



GOLDFIELDS GAS PIPELINE

Access Arrangement Revision Proposal

Supporting Information: Attachment 2

**HoustonKemp
Methodology for Allocating Goldfields Gas Pipeline
Costs**

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HOUSTONKEMP
Economists

Methodology for Allocating Goldfields Gas Pipeline Costs

Goldfields Gas Transmission Pty Ltd

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1. Introduction

This report has been prepared by HoustonKemp at the request of Goldfields Gas Transmission Pty Ltd (GGT). Its subject is the methodology proposed to be adopted by GGT for the allocation of the costs associated with services provided by the Goldfields gas pipeline (GGP).

GGP provides gas transportation services using pipeline capacity that is 'covered' under the provisions of the National Gas Rules (NGR) and National Gas Law (NGL). GGT is required to prepare a revised access arrangement for reference services provided by the covered portion of the GGP, for submission to and approval by the Western Australian Economic Regulation Authority (ERA). The revised access arrangement is to apply for the period from 1 January 2015 to 31 December 2019, and is to be submitted for review by the ERA in late June 2014.

The NGL and the NGR distinguish between gas transportation services provided by covered pipelines and those that are not so covered. The former are subject to the requirement for an access arrangement to be submitted for approval by the relevant regulator. Around half of GGP's gas transportation capacity is a 'covered' pipeline, while the balance of its capacity is not. For the latter, there is no need for a formal access arrangement to be developed and approved.

In determining the total revenue that is used to derive reference tariffs for the covered pipeline capacity, GGT must estimate the cost building blocks so as to determine the total revenue for the reference services provided by the covered pipeline. To this end, GGT has asked us to assess the extent to which its proposed methodology for allocating costs between the covered and uncovered capacity of the GGP is consistent with the requirements of the NGL and NGR and, in particular, the national gas objective (NGO).

Our report is structured as follows:

- Section 2 describes the services provided by the GGP, the need to allocate costs as between its covered and uncovered capacity, and the cost allocation methodology proposed by GGT;
- Section 3 describes the relevant provisions of the NGL and NGR, and provides our assessment of GGT's methodology for allocating the costs by reference to those provisions; and
- Section 4 presents our conclusions in relation to GGT's cost allocation methodology.

2. GGP Services and the Allocation of Costs

This section describes the services provided by the GGP, the associated need to allocate costs as between its covered and uncovered capacity, and the allocation methodology proposed by GGT.

2.1 GGP services

The GGP provides gas transportation services over distances of up to 1380 kilometres, between Yarraloola, in the Pilbara, and a range of mine sites that extend as far south as Kalgoorlie. GGP commenced service in 1996.

Upon the introduction of the then Natural Third Party Access Code for Natural Gas Pipelines (the Gas Code), shortly after the commencement of services on the GGP, the pipeline's entire capacity became covered and so subject to the requirement for an access arrangement to be submitted and approved by the ERA.

The capacity of the GGP has been:

- expanded by adding a second compressor at Paraburdoo in 2006;
- expanded by building compressors at Wyloo West and at Ned's Creek in 2009; and
- recently expanded to serve Rio Tinto Iron Ore and BHP Billiton Iron Ore.

However, the pipeline capacity underpinning the provision of these services is not covered and so the obligation to develop and comply with an approved access arrangement in relation to those services does not apply.

GGP's total gas transmission capacity is currently around 200 TJ/Day, of which:

- the covered pipeline service provides capacity of approximately 109TJ/day; while
- the uncovered pipeline involves capacity of approximately 91 TJ/day.

2.2 Uncovered capacity and the allocation of costs

Since both the above services are provided by means of the same physical pipeline, the question arises of how to costs should be allocated between the GGP's covered and uncovered capacity, in order to derive reference tariffs for the former.

On 22 November 2012 the Western Australian Electricity Review Board (ERB) ruled² that the transportation capacity associated with the uncovered expansions of the GGP was not a 'service' as that term was defined in section 8.2 of the Gas Code and then applied at section 8.38. The consequence of this ruling was that the services provided using the uncovered capacity of the GGP were not to form part of the cost allocation process specified at section 8.38.

² Western Australian Electricity Review Board, *Re: Application for review of the decision of the Western Australian Economic Regulation Authority of 5 August 2010 to approve its own revised Access Arrangement for the Goldfields Gas Pipeline*, No.1 and No.2 of 2010, paragraph 235.

On 30 May 2014 the ERA gave its consent to an election by GGT that the capacity associated with the expansion of the pipeline to provide services to Rio Tinto and BHP Billiton in the Pilbara be uncovered.

In order to give effect to the ERB's November 2012 ruling, GGT excluded the capital and non-capital costs associated with the uncovered pipeline capacity from the total revenue estimation process underpinning its existing access arrangement.

For the purposes of preparing its revised access arrangement, GGT must re-estimate the cost building blocks for the capacity of the covered pipeline, and so the total revenue that is in turn used to derive reference tariffs. This process must now be undertaken in accordance with the provisions of the NGR and NGL.

2.3 GGT's proposed cost allocation methodology

GGT proposes to adopt a methodology for deriving the total revenue of the covered pipeline capacity that is similar to that in its existing access arrangement.

In particular, GGT proposes to calculate the total revenue of providing the covered pipeline capacity as the building block cost of providing all GGP pipeline services, but excluding:

- the capital, operating and maintenance costs associated with the second compressor added at Paraburdoo in 2006 and compressors installed at Wyloo West and Ned's Creek in 2009; and
- the capital, operating and maintenance costs associated with the recently completed expansions in the Pilbara to service Rio Tinto and BHP Billiton.

Once these costs are excluded, GGT proposes to derive the total revenue of providing services associated with the covered pipeline capacity as the sum of:

- the return on the projected capital base of the covered pipeline;
- depreciation of the projected capital base of the covered pipeline;
- the estimated cost of corporate income tax of the covered pipeline; and
- the forecast operating and maintenance costs of the covered pipeline.

The essence of this methodology is that it deducts the additional cost associated with the provision of the uncovered pipeline capacity from the building block costs of providing the service associated with the entire pipeline. In other words, the methodology calculates the total revenue of providing the covered pipeline capacity as if the uncovered pipeline capacity expansions had not occurred.

Significantly, under this approach the estimated total revenue of the service provided by the covered pipeline capacity can be no greater than the total revenue of providing the same service absent that associated with the capacity provided by the uncovered pipeline.

GGT's proposed approach to cost allocation is the same as that adopted in its current access arrangement, which was established by reference to the Gas Code. GGT now wishes to satisfy itself that its proposed methodology is consistent with the NGL and NGR, and particularly the NGO. Our assessment of that question is set out in section 3.

3. Assessment of Methodology by Reference to NGR and NGL

Covered pipelines are subject to a regulatory framework for the development and approval of an access arrangement specifying the terms and conditions under which a pipeline owner must make capacity available to users. That framework is set out in the NGL and NGR.

This section describes the relevant provisions of the NGL and NGR, and provides our assessment of GGT's proposed methodology for allocating the costs of the entire pipeline so as to determine the total revenue of the covered pipeline by reference to those provisions.

3.1 National Gas Rules

The NGR establish a framework for the development of an access arrangement that govern the terms and conditions under which reference services are made available by pipeline owners. They include the principles and processes by which, first, total revenue³ and, then, reference tariffs⁴ are determined for one or more reference services provided by a covered pipeline.

Part 9 of the NGR describes the rules associated with calculating the total revenue to be recovered from covered pipelines and the allocation of revenue across different reference services as well as other services offered by covered pipelines. However, the NGRs are silent on how revenue should be allocated as between services provided by covered as distinct from uncovered pipelines.

Our analysis therefore focuses on the extent to which GGT's proposed methodology is consistent with the NGL and the National Gas Objective, which we discuss in section 3.2 below.

3.2 National Gas Law

Part 3 of the NGL describes the national gas objective and the revenue and pricing principles that govern third party access to gas pipelines. The relevant provisions in the NGL include:

- clause 23,⁵ the national gas objective or NGO; and
- clause 24,⁶ the revenue and pricing principles.

The NGO defines the purpose and objective of the NGL and its associated rules. In particular, clause 23 states that:

"The objective of this Law is to promote efficient investment in, and efficient operation and use of natural gas services for the long term interest of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."

Clause 24 identifies a number of revenue and pricing principles (RPPs) that are consistent with the NGO. The first two of these principles are most relevant to the questions the subject of this report and state that:

³ National Gas Rules, rules 76 and 93.

⁴ National Gas Rules, rules 92(2) and 95(1).

⁵ National Gas (South Australia) Act 2008, *Schedule-National Gas Law*, Part 3, Division 1, clause 23.

⁶ National Gas (South Australia) Act 2008, *Schedule-National Gas Law*, Part 3, Division 2, clause 24.

1. "A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in –
 - a. providing reference services; and
 - b. complying with a regulatory obligation or requirement or making a regulatory payment.
2. A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes –
 - a. efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
 - b. the efficient provision of pipeline services; and
 - c. the efficient use of the pipeline."

3.3 Efficiency focus of NGO and RPPs

The unifying theme in both the NGO and the RPPs is that the national gas rules should be applied in a manner that promotes efficiency in both the production and consumption of gas services. Economists typically distinguish three types of efficiency, ie:

- productive efficiency, which refers to the means by which goods and services are produced, and is achieved when this takes place at least cost;
- allocative efficiency, which refers to what⁷ is produced and for whom,⁸ and is achieved when the optimal set of goods and services is both produced and allocated so as to provide the maximum benefit to society; and
- dynamic efficiency, which refers to the achievement of productive and allocative efficiency over time, particularly as technology and consumer tastes change and, in consequence, the optimal mix of what is produced and consumed also changes – dynamic efficiency is achieved when the optimal set of goods and services is produced at the least cost, and allocated to those who derive the greatest benefit, as circumstances changes.

In assessing the methodology for allocating costs between the covered and uncovered capacity of the GGP and so determining the total revenue to be recovered by GGT's reference tariffs, the relevant dimension of the NGO and the RPPs is allocative efficiency. While productive efficiency is concerned with whether the cost of the services provided by the GGP are efficient, it is the translation of those costs into prices that determines the allocative efficiency of the resulting reference tariffs.

We set out our assessment of GGT's cost allocation methodology by reference to their allocative efficiency in the following section.

⁷ In the context of the GGP, this refers to the capacity of pipeline services that is available for use.

⁸ In the context of the GGP, this refers to the pricing of pipeline service capacity so as to achieve both maximum use and/or value of that use.

3.4 Efficiency assessment of GGT's cost allocation

In order to promote allocative efficiency, the allocation of costs between the covered and uncovered capacity of the GGP should be such that there is:

- no alternative configuration of pipeline capacity would result in a greater level of total value to users and producers together; and
- no alternative allocation methodology that would result in a greater level of use and/or value to users of the relevant pipeline services.

Put another way, the allocation of costs between the covered and uncovered parts of the GGP – and so the determination of total revenue and then reference tariffs payable for use of the covered capacity – must not cause investment in GGP's covered pipeline capacity to be inefficient nor the use of the GGP's existing covered pipeline capacity to be inefficient.

In principle, the potential for inefficient investment would arise if the total revenue to be recovered by reference tariffs was:

- less than the total of all costs caused by the investment in and use of the relevant service; and
- greater than the level at which all existing users could procure the same capacity at a lower total cost.

The rationale for a cost allocation process that delivers reference tariffs between these lower and upper bounds is that:

- if revenue from reference tariffs is insufficient to recover all costs caused by the provision and use of the relevant service, then future expansions in capacity will not occur even if users are willing to pay more than all the costs associated with expanding of pipeline capacity; whereas
- alternatively, if reference tariffs exceed the level at which existing users could procure the same service from an alternative provider but at a lower total cost, then this risks an inefficient outcome since alternative pipeline capacity may be developed that would have as its sole function the bypassing or drawing of users away from the existing capacity.

It follows that, in order to promote allocative efficiency, the allocation of costs between the different services provided by the GGT – and so the determination of total revenue and then reference tariffs payable for use of the covered capacity – must result in a level of reference tariffs for GGP's covered capacity that:

- is not less than the costs that are caused by (or, directly attributable to) the provision of the reference service; and
- is not greater than the level at which existing users could procure the reference service from an alternative provider of pipeline services (also known as the standalone cost).

In principle, the potential for inefficient use of the GGP's covered pipeline capacity would arise if, either:

- users or potential users of that capacity were discouraged from taking up the service by reference tariffs that exceeded the cost of making that capacity available, even though there was sufficient capacity to meet such demand; or
- the capacity demanded by users and potential users at the prevailing reference tariff exceeded the available capacity, thereby requiring some form of congestion or other non-price means of rationing capacity, so that the available capacity was unlikely to be allocated to those users who valued it the most.

The first of these conditions implies an upper bound to the level reference tariffs that results from the cost allocation methodology, while the second implies a lower bound.

In our opinion, GGT's proposed approach to determining the total revenue to be recovered from users does comply with these requirements for efficiency, and so the NGO. This is because:

- first, the total revenue for the services provided by the entire GGP does not exceed that which was necessary to bring forth the relevant investment decision at each point in time at which capacity was added;
- second, the directly attributable cost of providing the uncovered expansion is the minimum necessary to bring forth the relevant investment decision at the time each subsequent capacity decision was made; and
- third, by definition, the resulting cost allocation (being the building block cost for the services provided by the entire GGP, less the costs directly attributable to the cost of the uncovered expansion) does not exceed the standalone cost of providing the covered capacity of the GPP.

Put another way, the cost allocation methodology proposed by GGP results in a total revenue that is not greater than the cost of providing the covered pipeline as if the subsequent expansions to provide uncovered capacity did not occur. Under this cost methodology, the total revenue implied by the reference tariffs is sufficient to cover the cost of providing the relevant service but no greater than the efficient, standalone cost of providing the covered pipeline capacity. It follows that GGT's proposed cost allocation methodology conforms with the applicable conditions for efficiency, and so is consistent with both the NGO and the revenue and pricing principles.

4. Conclusion

The unifying theme in both the NGO and the RPPs is that the national gas rules should be applied in a manner that promotes efficiency. Economists typically distinguish three dimensions of efficiency, ie:

- productive efficiency, which is achieved when the production of goods and services takes place at least cost;
- allocative efficiency, which is achieved when the optimal set of goods and services is produced and allocated so as to provide the maximum benefit to society; and
- dynamic efficiency, which is achieved when the optimal set of good and services is produced at the least cost, and allocated to those whom derive the greatest benefit, as circumstances change.

The relevant dimension of efficiency for assessing GGT's methodology for allocating costs between the covered and uncovered capacity of the GGP is allocative efficiency. In order to promote allocative efficiency, there should be:

- no alternative cost allocation methodology that would result in a greater level of use and/or value to users of GGP's covered pipeline capacity; and
- no configuration of pipeline capacity that would result in a greater level of total value to users and producers.

To satisfy these conditions, the allocation of costs must result in revenue by reference tariffs that are:

- no greater than the level at which all existing users could procure the same capacity at a lower total cost; and
- not less than the total of all costs caused by the investment in and use of the relevant service.

In our opinion, GGT's proposed approach to determining the costs to be recovered from users of the covered capacity of the GGP complies with these requirements for efficiency. This is because under GGT's methodology the total revenue implied by the reference tariff is sufficient to cover the cost of providing the relevant service but no greater than the efficient, standalone cost of providing the covered pipeline capacity. It follows that the methodology is consistent with both the NGO and its associated revenue and pricing principles.



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