Public Submission on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline

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Executive Summary

The Gas Supply and Emergency Management Committee ("Committee") has identified a gas storage facility close to Perth[1], as a cost effective gas security option.

In addition to security of supply, further development of the Mondarra Gas Storage Facility ("MGSF") will deliver several benefits to WA:

- more efficient gas delivery;
- facilitation of gas trading and development of the WA gas market;
- facilitation of separate gas marketing by upstream joint ventures; and
- increased competition in gas delivery services.

The APA Group has identified a demand for a requirement for storage services from the MGSF in excess of 100 terajoules per day ("TJ/d"), which constitutes a significant part of the WA gas market.

As such the APA Group has well developed plans to significantly expand the production capacity of the MGSF – including the drilling of two new production/injection wells before Christmas 2010.

Part Haul & Backhaul services on the Dampier to Bunbury Natural Gas Pipeline ("DBNGP") will support bi-directional gas transport of gas from the DBNGP into MGSF and into the South West.

Proposed changes to the DBNGP Access Arrangement ("AA") include removal of Part Haul and Backhaul Services, as Reference Services. These services were included by the Economic Regulation Authority of Western Australia ("Authority") in the Final Decision in the 2005 DBNGP AA in response to requirements for these services by a significant part of the market.

APA Group submits that the proposed single DBNGP Reference Service be supplemented by additional Reference Services, as detailed in this submission.

[1] Gas Supply and Emergency Management Committee Report to Government, Office of Energy, September 2009, Executive Summary

Background

The Authority in its Final Decision on the 2005 Access Arrangement for the DBNGP required the inclusion of Part Haul and Back Haul Reference Services.

In 2007 the APA Group pursued the further development of the MGSF with the drilling of a second well, Mondarra #5, into the Mondarra reservoir, and the well was brought into injection service in late 2008.

In 2009 the Western Australian State Government received a recommendation from its Gas Supply and Emergency Management Committee ("Committee") that additional gas storage capacity would provide a cost effective gas contingency option.

Based on identified market demand the APA Group has committed to a drilling program and has well developed plans for a significant expansion of the MGSF's production capacity.

On 1 April 2010, DBNGP (WA) Transmission Pty Ltd ("DBP"), as the operator and complying service provider of the DBNGP, submitted proposed revisions to the Access Arrangement ("Proposed Revisions to the Access Arrangement") to the Authority on its own behalf and on behalf of DBNGP (WA) Nominees Pty Ltd. These changes include, amongst other things, the removal of Part Haul and Back Haul Services, as Reference Services.

On 7 May 2010, the Authority published an "Issues Paper" and invited submissions from interested parties on the Proposed Revisions to the Access Arrangement, to be submitted by 11 June 2010, with a (later) extension of time to 9 July 2010.

Purpose of Submission

APA Group is the owner and operator of the MGSF. Appendices 1 to 3 provides further background information on APA Group; the role of gas storage in the marketplace and the MGSF.

Natural gas storage services such as those provided by the MGSF are of direct benefit to gas transmission pipeline owners and operators, users of gas transmission pipeline services and gas end users.

The purpose of this submission is:

(1) to identify additional Reference Services which APA Group submits should be included in the proposed revised DBNGP Access Arrangement currently under consideration; and

(2) to identify the omissions in the DBP's submitted DBNGP Access Arrangement and to submit corrective provisions that enhance economic efficiency within the market.

Current Situation: Barriers to Entry to DBNGP

The MGSF is located in close physical proximity to both the DBNGP and the Parmelia Gas Pipeline ("PGP"). As such, it is ideally situated to provide services to both pipelines. Currently shippers on the DBNGP use a part haul service to deliver gas into the MGSF and then are restricted to the use of the PGP to transport gas into the Perth area.

The DBNGP transports the vast majority of gas consumed in the South West. While it is readily possible to expand the current capacity of the PGP[2], the physical configuration[3] and geographic extent[4] of the two pipelines dictates that the DBNGP will always be the dominant asset in terms of geographic reach and transport volume. Given that MGSF does not currently flow gas back into the DBNGP, the majority of the market in Perth and the South West, who either have or would seek to have haulage services on the DBNGP, do not have access to MGSF services relevant to users of MGSF services.

Recognising this, the APA Group arranged for and paid DBP in April 2010 for DBP to install 2 tees off the DBNGP Stage 5B Expansion upstream of the existing Mondarra meter station. The objective is to have a capability to flow in excess of 100 TJ/d from the MGSF into the DBNGP. The APA Group contends that the DBNGP needs to provide Reference Services to enable shippers to utilise this physical capability.

As such, the DBNGP has particular relevance to the MGSF.

Utilising the MGSF in combination with the DBNGP requires:

A. efficient (bidirectional) gas transport by the DBNGP from Mondarra to the South West and vice versa to serve end users in the South West and provide access to the MGSF for potential new gas production located south of Mondarra[5]; and

B. efficient (bidirectional) gas transport by the DBNGP from gas production brought ashore in the Pilbara to Mondarra, and (via back haul) from Mondarra to end users north of Mondarra[6].

The terms and conditions of transport services as currently offered as Negotiated Services and proposed under the proposed Access Arrangement by DBP impede the operation of the MGSF. This is because users of MGSF services:

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[2] Parmelia Gas Pipeline compression facilities installed in the 1970s and 1980s were progressively decommissioned in the 1990s as Perth Basin fields depleted. These facilities could, subject to demand, be reinstated.

[3] The DBNGP consists of a 650 millimetre (nominal) 'original' pipeline and a series of 650 millimetre (nominal) loops covering the majority of the pipeline. The Parmelia Gas Pipeline consists of a single 350 millimetre (nominal) pipeline. The Maximum Allowable Operating Pressure of the DBNGP is higher than that of the Parmelia Gas Pipeline. These differences result in the DBNGP having an order of magnitude greater energy transport capacity.

[4] The DBNGP originates at Karratha and terminates near Bunbury. The Parmelia Gas Pipeline originates near Dongara and terminates near Pinjarra. The DBNGP's northern extent is in excess of 1,000 kilometres greater than that of the Parmelia Gas Pipeline, and the DBNGP's southern extent is over 100 kilometres greater.

[5] The Warro and Gingin gas fields are current examples; future exploration may discover new fields.

[6] For example: end users supplied via the Goldfields, Pilbara Energy, and/or Telfer Gas Pipelines.

- have no certainty relating to DBNGP part haul services from points north of Mondarra to the MGSF;

- do not have access to DBNGP part haul services from Mondarra south to the Perth area and beyond;

- have no certainty relating to DBNGP back haul services from the southern part of the state north to the MGSF, and DBNGP back haul services from the MGSF to points north (including but not limited to the Goldfields Gas Pipeline ("GGP")).

The key differences proposed in the DBNGP Access Arrangement as revisions to the current Access Arrangement are[7]:

> "(i) offer only one reference service (the proposed R1 Service) instead of the existing three reference services (i.e., Reference services under the current access arrangement comprise the full haul T1 service (T1 Service), the part haul T1 service (P1 Service), and back haul service (B1 Service)), where the R1 Service differs from the existing T1 Service in relation to reliability and priority under the curtailment plan;
>
> (ii) to not include part haul or back haul services as reference services; and
>
> (iii) to include the T1 Service, P1 Service and B1 Service as non-reference services."

APA Group understands the reasoning behind DBP's offer on "only one reference service" is shown in the following quotes from DBP's submission[8]:

> "5.1 The Operator has not proposed to continue to include as a reference service any of the pipeline services described in the current Access Arrangement as reference services. This means the following services are no longer proposed to be reference services but they will be included as other pipeline services:
>
> (a) The reference service known as the T1 Service.
> (b) The reference service known as the P1 Service.
> (c) The reference service known as the B1 Service.
>
> 5.2. The Operator submits that these pipeline services do not meet the requirements to be reference services in that each service:
>
> (a) is not likely to be sought during the access arrangement period; or
> (b) to the extent that there might exist a likelihood for the pipeline service to be sought during the access arrangement period, it is not likely to be sought by a significant part of the market.

[7] Dampier to Bunbury Natural Gas Pipeline: Proposed Revisions to the Access Arrangement, Issues Paper, Economic Regulation Authority, 7 May 2010, paragraph 31, page 11

[8] DBP Submission 3: Pipeline Services, Public Version, 14 April 2010, page 7

5.5. In the context of the market for developable capacity generally (ie whether for T1 or P1 or B1 Service) that could form part of the covered pipeline if it is built, the Operator submits that there is no expansion planned during the access arrangement period of 2011 to 2015. The Proposed Revised AA does not include any forecast capital expenditure for expanding the capacity of the DBNGP.

5.7 Accordingly, the Operator submits that it is not in the long term interests of consumers that these services be retained as reference services in the access arrangement."

The proposed revision to the DBNGP AA contains no explicit provision for exit (from the DBNGP) and re-entry at Mondarra. As such, it does not accommodate the current use and future development and expansion of the MGSF.

The APA Group has received market interest to utilise storage services from the MGSF for in excess of 100 TJ/d. On the basis of this demand in the market the APA Group has committed to a drilling program and has well developed plans for a significant expansion of the MGSF's production capacity. APA Group submits that this demand for MGSF services represents a significant part of the market serviced by the DBNGP.

The Negotiated Services advertised on DBP's website[9] do not specifically include part haul services - either from the Pilbara to Mondarra or from Mondarra to the South West. DBP does however offer "Non-Reference Services", the nature and form of which are established through negotiation[10].

Upon review of previous submissions[11] made by DBNGP shippers it appears that DBNGP part haul capacity from the Pilbara to Mondarra is currently contracted by one or more DBNGP shippers.

APA Group considers that with DBP offering only one Reference Service being a full haul service then DBNGP shippers who currently hold full haul capacity (i.e. capacity from the Pilbara past Mondarra to the South West) face a second, separate, full haul transport cost from Mondarra to the South West if they wish to store their gas in the MGSF - i.e., combine storage services with their existing DBNGP full haul services.

Furthermore, the APA Group also believes that for DBNGP shippers who hold or wish to hold gas in storage then full haul terms and conditions, including tariff, apply to DBNGP transport of gas from Mondarra south to the South West.

The net effect of the above is that DBNGP shippers wishing to use MGSF services in combination with DBNGP full haul services could face twice the transport cost incurred through the use of DBNGP full haul services alone.

[9] http://www.dbp.net.au/customerinformation/default.aspx

[10] ibid.

[11] Apache Energy Ltd (14 March 2014); North West Shelf Gas Pty Ltd (14 March 2014); WMC Resources Ltd (14 March 2005); Western Power Corporation (18 March 2005),

APA Group supports asset owners earning a fair return on their assets. However an inflexible, "one size fits all" tariff structure is not an economically efficient outcome for the market and constitutes a strong impediment to the use of MGSF services. It would become a substantial restraint on the further development and expansion of the MGSF. In turn, such restraint results in Western Australia not receiving the full possible benefit from the MGSF.

The following sections outline APA Group's arguments in support of the inclusion of part haul and back haul services as Reference Services.

Desired Future Situation: Access to DBNGP

APA Group submits that DBNGP services should facilitate a significant portion of the WA gas market gaining access to the use of the MGSF to promote the continuing development and expansion of gas storage services. Such development is necessary for the realisation of strategic benefits to gas users and the overall security of energy supply to Western Australian

APA Group's Proposed Solution

APA Group notes that DBP's current Access Arrangement offers a Part Haul T1 Service and a Back Haul T1 Service. Both of these services are offered by the operator of the DBNGP subject to availability of capacity as follows:

> "(i) takes receipt, at one or more Receipt Points on a Day, of a quantity of the Shipper's gas not exceeding:
>
> (A) the sum of the Shipper's MDQ;
>
> (B) plus or minus the quantity of gas required to correct any Imbalance on the preceding Day; and
>
> (ii) delivers to the Shipper at one or more Delivery Points on that Day a quantity of gas not exceeding the Shipper's MDQ, without interruption or curtailment except as permitted by the Access Contract."[12]

Additionally, APA Group understands that both the Part Haul T1 Service tariffs and the Back Haul T1 Service tariffs are distance based, i.e., full haul tariffs multiplied by a distance factor: the distance in kilometres between the inlet point and the outlet point divided by 1399 kilometres.

It should be noted that the offer of a Part Haul T1 Service and Back Haul T1 Service in the current Access Arrangement was as a result of required amendments in the Authority's Final Decision. The key paragraphs supporting the inclusion of Part Haul T1 Service and Back Haul T1 Service, as Reference Services within the Authority's Final Decision are as follows:

[12] Revised Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline, clauses 6.2A and 6.2B , pages 14 - 15

"122. The reasons set out in submissions as to why a Part Haul Service should be included in the Access Arrangement as a Reference Service are as follows:

- A Part Haul Service is sought by a significant part of the market, with one party indicating that it will ship in excess of 110 TJ/day of gas as Part Haul by mid 2005.[13]

- There is precedent for a regulated Service or Reference Service for the Part Haul of gas in both the regulatory arrangements for the DBNGP prior to the commencement of the Code and in the Reference Service of the Current Access Arrangement.

- The absence of a Part Haul Service as a Reference Service will expose existing Users with Delivery Points in the Pilbara and Carnarvon regions to significant increases in the costs of gas transmission.

- A Part Haul Service is required as a Reference Service to facilitate pipeline on pipeline competition between the DBNGP and the Parmelia Pipeline.

123. DBP has forecast quantities of gas delivery by part haul of between about 43 and 55 TJ/day for the Access Arrangement Period.

124. The Authority indicated in its Draft Decision that it is satisfied that a Part Haul Service is sought by a significant part of the market. The Authority also noted that, while DBP has indicated that there are current and potential future constraints on the Capacity of the DBNGP south of Compressor Station 7 that will limit the extent to which a Reference Service in the nature of the Firm Service or T1 Service may actually be provided to a User in the forthcoming Access Arrangement Period,[14] there is by implication an expectation of DBP that some Spare Capacity exists to provide a Part Haul Service to Delivery Points upstream of Compressor Station 7.

125. The Authority also indicated in its Draft Decision that there is a substantial interest of Users and Prospective Users in having a Part Haul Service as a Reference Service, and a substantial public interest in the potential for a Part Haul Service as a Reference Service to facilitate the supply of competitively-priced gas to end users in the Pilbara and Mid-West regions of the State, and to end users of gas in the South West region via the Parmelia Pipeline.

127. One party made a submission that the Back Haul Service should also be a Reference Service.

[13] Apache Energy Limited, 14 March 2005
[14] DBNGPT Submission #3

128. The Authority noted in its Draft Decision that there are currently four Delivery Points on the DBNGP that have, or could potentially have, gas delivered by a Back Haul Service and that DBP has forecast quantities of gas delivery by Back Haul of up to 112 TJ/day for the Access Arrangement Period, which the Authority considers comprises a significant part of the market. The Authority also noted that there is potential for interconnection of the DBNGP with the Goldfields Gas Pipeline ("GGP") at Yarraloola (adjacent to Compressor Station 1 of the DBNGP) and that through an interconnection there is potential for gas to be delivered to the GGP via a Back Haul Service through the DBNGP. Finally, the Authority noted that increases in the provision of Back Haul Services would not depend upon expansions in the Capacity of the DBNGP, but rather would have some effect of increasing the Capacity of the DBNGP to provide forward haul Services over the interval of the pipeline over which the notional Back Haul of gas occurs.

129. Taking these matters into account, the Authority was satisfied that a Back Haul Service is sought by a significant part of the market and that this Service should be a Reference Service.[15]"

It should be noted that in relation to the Authority's comment in paragraph 128 above, the APA Group confirms that the interconnection of the DBNGP with the GGP at Yarraloola (via Compressor Station 1 of the DBNGP) was completed in September 2007.

During the approval process of the current Access Arrangement the Authority received numerous submissions in support of the inclusion of Part Haul T1 Service and Back Haul T1 Service, as Reference Services. Appendix 5 lists the companies and arguments submitted to the Authority regarding the need for part haul and back haul services to be a Reference Services.

The DBNGP is subject to economic regulation. As such, it is subject to the provisions of the National Gas Law ("NGL") and National Gas Rules ("NGR").

The overarching objective of the NGL is articulated in the National Gas Objective (section 23 of the NGL) which states:

"23. National gas objective

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

[15] Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline, Economic Regulation Authority, 11 November 2005, pages 28 - 29

The NGR deals with specific aspects of implementation of the National Gas Objective. In this context, Rule 100 states:

> **"100 General requirement for consistency**
>
> The provisions of an access arrangement must be consistent with:
>
> (a) the national gas objective; and
>
> (b) these rules and the Procedures as in force when the terms and conditions of the access arrangement are determined or revised."

It is clear that the holistic requirements of the National Gas Objective translate directly to the content of the proposed DBNGP Access Arrangement.

A further requirement of the NGL/NGR is that Covered pipelines are obliged to offer one or more Reference Services. Rule 101 states:

> **"101 Full access arrangement to contain statement of reference services**
>
> (1) A full access arrangement must specify all reference services.
>
> (2) A reference service is a pipeline service that is likely to be sought by a significant part of the market."

APA Group believes that DBNGP transport and associated services which facilitate the efficient use and future development and expansion of the MGSF satisfy the criterion of being "likely to be sought by a significant part of the market".

Benefits of Mondarra Gas Storage

The further development and expansion of the MGSF offers several benefits to Western Australia. These include:

(1) Security of supply.

One of the generic functions of gas storage identified in this submission is contribution to security of supply.

Over the last fifteen years, there have been a number of unplanned gas supply interruptions that have affected gas production and gas supply in Western Australia. Appendix 4 provides a list of publicly known unplanned gas supply interruptions.

In 2008, Western Australia experienced two significant gas supply disruptions – the Karratha Gas Plant shutdown in January and the Varanus Island incident in June. Both of these events resulted in significant disruption to the State's gas supplies, with the Varanus Island incident reducing supplies by approximately 30 per cent until partial restoration in August 2008.[16]

In response to these gas supply disruptions, and to ensure the State is prepared to manage any future supply emergency, the Government established the Committee in February 2009[17].

The Committee was tasked with reviewing and providing advice to Government in regard to:

- "gas disruption emergency response;
- gas supply security, both present and long-term;
- the entire gas supply chain and the risk, duration and effect of potential supply interruptions;
- alternative approaches to avoid or minimise gas supply disruption or mitigate its effect; and
- lessons learnt from past gas supply disruptions."[18]

All the participants in the Committee are major participants in the WA Domestic Gas Market and the report findings represented the consensus view. One of the key findings of the Committee was:

> "There is the potential for a gas storage facility close to Perth to provide a strategic supply of gas to residential and small business gas tariff customers. Economies of scale suggest that this option could be extended to larger distribution customers who seek a higher reliability of supply. At a minimum, a gas storage facility with additional pipeline interconnect could provide adequate supply to the south west gas distribution networks to ensure that the networks do not collapse in the event of a major supply disruption."[19]

The Committee recommended the Government to note that the Committee had identified at least two potential cost effective gas contingency service options (i.e., mitigation measures) with one of these being:

16 Gas Supply and Emergency Management Committee Report to Government, Office of Energy, September 2009, Foreword
17 Op. Cit., pages 6 and 41
18 Op. Cit., page 6
19 Op. Cit., Executive Summary, page 4

> "additional gas storage capacity capable of withdrawal rates of between 35 TJ/day and 100 TJ/day from a gas reservoir, such as the Mondarra gas reservoir, and additional interconnection of the Parmelia Pipeline with the DBNGP to allow stored gas to flow into these pipelines and WA Gas Network's distribution system;"[20]

(2) More efficient use of gas transportation infrastructure.

A key function of gas storage is load factor management.

Gas physically upstream of the MGSF may be transported at the average rate of end user consumption, with excess gas being stored during periods of lower than average end user gas consumption and withdrawn during consumption peaks. This means that the DBNGP capacity upstream of the MGSF may be used for both transportation (directly to customers in Perth) and for gas storage injection. Peak flow rates for pipeline users can then be managed south of the MGSF instead of across the entire pipeline.

Such increased efficiency should *ceteris paribus* result in lower gas transport costs in the long run.

(3) Facilitation of gas trading and development of the WA gas market.

It is widely recognised that Western Australia would benefit from a deeper and more liquid domestic gas trading market. This was recognised by the Committee as follows:

> "An increased level of gas market information and transparency would facilitate a more competitive market, greater efficiencies in relation to energy consumption, assist gas industry stakeholders in identifying potential trading opportunities, foster risk mitigation or investment opportunities and will also inform Government in relation to policy development."[21]

Combined use of MGSF load factor management and "parking" services by gas shippers and gas end users would, in APA Group's view, facilitate to a considerable extent the ongoing development of the Western Australian gas market, resulting in increased economic efficiency and the competitiveness of Western Australian industry.

(4) Facilitation of separate gas marketing by upstream joint ventures.

At present, joint ventures are involved in the vast majority of Western Australian gas production. Historically, this gas has not been marketed separately by each individual joint venture participant. Rather, joint ventures have marketed gas in common.

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[20] Gas Supply and Emergency Management Committee Report to Government, Office of Energy, September 2009, Recommendations, page 5

[21] Op. Cit., Executive Summary, page 4

Such joint marketing approach has come under review over time because of concentration of market power. In the Gorgon decision on Joint Marketing, the ACCC contended that separate marketing is not viable in WA because of market immaturity. The absence of gas storage services (enabling trading / swaps and the like) is one key criteria by which the WA market is adjudged "immature". Establishment of a gas storage facility would therefore pave the way for market development and ultimately, separate marketing.

(5) Increased gas delivery competition.

The PGP was constructed in order to transport gas from the Mid West to the South West of Western Australia. Over the past four decades, the PGP has transported gas from both earlier[22] and later[23] discoveries in the North Perth Basin.

The PGP's throughput declined from the mid 1980s onward due to the depletion of the Dongara field (which held the majority of North Perth Basin produced reserves) and the lack of reserves replacement. In 2010, the PGP is operating well below historical maximum throughput due to the lack of upstream gas supplies.

Over time, it is possible that with expansion, the PGP constitutes an alternative means of delivering gas stored in the MGSF to end users in the wider Perth area. As such, it may provide direct competition to the DBNGP for transport of gas from Mondarra south.

APA Group submits that increased gas delivery competition will benefit the Western Australian gas market.

Conclusions

The APA Group submits that the single DBNGP Reference Service currently proposed should be supplemented by additional Reference Services to provide for:

1. "Contract" and "spot" firm forward haul from the Carnarvon Basin (i.e. Pilbara region) to Mondarra under a (cost reflective) distance based tariff (cf. requirement B above on page 3).

2. "Contract" and "spot" firm forward haul from Mondarra south to the South West region under a (cost reflective) distance based tariff (cf. requirement A above on page 3).

3. "Contract" and "spot" back haul from the South West to any point north (cf. requirements A and B above on page 3).

4. Individual Maximum Daily Quantities ("MDQs") for each service identified above, in order to accommodate load factor management for transport services physically upstream of the MGSF.

[22] Dongara, Mondarra and Yardarino in the wider Dongara area, and Walyering and Gingin south of Dongara; all discovered in the mid 1960s to early 1970s.
[23] Woodada, Beharra Springs, and Xyris

5. Bidirectional (i.e. inlet and outlet) connection to the DBNGP at Mondarra with reasonable inlet and outlet conditions (e.g. pressure and temperature).

6. Nominations and allocation procedures to accommodate bidirectional inlet and outlet connections to the DBNGP, including accommodation of time required to perform flow reversals.

7. Discretionary linking, but not compulsory bundling, of "contract" forward haul and back haul services associated with use of the MGSF to promote flexibility of storage and pipeline utilisation.

The APA Group confirms that this submission is intended for release into the public domain.

Appendix 1:

Background on APA Group

The APA Group is Australia's largest gas transmission business, delivering more than half the natural gas used across the country. The APA Group's pipeline infrastructure is in place across mainland Australia, playing a critical role in delivering natural gas to residential and industrial users, as well as electricity generators. The APA Group also delivers natural gas to the mining sector, a significant part of Australia's economy, which in 2008 contributed approximately 6% of the nation's GDP and 35% of exports.

Here in Western Australia, the APA Group plays a key role in fuelling this vital part of Australia's wealth creation and employment via the 3,000 km of gas pipelines it owns and/or operates in the state. This includes the MGSF, the GGP, the PGP, the Midwest Pipeline, the Telfer Pipeline and various lateral pipelines. Figure A1-1 below shows Western Australian assets in which the APA Group holds an interest.

Figure A1-1: APA Group's Western Australian Assets & Location of MGSF

In particular, the APA Group owns and operates the MGSF, located near Dongara in the state's Mid West. With the growing demand for gas storage, the APA Group is actively seeking ways to further develop this gas infrastructure asset.

The operation of any gas storage facility is inextricably linked to the operation of gas pipelines. In the case at hand, the MGSF operates in conjunction with the DBNGP and the PGP. Issues arising from the interaction between the MGSF and the DBNGP are the subject of this Appendix's parent submission.

Appendix 2

Background on Gas Storage

Western Australia's only natural gas storage facility is located at Mondarra, located roughly 20 kilometres east south east of the town of Dongara in the state's Mid West, and in close physical proximity to both the DBNGP and the PGP.

The MGSF has operated since 1995 and is currently owned and operated by APT Parmelia Pty Ltd, a wholly owned subsidiary of the APA Group.

Overview of Gas Storage

Gas may be stored:

- in underground reservoirs, which include depleted gas fields, aquifers, salt domes, and man made excavations;
- as liquefied natural gas ("LNG"); and
- in pipeline linepack, which is the gas inventory held by a transmission pipeline or distribution system.

Underground storage facilities are typically capable of storing several to many petajoules of gas, depending on the characteristics of the reservoir. A typical ocean going LNG tanker can carry of the order of three petajoules.

Thus, it is evident that underground storage and (to a lesser extent LNG tankers) can store appreciable quantities of gas. In contrast, pipeline linepack offers storage which is one to two orders of magnitude[24] smaller than a typical depleted reservoir.

Gas transmission pipeline operators may offer limited gas storage services by utilising pipeline linepack. In particular, DBP (the operator of the DBNGP) offers a "Park and Loan Service", which allows users of the service to effectively store small quantities of gas in the DBNGP's linepack, and "borrow" correspondingly small quantities of gas from the DBNGP's linepack.[25] DBP charges $4.50 per gigajoule (in 2008 dollars) for reserving linepack storage space in the DBNGP[26]. The APA Group understand that this cost is approximately three times the DBNGP full haul transport unit cost.

Functions of Gas Storage

Gas storage may provide three independent, but potentially overlapping, functions:

[24] i.e., 10 to 100 times less
[25] See DBNGP website: http://www.dbp.net.au/access.html
[26] Op. Cit., Park and Loan Terms Sheet, section 8

(1) Load factor management. By injection of gas during periods of low gas consumption and withdrawing gas when gas consumption is high, demands on the entire transmission pipeline capacity may be reduced, resulting in more efficient gas transportation and utilisation of infrastructure. In addition, fluctuations in required wellhead production flow rates may be reduced.

(2) Storage reservation. Storage may be used to "park" gas which has been already produced but could be consumed more efficiently at some time in the future.

(3) Security of supply. Gas held in storage may be used during periods of supply interruptions (arising from either or both interruptions to wellhead production and pipeline outages).

The MGSF currently offers services such as:

- Firm injection;
- Storage reservation; and
- Withdrawal,

which accommodate all three of these functions.

Appendix 3

Mondarra Gas Storage Facility

In general terms, the MGSF comprises connections to the DBNGP and the PGP, surface facilities to allow the injection and withdrawal of gas, wells connecting the surface facilities with the geological reservoir, and the reservoir itself.

Gas storage operation at Mondarra initially utilised the existing Mondarra #1 well for injection and withdrawal of stored gas. New piping and metering was installed to facilitate transfer of gas from the Mondarra Interconnection Pipeline to the well for the purposes of injection. The existing surface facilities were used for withdrawal of gas from the reservoir and delivery into the PGP. As such, injection flow rates into the MGSF were a function of the prevailing DBNGP operating pressure and withdrawal flow rates reflected those achieved during the field's production life.

In Mid 2007, the APA Group drilled a second well, Mondarra #5, into the Mondarra reservoir[27] and the well was brought into injection service in late 2008.

In December 2009, the APA Group completed modifications to the compressor and other plant, which allowed gas to be injected at greater pressures into the reservoir and also enabled higher rates of withdrawal.

Mondarra's Place in Western Australia's Gas Chain

The relevance and importance of the MGSF continues to increase as the Western Australian natural gas market grows and matures. Growth in natural gas consumption places ever increasing demands on gas transport infrastructure. Consequently, developments such as the MGSF which allow increased efficiency of gas transportation are becoming progressively more important to both users of gas transmission pipeline services in particular and the people of Western Australia in general.

The MGSF is located in very close geographic proximity to both the DBNGP and the PGP[28]. As such, it is well physically positioned to interact with both pipelines as shown in Figure A3-1 below.

[27] Wells Mondarra #2, #3, and #4 were 'step out' wells drilled soon after Mondarra #1 in order to delineate the Mondarra field. Mondarra #2 encountered a separate gas accumulation which was produced concurrently with the Mondarra field. Mondarra #3 and #4 were drilled beyond the extent of the Mondarra field.

[28] The three assets are separated by several hundred metres.

Figure A3-1: Mondarra Gas Storage Facility: Layout and Pipeline Interconnections and Locations

The PGP provides an alternative delivery system for natural gas consumed in the South West of the state. The pipeline and its laterals traverse the Perth metropolitan area, running through major industrial areas.

Appendix 4

History of Gas Supply Interruptions

The following table lists those unplanned supply interruptions that affected gas production and gas supply[29].

DATE	INCIDENT	EFFECT
28 Jan 2009	Cyclone	Angel gas field shutdown for 3 days[30]
27 Dec 2008	Cyclone Billy	NWSJV gas fields shutdown for 3 days[31]
3 June 2008	Varanus Island incident	Reduced supplies by approximately 30 per cent until partial restoration in August 2008[32]
February 2008	Cyclones	Lower production over 10 days due to cyclones[33]
2 January 2008	Electrical fault experienced in the domestic gas plant	Supply interruption of 53 hours[34]
24 December 2007	Fire in Beharra Springs Plant	Beharra Springs Plant shutdown for circa 37 days[35]
2 Jan 2007	Electrical Fault	NWSJV's onshore gas plant shutdown for 2 days[36]
March 1999 / April 1999	Cyclone Vance + 2 other cyclones	Griffin and Thevenard Island shutdown for over 10 days[37]
March 1999	Cyclone Vance	NWSJV's onshore gas plant shutdown for 2 days[38]
4 February 1996	Emergency offshore valve unable to be open during Cyclone Jacob	Gas supply interruption of 1 day[39]
24 September 1995	Electrical fault experienced in the domestic gas plant	Gas supply disruption of 2 days[40]

29 Information sourced from the internet in April 2009 and June 2010
30 Source document no longer available on internet
31 North West Shelf Joint Venture
32 Gas Supply and Emergency Management Committee Report to Government, Office of Energy, September 2009, Foreword
33 Source document no longer available on worldwide web
34 Woodside Report to Gas Supply & Emergency Management Committee, June 2009, page 13
35 http://www.originenergy.com.au/news/article/asxmedia-releases/842
36 www.woodside.com.au/NR/rdonlyres/C9532EF7-A19D-4443-B4A5.../0/FirstQuarterReportforperiodended31March2008.pdf
37 Source document no longer available on worldwide web
38 ibid.,
39 Woodside Report to Gas Supply & Emergency Management Committee, June 2009, page 13
40 ibid.,

Appendix 5:

The following table lists the companies and arguments submitted to Authority regarding the need for part haul and back haul services to be a Reference Services.

Company	Argument
Responses to Proposed Revised Access Arrangement for the DBNGP	
Apache[41]	" … The Reference Service must include a distance related back haul and forward haul tariff path for part haul; service as this service is and will be required by a significant number of shippers and potential shippers. By the middle of this year, Apache will be shipping in excess of 110 TJ/d of part haul gas." "Apache submits a distance related tariff should be determined as a Reference Service and apply from the 0km mark down to at least the CS9 mark, prorate to the full haul tariff."
North West Shelf Gas[42]	"The Proposed Revised Access Arrangement omits part haul services from the Reference Service and fails to include the part haul tariff arrangements which were included in the Regulations and the existing Access Arrangement. This will result in significant tariff increases over a short period for users with Delivery Points in the Pilbara region and Carnarvon." "NWSG submits that the Proposed Revised Access Arrangement is unreasonable and a number of amendments must be made to allow for …, the inclusion of a firm part haul service and the existing part haul tariff arrangements …"
TiWest[43]	"The proposed access arrangements also lack or fail to address and include Part Haul Service as a Reference Service or indeed incorporate a Reference Tariff Structure which would ensure that a Part Haul Service could be accessed by Shippers/Customers at a cost or a charge that would parallel a Zonal Type Basis of Cost – consistent with the existing Access Arrangement and the charges Shippers/Customers would have paid under a Contract entered into under the Regulations."
Western Mining Corporation[44]	" …, WMC is a part haul user of the DBNGP and accordingly believes that part haul should be considered a Reference Service. The proposed Access Arrangement provides a part haul service only as a Non Reference Service. The Reference Service must include a distance related back haul and forward haul tariff path for part haul service in Schedule 1 as this service as this service is and will be required by a significant number of shippers and potential shippers."

41 Apache Energy Limited, 14 March 2005, page 2
42 North West Shelf Gas Pty Ltd, 14 March 2005, page 2
43 TiWest Pty Ltd, 11 March 2005, page 2
44 WMC Resources Ltd, 14 March 2005, page 2

Company	Argument
Western Power Corporation[45]	"Non-Reference Services – Part Haul (s.6.1(b)(ii)(A)): WPC submits that the Regulator should: (a) require the Operator to justify the proposed revision which deletes any part or component from the Reference Service; and (b) in any event, modify the PRAA to ensure that there is a part-haul Reference Service available for Shippers. WPC submits that because the Mondarra interconnection between the Parmelia Pipeline and the DBNGP is north of CS9, a substantial part of the market will require access to a Reference Service for haulage to the Mondarra interconnect."
Western Power Corporation[46]	" …. WPC is concerned that any provision of a part haul contract which rendered part haul, in effect, fully interruptible would be: (a) unreasonable, in breach of section 3.6 of the Code; (b) inconsistent with section 8.1 of the Code, by: (i) failing to replicate the outcome of a competitive market under section 8.1(b) (particularly given that it appears to be intended to render use of the Mondarra interconnect unattractive or commercially unviable, and thus limit shippers' choice between the DBNGP and the Parmelia Pipeline); (ii) providing the Operator with opportunities to extract monopoly rents in excess of revenue to recover efficient costs under section 8.1(a); and (iii) providing an incentive for the Operator to increase costs, by interrupting part haul and forcing shippers to purchase higher-priced spot; (c) not required by sections 2.24(a) or (c) of the Code; (d) inconsistent with section 2.24(d) of the Code because it is not efficient to artificially induce customers to buy a full haul service rather than a part haul service merely because the part haul service is completely unattractive; (e) inconsistent with section 2.24(e) of the Code because the public interest is best served by having viable pipe-on-pipe competition south of Mondarra; (f) for the above reasons inconsistent with sections 2.24(f) of the Code; and (g) completely at odds with contracting practice on the DBNGP from 1995 up to and including the current Access Arrangement, in which shippers have always had access to firm part haul capacity."

[45] Western Power Corporation, First Submission, Public Version, 18 March 2005, paragraph 412, page 83

[46] Western Power Corporation, Second Submission, Public Version, 21 April 2005, paragraph 147, pages 24 to 25

Company	Argument
Worsley[47]	"WAPL contends that a reference service ought cover all services that are currently used and likely to continue to be sought by existing and new shippers or are necessary to maximize utilization of the pipeline. Specifically: • Part-haul & Back-haul services should be part of the Reference Service;"
Response to ERA Draft Decision	
Apache[48]	"Specifically, Apache: … (2) endorses Amendment 14 which now provides Part Haul and Back Haul Services as Reference Services, and Amendment 9 which establishes a distance-based Reference Tariff for these Services; and"
North West Shelf Gas[49]	"NWSG supports the inclusion of Part-Haul and Back-Haul services, calculated on a distance based tariff, in the nature of the "T1 Service" to which the Standard Shipper Contract relates."
Origin Energy[50]	"In the Draft Decision the Authority stipulated in Amendment 5 that the DBNGP(WA)T had to provide for a Part Haul Reference Service, calculated on a distance based tariff, in the nature of a *"TI* Service" to which the Standard Shipper Contract would apply. Origin Energy supports the Authority's decision on this matter. Origin Energy notes that DBNGP(WA)T have put in a submission to the Authority responding to this amendment, which states that it will not provide for such a service in its Access Arrangement. Origin Energy requests the Authority to reject DBNGP(WA)T position on this matter and retain this amendment in its final decision for the following reasons: • a significant number of submissions have been made requesting this service; • a part haul tariff is not new, it is provided for in the existing approved Access Arrangement, as a zonal tariff and was a distance based tariff in the Gas Transmission Regulations; • a non-reference service and tariff would mean that negotiations by potential part haul shippers for access on Dampier to Bunbury Natural Gas Pipeline (DBNGP) would be potentially prolonged and costly, which would disadvantage these shippers and their customers; • access to a part haul reference service would enable shippers to have contracts in place, which would allow them to provide their customers with security of gas supply

47 Worsley Alumina Pty Ltd, 14 March 2005, page 1
48 Apache Energy Limited, 26 May 2005, page 1
49 North West Shelf Gas Pty Ltd, 26 May 2005, page 2
50 Origin Energy Resources Limited, 19 September 2005, pages 1 to 2

Company	Argument
	when there are restrictions on the DBNGP; and • the Parmelia Pipeline has the only gas storage facility at Mondarra and access to this via the DBNGP on reasonable terms would provide further opportunities for growth in the gas market."
Western Mining Corporation[51]	" …, WMC is a part haul user of the DBNGP and accordingly believes that part haul should be considered a Reference Service. WMC supports the Authority's inclusion of a Part Haul and Back Haul service, calculated on a distance based tariff, in the nature of the "T1 Service" to which the Standard Shipper Contract relates."
Western Power Corporation[52]	"WPC welcomes and supports the Authority's decision: … (c) requiring the inclusion of Part Haul and Back Haul Reference Services."
Western Power Corporation[53]	"(g) As to Part 2.5 (of DBP Submission #27), whatever view the Authority takes on whether capacity under existing Part Haul contracts forms part of the market, the prospective demand for delivery of Part Haul capacity to Mondarra[54] alone would meet the Code requirements for Part Haul to be a Reference Service."
Western Power Corporation[55]	"Western Power wishes to place on record that it disagrees with DBP's claim that in paragraph 214 of DBP's Submission #21 that "… because of the tranche methodology, the impact on capacity downstream of Mondarra of delivering to Mondarra is the same as if the Operator were to deliver to Kwinana Junction." DBP's claim was presumably not accepted by the Authority because Draft Decision Amendment #9 in the Authority's Draft Decision for the DBNGP requires that the Proposed Access Arrangement should be amended to include a Reference Tariff for Part Haul Services calculated according to distance. This approximately estimates that Mondarra capacity has only about 75% of the system impact that capacity at Kwinana has. Western Power supports and agrees with this approach."

51 WMC Resources Limited, 26 May 2005, page 1
52 Western Power Corporation, First Submission on Draft Decision, 26 May 2005, page 1
53 Western Power Corporation, Fourth Submission on Draft Decision, 24 June 2005, page 7
54 i.e., for the purposes of storage and transportation through the Parmelia Pipeline
55 Western Power Corporation, Response to DBP Submission #21, 7 July 2005, page 1

Company	Argument
Response to DBP's Alternate Part Haul and Back Haul Tariff Proposal August 2005	
Apache[56]	"First, back haul and part haul services have been and are likely to be sought by a significant part of the market. Secondly, if a distance related tariff is not to be calculated and the tariffs are to be truly cost reflective of the services offered, DBP's methodology *is* open to question. Apache Energy is or will be supplying 5 customers by part haul back haul totalling nearly 120 TJ/d which represents in *excess* of 15%of the total gas market. It is our view that this is a significant part of the market and that developments in the Pilbara will continue to be a significant part of the market. Thus, part haul back haul must be provided as a Reference. Service. The part haul forward haul market whilst not as significant as the part haul back haul market is used by a number of buyers particularly to access the Parmelia Pipeline at Mondarra. The part haul flow rates involved are similar to the total average gas supplied to domestic gas customers in the south-west (circa 20-30 TJ/d). One can argue that the domestic gas market is a significant part of the market, and so is the part haul forward haul market. Thus, part haul forward haul should therefore be a Reference Service. A distance related tariff obviously provides a smoothed tariff for part haul services that on average will return DBP's invested capital and cover its operating costs. To do other than this provides a very notchy tariff structure depending on inlet and outlet locations. It is interesting to observe that the expanded Dampier to Bunbury Pipeline will have a quite uniform distribution of capital over each section, supportive of a distance related tariff. However, a part haul service to the offtake to the Parmelia Pipeline calculated under DBP's methodology results in a tariff that is similar to the full haul tariff. This effectively sterilises the competition that the Parmelia Pipeline otherwise offers to transport gas to the south-west. In other words, the tariff structure proposed by DBP could be seen as anti competitive. Apache strongly supports the proposition that part haul forward haul and part haul back haul services are Reference Services and that a distance related tariff is appropriate as it removes distortions section to section. The benefits of back haul should be allocated in the determination of part haul tariffs."

[56] Apache Energy Limited, 14 ctober 2005, pages 1 to 2

Company	Argument
APT[57]	"APT takes the view that the easy availability of a Reference Tariff for part haul would enhance the development of both the MGSF and competition between the DBP and the Parmelia Pipeline, APT supports the inclusion of a Reference Tariff structure that accommodates part haul services. This would be generally consistent with the proposal in the Draft Decision that DBP be required to provide a Part Haul Reference Service. Without such a Reference Tariff structure, shippers and potential users may be unable to successfully negotiate a part haul service and associated tariff on the DBP. In particular, if the approved Reference Tariff structure requires payment of a postage stamp tariff for transportation of gas through any part of the DBP, there will be no clear mechanism available to shippers to require DBP to agree to a part haul service and tariff and access to the MGSF. Instead of promoting competition, such a tariff structure will prevent the further development of competition as it will mean shippers would be penalised economically for bringing north west gas through the DBP and then to MGSF or to the Parmelia Pipeline. This, in turn, may well result in there being no demand for expansion of, and access to, the gas storage facilities at Mondarra, notwithstanding the benefits, including security of supply, such expansion would provide. A significant number of submissions received by the Authority outlined the requirement for the provision of such a service, on the basis it provides them with flexibility, especially for peaking purposes. Therefore it is correct to conclude that a Reference Service with such a tariff structure will be sought by a reasonable proportion of market. From a historical perspective, the availability of a part haul tariff is not new on the DBP; in fact, the original Gas Transmission Regulations provided for a distance based tariff and the approved 2004 Access Arrangement also provided for a part haul tariff based on a zonal structure. In addition to the relevance of a part haul tariff to the Parmelia Pipeline and the MGSF and its users, current and potential shippers on the DBP may require transport for only part of the distance. Obvious examples are the offtake to the Midwest Pipeline and for an interconnection with the Goldfields Gas Pipeline. Given the clear benefits of requiring a part haul tariff be published by the DBP, it is our view that the Authority should require a Reference Tariff structure which recognises part haul."
Birla Nifty[58]	"… Nifty submits that the Back Haul and Part Haul Reference Tariffs should be capped at that portion of the Reference Tariff that the distance over which the service is provide bears to the distance of the full haul Reference Service."

[57] Australian Pipeline Trust, 14 October 2005, pages 1 to 2
[58] Birla Nifty Pty Ltd, 18 October 2005, page 2

Company	Argument
Nickel West[59]	"Nickel West fully supports the Authority in its decision to develop a reference tariff for PH and BH services on the DBNGP, particularly as this service is used by a number of Shippers. It is noted that prior to the existing Access Arrangement, access to PH tariff on the DBNGP was provided for in the DBNGP Access Manual. … Nickel West's view is that in deriving the full haul Reference, the PH and BH tariffs should be based on a simple pro rata of the full haul tariff."
North West Shelf Gas[60]	"NWSG supports the Regulator's requirement to include Part Haul and Back Haul Reference Services within the Proposed Revised Access Arrangement consistent with the Draft Decision dated 11 May 2005. In our view, demand for new pipeline transport is in a growth phase due to the resources boom and will remain strong during the next Access Arrangement Period. Therefore, we do not believe that the submission by DBP is correct in stating that these services will not be sought by a significant part of the market. It is the view of NWSG that the tariff mechanism should be purely distanced based calculation …"
Origin Energy[61]	"A comparison of the Authority's methodology and the DBP's proposed alternative calculation methodology shows that shippers will pay significantly higher tariffs if DBP's proposed methodology is adopted. Origin Energy considers that DBP's proposed alternative calculation methodology does not meet the objectives of s.8.1 of the Code, as it may not: (i) replicate the outcome of a competitive market; and (ii) distort investment decisions in downstream pipeline transport systems or in upstream and downstream industries. Origin Energy considers that DBP's proposed methodology will not increase competition between pipelines, as there is the potential for conflict of interest when DBP is proposing a methodology that will set tariffs for part haul service. These consequences arise because part haul from a DBNGP receipt point to Mondarra also relies on the shipper negotiating a transportation service from Mondarra to its delivery point with the owner of the Parmelia Pipeline, which is in direct competition with the DBNGP. It is in the commercial interest of DBP to avoid providing a part haul service as a Reference Service and also ensure that its part haul tariff is set at an anticompetitive level to shippers that wish to use the amalgamation of part haul on the DBNGP with transport on the Parmelia Pipeline.

59 BHP Billiton Nickel West Pty Ltd, 14 October 2005, page 1
60 North West Shelf Gas Pty Ltd, 11 October 2005
61 Origin Energy Resources Limited, 14 October 2005, pages 1 to 2

Company	Argument
	… Origin Energy reiterates its request, as per it submission dated 19 September 2005 that the Authority maintain its requirement in its final decision that DBP offers a part haul and back haul service, as stipulated in Amendment 5 of the Draft Decision. Furthermore, Origin Energy requests the Authority to not approve DBP's proposed alternative calculation methodology for part haul and back haul tariffs and retain Amendment 9 of its Draft Decision within its final decision."
Western Power Corporation[62]	Western Power does not support DBP's alternate part haul tariff methodology as it: (a) seeks to allocate more costs to part haul and back haul services than previously adopted approach of distance-based tariffs (roughly 8% higher); and (b) results in Western Power, as a significant part-haul shipper, bearing a significant proportion of the additional costs allocated to part-haul revenue. In support of this submission, Western Power submits that: 1. the part-haul tariff methodology has always been distance-based and there is no reason why it should be changed now; 2. Schedule 9 of Western Power's 27 October 2004 Contract (and the DBP Standard Shipper Contract) uses distance-based modelling; and 3. distance-based modelling is simpler to apply than a different allocation for each non capital cost …"
Western Power Corporation (Retail)	"Western Power has concerns regarding the following points: • Assuming physical capacity is actually available, the risk is that DBP will adopt a monopolist's position should it agree to negotiate part haul or back haul services via a non-reference tariff. … • The lack of cost effective and competitively priced part haul and back haul tariffs are likely to discourage use of the Parmelia Pipeline and Mondarra gas storage facility, both of which have provided some flexibility and increased security of supply to DBP shippers. Provided DBP part haul and back haul tariffs receive appropriate treatment by the Authority then alternative arrangements may continue to be utilised by DBP shippers and end use customers."

[62] Western Power Corporation, 18 October 2005, page 1