pipeline owners, downstream users and Government.

The Office of Energy produced a report “Review of the Gas Quality Specification for the Dampier to Bunbury Natural Gas Pipeline Western Australia” in November 1995. This report was based on extensive consultation with industry and the Standing Committee.

One of the 1995 report recommendations was for the future widening of the gas specification to the one reproduced in column 2 of Appendix 2 and indicated the intention that the “adoption of tighter limits in contracts will be at the risk of those entering into the contracts”⁴.

The Dampier to Bunbury Pipeline Regulations 1998 specified the broadest specification as shown in Column 3 of Appendix 2. These Regulations were repealed and ceased to have legal effect after the first Access Arrangement was approved under the Gas Pipelines Access (Western Australia) Law. This occurred on 13 January 2004.

When the *Dampier to Bunbury Pipeline Regulations 1998* were repealed it was envisaged that all future contracts on the DBNGP would be set under the approved Access Arrangement. Thus it was envisaged that the gas specification would be set by the Access Arrangement.

To date all contracts on the DBNGP have been negotiated outside of the Access Arrangement and the gas specification is set by the Standard Shipper Contract (column 4).

The 2005 Approved Access Arrangement for the DBNGP set the specification as listed in column 5.

Section 5 of the *Gas Standards (Gas Supply and System Safety) Regulations 2000* sets the gas specification that applies on the distribution system in Western Australia. This is listed in column 6. This specification has been in force for a considerable number of years and during this time the quality of the gas has not changed much remaining within a narrow band within the quality envelope. Testing has shown that a major change in the quality of the gas can have safety implications for old gas appliances particularly the appliances that were converted from town gas to natural gas in the early seventies. The current specification has served to protect small use consumers that have old gas appliances. At present, this specification indirectly limits the gas specification in the DBNGP and the Parmelia Pipeline as both transmission pipelines feed into the distribution system.

The Australian Standard AS 4564 “Specification for General Purpose Natural Gas” recommends the gas specification contained in column 7. The Office of Energy understands some parties prefer that the specification on Western Australian gas pipelines should be as per the Australian Standard to provide consistency for business across Australia. EnergySafety have also indicated that they are moving to change the quality specification contained in the *Gas Standards (Gas Supply and System Safety) Regulations 2000* to the Australian Standard but will

⁴ Page 6, “Review of the Gas Quality Specification For The Dampier To Bunbury Natural Gas Pipeline Western Australia” November 1995. Office of Energy.

be retaining the 37MJ/m³ minimum higher heating value until such time as the safety concerns with the old appliances have been resolved.

The Economic Regulation Authority produced a report titled “Gas Exchangeability in Western Australia”, December 2007⁵. This report analyses the gas specification applicable in Western Australia in detail and from a technical perspective. Table 5, on page 32 of that report lists the recommended specification. This is repeated in column 8.

The Australian Standard and the Economic Regulation Authority’s report do not specify limits on the Higher Heating Value but use the limits on Wobbe Index to constrain this element. Page 4 of the Economic Regulation Authority’s report describes the Wobbe Index and on page 30 explains that limiting the Wobbe Index is also limiting the Higher Heating Value.

⁵ The report can be downloaded from the ERA’s web page at www.era.wa.gov.au and searching for “Gas Exchangeability” as one phrase.

APPENDIX 2: VARIOUS GAS SPECIFICATIONS

1	2	3	4	5	6	7	8	9
Description	1995 Broader specification For new contracts	DBNGP Regulations 1998 (at inlet)	DBNGP Standard Shipper Contract	DBNGP 2005 Approved Access Arrangement	Regulations on WA Distribution Systems	Australian Standard AS 4564	ERA's Dec 2007 paper ⁶	Proposed by Office of Energy September 2008 paper
Maximum carbon dioxide (mol%)	4.0	3.6	4.0	4.0	Not specified	Not specified	4.0/2.5	4.0
Maximum inert gases (mol%)	7.0	6.5	7.0	7.0	Not specified	7.0	Not required	Not required
Minimum Higher Heating Value (MJ/m ³)	35.1	35.1	37.0	37.0	37.0	Not specified	Not required	Not required
Maximum Higher Heating Value (MJ/m ³)	42.3	42.3	42.3	42.3	42.3	Not specified	Not required	Not required
Maximum Specific Gravity (kg/kg)	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified	0.73	0.73
Minimum Wobbe Index	46.0	46.0	46.5	46.5	46.5	46.0	46.0	46.0
Maximum Wobbe Index	51.5	51.5	51.0	51.0	51.0	52.0	52.0	52.0
Unodourised maximum total sulphur (mg/m ³)	10	10	10	10	na	50.0	Not addressed	10
Odourised Maximum total sulphur (mg/m ³)	20	20	20	20	50	50.0	Not addressed	20
Maximum Hydrogen Sulphide (mg/m ³)	2	2	2	2	Not specified	5.7	Not addressed	2
Maximum Oxygen (mol%)	0.2	0.2	0.2	0.2	Not specified	0.2	Not addressed	0.2
Maximum Water (mg/m ³)	48	48	48	48	Not specified	112	Not addressed	48
Hydrocarbon dewpoint, pressure range 2.5 to 8.72 MPa	Below 0 deg C.	Below 0 deg C.	Below 0 deg C.	Below 0 deg C.	Not specified	Not specified	Not addressed	Below 0 deg C.
Maximum radioactive components (Bq/m ³)	600	600	600	600	Not specified	Not specified	Not addressed	Not specified

⁶ Table 5, p32, "Gas Exchangeability in Western Australia", Economic Regulation Authority, December 2007

APPENDIX 3

EXTRACT OF

SECTION 4 OF SCHEDULE 1 OF THE *FREEDOM OF INFORMATION ACT 1992*

4. Commercial or business information

Exemptions

- (1) Matter is exempt matter if its disclosure would reveal trade secrets of a person.
- (2) Matter is exempt matter if its disclosure —
 - (a) would reveal information (other than trade secrets) that has a commercial value to a person; and
 - (b) could reasonably be expected to destroy or diminish that commercial value.
- (3) Matter is exempt matter if its disclosure —
 - (a) would reveal information (other than trade secrets or information referred to in subclause (2)) about the business, professional, commercial or financial affairs of a person; and
 - (b) could reasonably be expected to have an adverse effect on those affairs or to prejudice the future supply of information of that kind to the Government or to an agency.

Limits on exemptions

- (4) Matter is not exempt matter under subclause (1), (2) or (3) merely because its disclosure would reveal information about the business, professional, commercial or financial affairs of an agency.
- (5) Matter is not exempt matter under subclause (1), (2) or (3) merely because its disclosure would reveal information about the business, professional, commercial or financial affairs of the applicant.
- (6) Matter is not exempt matter under subclause (1), (2) or (3) if the applicant provides evidence establishing that the person concerned consents to the disclosure of the matter to the applicant.
- (7) Matter is not exempt matter under subclause (3) if its disclosure would, on balance, be in the public interest.

APPENDIX 4

CORRECTION FACTOR TO TARIFFS TO REFLECT DIFFERENT WOBBE INDEX

Page 28 of the Economic Regulation Authority's report "Gas Exchangeability in Western Australia" proposes a correction factor to tariffs based on the ratio of the Wobbe Index of the shipper's gas to the design Wobbe Index of the pipeline. This formula is reproduced below but modified to reflect contract tariffs rather than reference tariffs that are associated with Approved Access Arrangements. This formula would result in shippers that inject gas with a Wobbe Index less than the design paying a higher tariff and shippers that inject gas with a higher Wobbe Index than the design paying a lower tariff.

$$TA = TE * (\text{Design WI} / \text{Avg WI})$$

where

TA	= adjusted contract tariff
TE	= existing contract tariff
Avg WI	= shippers average Wobbe Index
Design WI	= pipeline design Wobbe Index

APPENDIX 5

HYPOTHETICAL EXAMPLE

The following hypothetical example attempts to demonstrate the potential impact of a change to the gas specification on the assumption that there is an impact on pipeline capacity (decreasing capacity) with lowering of HHV⁷. It does not purport technical correctness.

Assume the existing capacity of the pipeline is 100 TJ/day with a design based on a HHV of 38 MJ/m³ and reflected in shipper contracts as the minimum quality that could be delivered by current shippers. With the higher gas quality of current supply to the pipeline it is operating at say 39 MJ/m³. Consequently current shippers (that have paid for the expanded capacity enabling an HHV of 38 MJ/m³) have contractual rights (while available from their gas supplies) to additional capacity created by the difference between HHV of 38 and 39 MJ/m³.

A new gas field with a HHV of 37 MJ/m³ wishes to supply 20 TJ/day. Assume this supply is to existing consumers so that the pipeline capacity is to be maintained at 100 TJ/day and existing producers reduce their output to 80TJ/day.

The broadest specification that could be specified is an HHV of 35.1 MJ/m³.

If the new gas field is allowed to connect on a blended basis, it will lower the current operational HHV and as such impact on contractual rights to capacity. Should current gas producers lower their quality in the future to the minimum allowed under their contract (38 MJ/m³) the blended gas will go below this minimum requirement (about 37.80 MJ/m³ assuming a weighted average). As such there is a need to change the minimum HHV requirement on all contracts and to expand the pipeline to ensure contractual integrity, including for the new gas field, into the future.

If the regulated specification enabled all gas fields to inject at 37 MJ/m³, then the pipeline would need to be expanded to accommodate the impact of 100 TJ/day of gas being injected at 37 MJ/m³ rather than just the impact of 20 TJ/day at 37 MJ/m³. An issue to be resolved would be which party would bear the cost of the impact from the existing fields lowering their 80 TJ/day from 38 MJ/m³ to 37 MJ/m³.

If the regulated specification set the HHV at 35.1 MJ/m³, then the pipeline owner would need to design the pipeline to accommodate 100 TJ/day at 35.1 MJ/m³. This would be inefficient investment as the additional capacity from the impact of reducing 100 TJ/day from 37 MJ/m³ to 35.1 MJ/m³ is not required to enable the lower quality field to supply.

The regulated specification could be set at the resultant blend of 80 TJ/day at 38 MJ/m³ with 20 TJ/day at 37 MJ/m³ which equates to 37.8 MJ/m³. This would reduce the impact to the pipeline owner and therefore the amount of expansion required. If, however, the existing producers supplied the 80 TJ/day at 37.8 MJ/m³, then the blend with the 20 TJ/day would now be out of specification. Consequently, the new gas field could be refused access to the pipeline. Under these circumstances the owners of the new undeveloped gas field may not take the risk and therefore not develop the field.

⁷ HHV is used in this example for simplicity. The Office of Energy is suggesting the specification be set by the Wobbe Index, which is an index comprised of the HHV and specific gravity.