



Container number: F2017/3603

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Sir/Madam

AEMC - Biennial review into liquidity in wholesale gas and pipeline trading markets (Review)

Thank you for the recent teleconference regarding the Australian Energy Market Commission (AEMC) review on the above matter and the opportunity to provide comments on the draft report associated with the Review. The purpose of the Power and Water Corporation (PWC) submission is to reiterate the key points made during the teleconference supplemented with some additional comments and supporting documentation and statistics.

In summary, PWC believes that there is not a perfectly competitive market in the Northern Territory. The gas market is immature and is still in the formative stages of development. PWC has effectively underwritten the majority of gas and pipeline investment in the NT to date and continues to explore opportunities to bring additional gas and transport to market. While being prepared to make long term commitments to enable new projects to proceed (e.g. the Northern Gas Pipeline (NGP)) it has and continues to facilitate other parties trading gas and/or transport.

PWC makes the statement that there is no impediment (other than the capacity in a pipeline being fully utilised) to obtaining either 'firm capacity' for transport or an 'interruptible' service. Our understanding is both PWC and APA have sold transport capacity on alternative arrangements in recent times. PWC intends to continue with this practice.

On this basis PWC supports the retention of the current derogation (agreed at The Council of Australian Governments (COAG) Energy Council in June 2018) which provides no capacity on a transportation facility wholly or partly in the Northern Territory (NT) be made available for purchase through the Day Ahead Auction (DAA). The derogation expires five years after the commencement of the capacity trading reform package or at any time before that at the discretion of the NT Government.

Below are PWC responses to other particular matters raised in the draft Review:

Gas Supply is available from producers in the NT for transport to the east coast

Agreed, however without further investment in gas exploration, development and transport capacity it will be very limited in quantity.

Liquidity is generally low, especially short and medium term

PWC does not understand what this comment is particularly referring to. PWC's experience is that there is gas to purchase on both a short or long term basis and that pipeline transport is available on an interruptible basis and that firm capacity can be provided if a party(s) is/are prepared to make

commitments such that a pipeline owner can commercially justify a significant long term investment. This can be evidenced by the number of gas sales and transport arrangements made by parties in the NT in the past 12-24 months, e.g. Central Petroleum Ltd sales to Incitec Pivot and more recently to AGL Energy ('firm' and 'as-available' gas supply over 3 years) and PWC providing firm transport services to other parties.

Market information on gas and transport prices and availability is very opaque and limited

PWC disagree with this comment. Examples why this is not correct include the following:

- Central Petroleum Limited - March 2020 Quarterly Update issued on 14 May 2020, slides 2 and 3 indicate the current sales and average price being achieved from the sale of gas,
- APA provide the Reference Tariff for a firm bi-directional service on the Amadeus Gas Pipeline (AGP) on their website,
- APA have commenced engagement with interested parties for the AGP access arrangement for the period 2021 – 2026 (AA) (see attachments). As part of the engagement the Australian Energy Regulator (AER) made a final decision in November 2019 to establish firm transportation and interruptible transportation as reference services. This decision is consistent with a number of parties request and with the objectives of the AEMC's rule change process,
- APA in their draft AA have provided information to all interested parties on current transport commitments in the AGP and the firm and interruptible capacity available. APA have indicated, for example, there is 47TJ/day of interruptible capacity available from Tyler's Pass to Warrego for any user wishing to contract with APA,
- APA definition of an interruptible service in the draft AA is "provided from the un-nominated capacity contracted under pre-existing agreements", which is consistent with the DAA approach, and
- Finally, and for example, during the 12 months from January 2019 to December 2019 APA in their draft AA show that deliveries of gas from Mereenie and Palm Valley to Warrego under transport agreements (and which were **not** pre-existing agreements) and therefore essentially interruptible agreements averaged some 32.7TJ/day. In January and February 2020 deliveries under these same agreements averaged only 10.5TJ/day. Substantial capacity appears to be available for the provision of the interruptible service immediately and during the proposed term of the AA.

Effective market facilitation was considered to be important for liquidity to increase in the NT

For a market to effectively operate there are a number of tests. In a mixed energy market, there would be multiple fuels (gas, coal, nuclear, renewables, etc.), multiple buyers and multiple producers of each fuel type. This is not the position in the NT. Gas is the major fuel (95%) with one major pipeline and a small percentage of renewables/distillate.

The NT is an immature market which is still developing. The cost of administrative reforms is high. The cost of the introduction of the Gas Bulletin Board reporting requirements to the NT has resulted in tens of millions of revenue losses as a result of participants withdrawing from the market and even greater losses if current arrangements are to continue (this risk was advised to the AEMC prior to the finalisation of the derogation which allowed fundamentally only emergency gas to be traded). The Bulletin Board is currently, an on-going cost to PWC which has resulted in one, and possibly two

buyers already exiting the market, which has not improved liquidity, however, reduced the ability to move gas from source to market

The risk of the AEMC not retaining the current derogation and introducing the DAA is that 'free-loaders' will make use of pipeline capacity while others who are prepared to take risks and commit to capacity are financially penalised and at worst, are not prepared to invest further.

Liquidity was unlikely to increase without an appropriate trading platform, both for commodity and transport

PWC supports the access arrangements contained in the draft APA AA.

To the best of PWC's knowledge no significant gas field development in Australia has occurred without a creditable counterparty committing to a long term take or pay for gas and/or transport. Without such basic commitment there will not be long term sustained increases in liquidity.

Access to transport capacity particularly the Amadeus Gas Pipeline

- APA in their draft AA have also indicated that "amendments to pre-existing agreements, which should secure rights of new users to firm services provided using expanded pipeline capacity, have been negotiated; APA is awaiting notification of ratification of the amendments by the relevant boards". Any user requiring firm capacity can negotiate directly with APA for their requirements. There is nothing stopping a user from commencing negotiations immediately.
- The firm capacity in the AGP is currently fully contracted by users with pre-existing agreements. None of these agreements are expected to terminate during the AA period and APA expects the capacity to remain fully contracted. However, the AGP can be expanded and further a user can negotiate with APA to have the pipeline expanded. It appears no user has at this stage approached APA with a definitive proposal capable of inclusion in the draft AA.

Transparency on the amount of contracted but un-used physical capacity on the AGP inhibiting secondary trading

The draft APA AA includes an interruptible service based on the DAA. It bears a close similarity to the DAA.

Integration of the Northern Territory with the east coast

- In November 2015 the NT Government announced that Jemena had been selected to construct and operate the 622 kilometre Northern Gas Pipeline. PWC is the foundation customer of the NGP having entered into a 10 year gas sales agreement with Incitec Pivot at Phosphate Hill. The NGP relied on a long term gas transport agreement and nitrogen removal service agreement (together 'Agreements') from PWC for the NGP to proceed. It is only through these agreements that an \$800 million capital investment was able to be made by Jemena which improved the quantity and security of gas supplies to the Eastern seaboard and provided NT gas producers with a new market into which they could sell gas as well as stimulating the development of the Territory's vast on-shore gas reserves.
- The capacity of the NGP is reported to be 90TJ/day. At the time of project commitment there were options available for a larger pipeline (14 inch rather than 12 inch pipeline) to be constructed (at overall lower tariffs to shippers) if there were organisations willing to commit to enter long term transport agreements like PWC but none were forthcoming. Given no other organisation was

prepared to commit, the pipeline was constructed with the current capacity based on 12 inches. Further, it is PWC's understanding that no organisation has signed a long term firm agreement with Jemena, other than PWC, in the last five years even though pipeline capacity is available.

- PWC understands that a pipeline to Moomba was considered in 1995 and again during consideration of an east coast connection in 2015 but it is difficult to see with the number of committed parties on the NGP that a longer and more expensive pipeline would have been viable without some form of subsidy.
- In the 12 months from January 2019, flows from the AGP into the NGP averaged 77.1TJ/day. While the NGP was used, the high costs of transport and processing are a barrier. A firm service on the NGP (transport plus nitrogen removal will be \$2.33/GJ). It is PWC's understanding that the AEMC is familiar with this issue given it has been involved in the exemption application process.
- More gas could be shipped to the east coast but as this Review notes, shipping costs are high and reliability can be improved.

Conclusion

The NT was for a long time an isolated gas market. All investment in the domestic gas market was essentially 'underwritten' by government. In 2015 the government again committed to pipeline capacity to enable the NGP to go ahead. PWC remains supportive of a competitive open market which is fair and equitable and is not opposed to other users entering into gas and transport agreements which support investment in new capacity but none have been forthcoming in recent times.

PWC is currently considering whether further investment in additional pipeline capacity is commercially viable given the considerable regulatory uncertainty associated with pipelines in the NT. It remains difficult to justify future significant investments in gas infrastructure, particularly pipeline expansions where the regulatory regime does not reward those prepared to invest but instead allows others to benefit with no risk. Without further investment in gas supply and transport infrastructure there will be no increase in liquidity in the foreseeable future for either the NT or east coast Australia. Any regulatory reset, in these times, should meet this test.

PWC believes the current derogation from the DAA should continue, as the current exemption on the NGP continues, and that APA's interruptible service proposed in the revised draft AA be given an opportunity to work thereby facilitating further investment in the Territory. Ultimately, it is this approach which will in all likelihood provide increased liquidity in the gas market compared to alternatives which may in fact put at risk further investment and result in increased costs and reduced liquidity.

Yours sincerely



Charles Staples

Commercial Manager Gas Services

22 May 2020

Attachments

Amadeus Consumer Reference Group 2021 - 26 access arrangement revision



Roundtable 3a. Demand forecasts, interruptible service and total revenue
20 April 2020 via webex

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Agenda for today



1	Welcome Introductions
2	Recap of second roundtable meeting - key messages
3	Demand forecasts used to prepare prices for reference services (reference tariffs)
4	Draft access arrangement and new provisions for interruptible service
5	Asset base roll-forward model and total revenue
6	Wrap up and next steps

Welcome & house rules



- **Introductions**
- **House rules**
 - The online format has been introduced due to COVID-19
 - This is intended be an open discussion between the reference group and APA
 - We welcome any issue or question about the access arrangement and its context
 - The main rule we propose is that the discussions during the roundtable are respectful
 - We are not intending to attribute any comments or questions to you or your organisation, unless requested.

What are we hoping to achieve?



Getting into the details

- **In this roundtable meeting, we continue to present to you our initial thinking of key issues for the Amadeus Access Arrangement revision proposal:**
 - Demand forecasts that will underpin the proposed reference service tariffs
 - Draft revised access arrangement incorporating an interruptible service reference service
 - Total revenue that has been calculated using the AER's roll-forward model and the post-tax revenue model.
- **We would like your questions and your feedback on all of these as we develop the Amadeus Access Arrangement revision proposal.**
- **Ideally, your questions will be raised during today's roundtable meeting where all can contribute to discussion. We are, however, available to discuss the issues listed above, and any other issues, outside of the meetings.**
- **During today's meeting, we shall provide opportunities for questions and discussion: we look forward to your contributions, and will summarize the key "take-outs", and feed these back to you for review before using them in the Access Arrangement revision proposal.**

Key take-outs from roundtable 2



Brief recap

- **At the second roundtable meeting in February, we presented information on:**
 - Demand forecasts – but not the forecasts themselves
 - Asset management plan and proposed capital expenditure
 - Operating cost forecast methodology and preliminary operating cost forecasts
 - Efficiency carry-over mechanism applying to operating expenditure in the current regulatory period
 - Rate of return.
- **We presented the key elements which go into total revenue and reference tariff determination.**
- **We are now ready to explain how we have determined the total revenue for the next access arrangement period (July 2021 to June 2026).**
- **The total revenue is the forecast of total costs from which reference tariffs are determined: we shall discuss our approach to reference tariff determination, and our proposed tariffs, at the next roundtable meeting.**

What we heard from you

- **Price of gas.** End price for gas is a major concern of consumers and businesses.
- **Capacity.** The lack of access to firm pipeline capacity is a key issue / source of frustration for some large businesses.
- **Interruptible service.** Current APA terms and conditions are a good starting point for the interruptible service which is to be included in the access arrangement as a reference service.
- **Demand forecasts.** Where are the numbers? Want to see the actual numbers for the demand forecasts.
- **What's in it for the community?**

Our consideration of what we heard

- **Price of gas.** We acknowledge that cost of energy is a key concern for the community and businesses. COVID-19 has added pressure to these concerns: Amadeus reference tariffs are expected to fall.
- **Capacity.** Amendments to pre-existing agreements, which should secure the rights of new users to firm service provided using expanded pipeline capacity, have been negotiated; APA is awaiting notification of ratification of the amendments by the relevant boards.
- **Interruptible service.** We have drafted the proposed revised access arrangement to incorporate the terms and conditions for interruptible service from the standard APA Gas Transportation Agreement; the drafting has been provided for comment. (Refer to R3.1 AGP proposed revised Access Arrangement 2021-2026).
- **Demand forecasts.** Our proposed demand forecasts, and our approach to forecasting, are set out in a separate document for comment. (Refer to R3.2 AGP Demand Forecast).

Our consideration of what we heard

- **What's in it for the community?** Amadeus is an important part of the energy supply for Northern Territory. We operate Amadeus in a safe, reliable and cost efficient way. Our aim is to continue doing this.

Discussion

Do you have any comments?

We appreciate you have not had much time to review the draft terms and conditions for interruptible service, or to review our demand forecasts.

We shall provide the opportunity for further discussion of these at our next roundtable meeting.

Draft access arrangement and new provisions for interruptible service



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Interruptible service as a reference service

- The AER's December 2019 reference service proposal decision for the Amadeus Gas Pipeline required that we make interruptible service a reference service.
- We have drafted the proposed revised access arrangement to incorporate the terms and conditions for interruptible service in the standard APA Gas Transportation Agreement.
- **PLEASE NOTE:** the draft of the proposed revised Amadeus Access Arrangement we have provided for your comment is not a completed draft: we have largely completed drafting for the interruptible service (probably the major change to the access arrangement), but have not completed other sections of the document which now require amendment.

Interruptible service as a reference service

- **Interruptible service is provided from the un-nominated capacity contracted under pre-existing agreements; it is available to prospective users only if capacity for firm service is not available.**
- **To use the interruptible service reference service, a user must have a gas transportation agreement for that service, and must nominate, in accordance with the terms of that agreement, a quantity of gas to be delivered on a day the service is required.**
- **The total of the nominations for interruptible service may, on a day, exceed the capacity available for provision of that service.**
- **If the capacity available is not sufficient for all users requesting interruptible service, then APA will allocate the available capacity equitably (that is on the basis of tariffs paid, first-come-first-served, pro rata based on nominated quantities or such other basis as it reasonably determines) among users who have entered into Interruptible Transportation Agreements.**
- **There are existing transportation agreements for interruptible service, and this requirement for equitable allocation of the available capacity is currently in the terms and conditions of Schedule 3 of the Amadeus Access Arrangement, and in APA's standard gas transportation agreement.**

Demand forecasts to be used to determine prices for reference services

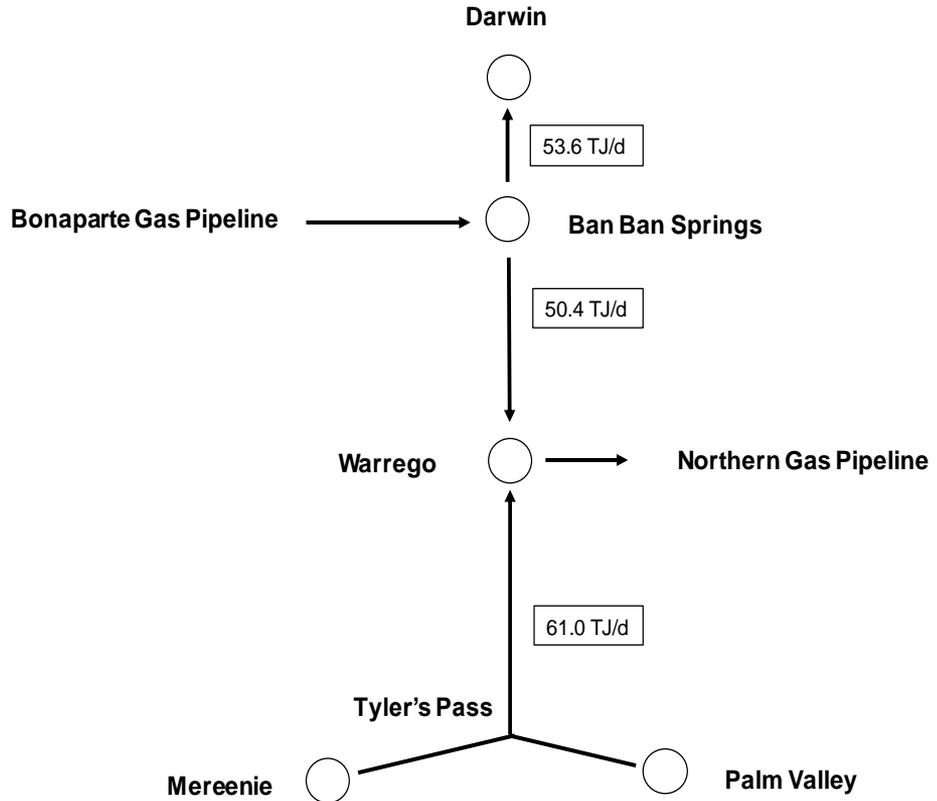


Demand forecasts

Recap of what we presented previously

- Significant change in utilisation of Amadeus with commercial operation of the Northern Gas Pipeline (NGP) in January 2019
- Gas delivered from Amadeus into the NGP transported to Queensland, and via other pipelines, into the East Coast gas market
- All of the capacity which might be used to provide the firm service reference service is fully contracted by users with pre-existing agreements for firm transportation services
- Interruptible service can be made available using any unused part of the Amadeus capacity which has been contracted to users with pre-existing agreements

Capacity



Pipeline segment	TJ/d
Ban Ban Springs - Darwin	53.6
Ban Ban Springs - Warrego	50.4
Mereenie, Palm Valley - Warrego	61.0
Nameplate rating	165.0

Interruptible service

Pipeline segment		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Ban Ban Springs - Darwin	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ban Ban Springs - Warrego	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mereenie, Palm Valley - Warrego								
Capacity: Tyler's Pass - Warrego	TJ/d	61.0	61.0	61.0	61.0	61.0	61.0	61.0
Firm: Tyler's Pass - Warrego	TJ/d	13.8	13.8	13.8	13.8	13.8	13.8	13.8
Capacity available for interruptible service	TJ/d	47.2						

Asset base roll-forward and total revenue



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Total revenue

- Reference tariffs for an access arrangement are calculated from the total of the costs expected to be incurred by an efficient service provider.
- This total of the costs expected to be incurred is called the building block total revenue.
- The building blocks of total revenue are:
 - Return on capital base
 - Depreciation
 - Estimated cost of corporate income tax
 - Efficiency gain or loss
 - Forecast OPEX
- If costs are incurred as expected, and if forecasts of service provision are realised, the reference tariffs of an access arrangement should allow the service provider to recover only its efficiently incurred costs.

Total revenue

- **We have used the AER's Post-tax Revenue Model (the gas transmission version released earlier this month) to calculate total revenue.**
- **The key inputs to the Post-tax Revenue Model are:**
 - Capital base at the beginning of the access arrangement period (1 July 2021)
 - Forecast CAPEX
 - Forecast OPEX
 - Rate of return on capital
- **We discussed forecast CAPEX, forecast OPEX and the rate of return on capital with you at our last roundtable meeting.**
- **We spoke about CAPEX during the current access arrangement period, but did not explain how we would arrive at the opening capital base.**
- **We have determined the opening capital base – the capital base at 1 July 2021 – using the AER's Roll Forward Model (the gas transmission version released earlier this month).**

Roll forward model



- The Roll Forward Model takes, as its starting point, the opening capital base – as approved by the AER in its last Amadeus decision – at the start of the current access arrangement period.
- CAPEX for the current period is added to the capital base.
- Regulatory depreciation, calculated in the model using the AER's indexed straight line method, is subtracted.
- If necessary, adjustments must be made for asset disposals and speculative capital brought into the capital base.
- The Roll Forward Model also “rolls forward” the tax asset base and the calculation of tax depreciation.

Opening capital base 1 July 2021 (\$ million, nominal)



	2016-17	2017-18	2018-19	2019-20	2020-21
Opening capital base	111.0	115.1	116.6	120.1	123.9
Actual/estimated CAPEX	5.4	2.8	5.6	5.8	4.5
Regulatory depreciation	-1.3	-1.3	-2.1	-2.0	-2.2
Adjustments	0.0	0.0	0.0	0.0	0.0
End of year asset value	115.1	116.6	120.1	123.9	126.2

Opening capital base: 1 July 2021



Applying the Post-tax Revenue Model

- The Roll Forward Model provides the opening capital base.
- Our forecast CAPEX for the access arrangement period is added to the opening capital base.
- Regulatory depreciation, calculated by the Post-tax Revenue Model using the indexed straight line method, is subtracted
- The result is a year-by-year projection of the capital base across the access arrangement period.
- Return on the capital base is calculated, year-by-year, by multiplying the projected capital base by the rate of return on the capital base.
- The cost of corporate income tax is estimated by the Post-tax Revenue Model.
- Efficiency gains or losses, and forecast OPEX, are added to complete the total revenue calculation.

Capital base and return 2021 – 26 (\$ million, nominal)

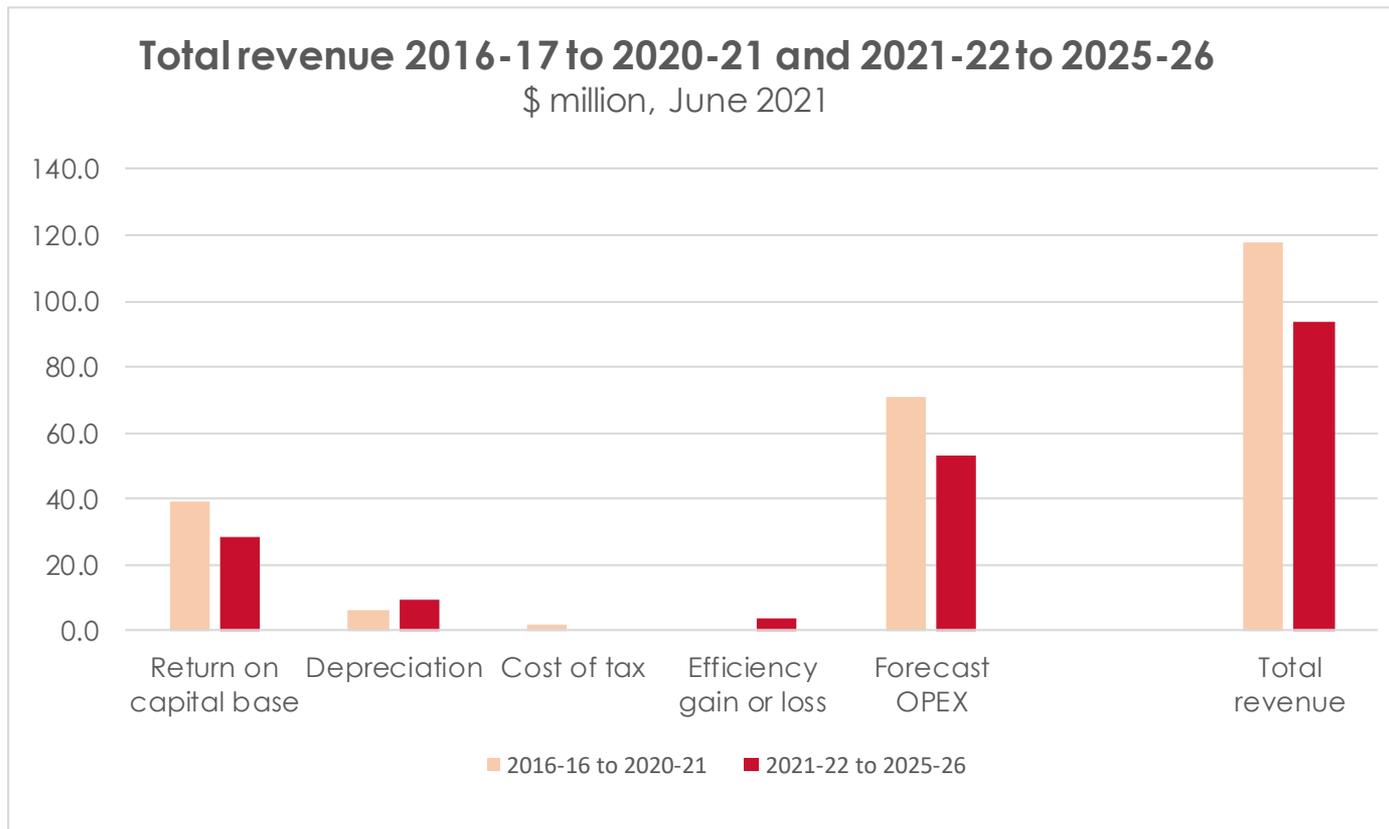


	2021-22	2022-23	2023-24	2024-25	2025-26
Opening capital base	126.2	127.1	127.1	127.3	127.8
Forecast CAPEX	2.8	2.0	2.5	2.8	2.7
Regulatory depreciation	-1.8	-2.1	-2.3	-2.3	-1.2
Adjustments	0.0	0.0	0.0	0.0	0.0
End of year asset value	127.1	127.1	127.3	127.8	129.3
Rate of return	4.80%	4.80%	4.80%	4.80%	4.80%
Return on capital base	6.1	6.1	6.1	6.1	6.1

Total revenue 2021- 26 (\$million, nominal)

	2021-22	2022-23	2023-24	2024-25	2025-26
Return on capital base	6.1	6.1	6.1	6.1	6.1
Regulatory depreciation	1.8	2.1	2.3	2.3	1.2
Cost of corporate income tax	0.0	0.0	0.0	0.0	0.0
Efficiency gain or loss	2.7	1.8	-1.0	-0.2	0.0
Forecast OPEX	12.7	10.6	11.0	11.3	11.2
Total revenue	23.4	20.6	18.4	19.4	18.6

Total revenue is declining



Wrapping up and next steps



Next steps

- **We need to reschedule the second part of Roundtable 3 to date to be advised.**
- **At Roundtable 3b we will talk about**
 - Demand forecasts
 - Drafting of revised Access Arrangement
 - Reference tariffs
 - Queuing policy, capacity trading, extensions and expansions.
- **We are aiming to hold one more roundtable in May to provide a summary of what we heard from you and how we have considered these things in the access arrangement revision proposal.**

Wrap up

- Summary of the discussion today
- Invite comments from participants

Thank you for participating...
especially in light of the current difficult circumstances



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Or visit the APA website:

apa.com.au

Or Amadeus engagement webpage:

[apa.com.au/about-apa/our-projects/amadeus-gas-pipeline-access-arrangement/.](http://apa.com.au/about-apa/our-projects/amadeus-gas-pipeline-access-arrangement/)

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**Proposed Revised Access Arrangement
for the Amadeus Gas Pipeline**

1 July ~~2016~~2021 to 30 June ~~2021~~2026

June 2020

~~(Incorporating revisions required by AER Final Decision 26 May 2016)~~

May 2016

1.

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1. INTRODUCTION

1.1 Purpose and Scope

This Access Arrangement is established pursuant to the National Gas Law and Part 8 of the National Gas Rules. Under the National Gas Rules, the owner or operator of a Covered Pipeline is required to lodge an Access Arrangement with (and have it approved by) the Australian Energy Regulator (AER).

An Access Arrangement must, as a minimum, contain the elements described in Rule 48. These include:

- (a) the terms and conditions on which the Service Provider will provide each Reference Service; and
- (b) capacity trading and queuing requirements, as well as how extensions and expansions will be treated for the pipeline.

The Access Arrangement must be accompanied by applicable Access Arrangement Information (Rule 43).

The Amadeus Gas Pipeline is a Covered Pipeline (by operation of item 7 of Schedule 3 of the *National Gas (Northern Territory) Law*). APT Pipelines NT Pty Ltd ACN 075 733 336 is the current operator of the Pipeline and as such is the Service Provider under the Rules.

This Access Arrangement sets out the terms on which Users can access the Amadeus Gas Pipeline.

The Amadeus Gas Pipeline spans from the Palm Valley and Mereenie gas fields to Darwin. A more detailed description of the Covered Pipeline, including a map, is available on Service Provider's website at <http://www.apa.com.au/our-business/economic-regulation/nt.aspx>~~https://www.apa.com.au/our-services/gas-transmission/central-region-pipelines/amadeus-gas-pipeline/~~, which shows key offtakes and inputs for the Pipeline, and intersections with other transmission pipelines.

1.2 Access Arrangement subject to applicable gas law

All provisions in this Access Arrangement are subject to the *National Gas (Northern Territory) Law*.

1.3 Interpretation

Terms and references in this Access Arrangement have the meaning or interpretation given in the Glossary in Schedule 2.

1.4 Structure of this access arrangement

This Access Arrangement is set out as follows:

- Section 1: **Introduction** describes the scope of the Access Arrangement, its commencement, revisions and interpretation.
- Section 2: **Pipeline services** describes services offered under this Access Arrangement and the procedure to obtain access to the Services.
- Section 3: **Determination of total revenue** describes the Rules relevant for determining the total revenue requirement, and additional matters regarding New Capital Expenditure.
- Section 4: **Reference Tariffs and Charges** describes the Reference Tariff applicable to the Reference ~~Service~~Services, ~~the Tariff applicable to the Interruptible Service~~ and the Reference Tariff Variation Mechanism.
- Section 5: **Capacity Trading** which sets out how the User may assign its Contracted Capacity and change its Delivery Points and Receipt Points.
- Section 6: **Queuing** describes the order in which the Capacity of the Pipeline will be allocated to Prospective Users where there is insufficient Capacity in the Pipeline to satisfy all Requests for Service.
- Section 7: **Extensions and Expansions** describes the manner in which extensions or expansions to the Pipeline will be dealt with.
- Section 8: **Efficiency carryover mechanism** describes the manner in which efficiency improvements in operating expenditure (opex) are incentivised.
- SCHEDULES: **Schedule 1:** Details
- Schedule 2:** Glossary
- Schedule 3:** General Terms and Conditions applying to [the Reference Services](#)
- Schedule 4:** Request for Access

1.5 Commencement of this access arrangement

This Access Arrangement commenced on the date on which the approval of the AER took effect under Rule 62 or Rule 64 (as relevant).

1.6 Revisions to this access arrangement

Service Provider¹ will submit revisions to this Access Arrangement to the AER on 1 July ~~2020~~2025 (Review Submission Date).

The revisions to this Access Arrangement are intended to commence on 1 July ~~2021~~2026 (**Revisions Commencement Date**).

~~The Review Submission Date will be accelerated under Rule 51 on written notification by the AER that one of the following events has occurred:~~

- ~~(a) — the interconnection of another pipeline with the Pipeline; or~~
- ~~(b) — the introduction of a significant new source of gas supply to one or more of the markets to which gas is delivered from the Pipeline;~~

~~that substantially changes the types of Services that are likely to be sought by the market or has a substantial effect on the volume and/or direction of flow of natural gas through all or part of the Pipeline.~~

~~The AER will consult with the Service Provider and such other parties as the AER considers appropriate in determining whether either of the above events has occurred.~~

~~Such notice will not be given within 18 months of the Review Submission Date in this clause 1.6.~~

Service Provider may, at any other time, submit to the AER proposed revisions to this Access Arrangement together with the applicable Access Arrangement Information in accordance with Rule 65. If approved by the AER, those revisions will commence in accordance with the National Gas Rules.

¹ Reference to Service Provider in this Access Arrangement should be taken as references to any other party or parties that may replace Service Provider as Service Provider during the term of this Access Arrangement.

2. PIPELINE SERVICES

2.1 General

2.1.1 Services

Service Provider ~~offers~~ may provide the following ~~Service~~ Services on the Pipeline ~~under this Access Arrangement:~~

(a) Firm Service – a Reference Service, as described in section ~~2.3~~ Service Provider ~~also offers to provide the following non-Reference Services:~~ 2.3:

(b) ~~(a)~~ Interruptible Service – ~~non-~~ a Reference Service, as described in section 2.4; ~~and~~

(c) ~~(b)~~ Negotiated Services – non-Reference ~~Service~~ Services, as described in section 2.5; ~~including:~~

(i) firm parking service – a service whereby:

(A) Gas received from the User, at a Receipt Point, on a Day, is stored in the Pipeline up to an amount not exceeding the parking allowance specified in the User's Transportation Agreement, without interruption or curtailment, except in the specific and limited circumstances set out in the User's Transportation Agreement; and

(B) the User can withdraw Gas which it has stored in the Pipeline by nominating, and having scheduled, transportation to a Delivery Point, without making a corresponding Receipt Point nomination, in accordance with the terms of a transportation service specified in the User's Transportation Agreement;

(ii) firm loan service – a service whereby:

(A) Gas is delivered to the User, at a Receipt Point, on a Day, up to a quantity not exceeding the loan allowance specified in the User's Transportation Agreement, without interruption or curtailment, except in the specific and limited circumstances set out in the User's Transportation Agreement; and

(B) the User can withdraw Gas which it has stored in the Pipeline by nominating, and having scheduled, transportation to a Delivery Point, without making a corresponding Receipt Point nomination, in accordance with the terms specified in the User's Transportation Agreement;

(iii) interruptible parking service – a service whereby:

(A) Gas received from the User is stored in the Pipeline, on a Day, up to a quantity not exceeding the interruptible parking

allowance specified in the User's Transportation Agreement; and

(B) the User nominates a quantity of Gas for storage on the day, and that quantity is scheduled subject to pipeline capacity being available, and subject to any interruption or curtailment of capacity in the Pipeline;

(iv) interruptible loan service – a Service whereby:

(A) Gas is delivered from the Pipeline, to the User, at a Receipt Point, on a Day, up to a quantity not exceeding the interruptible loan allowance specified in the User's Transportation Agreement; and

(B) the User nominates a quantity of Gas for delivery on a Day, and that quantity is scheduled subject to pipeline capacity and line pack being available, and subject to any interruption or curtailment of capacity in the Pipeline;

(v) in-pipe trade service – a Service whereby a Transportation Agreement recognises the User's delivery of Gas, on a Day, to a notional point (in-pipe delivery point) in the Pipeline, and receipt of that Gas, at a notional point (in-pipe receipt point) in the Pipeline, is recognised in a second User's Transportation Agreement, thereby facilitating the trade of gas between Pipeline Users;

(vi) operational capacity transfer service – a Service facilitating the transfer of Firm Service capacity between Users; and

(vii) interconnection service – a service providing, or facilitating, connection to another pipeline.

2.1.2 4.1.2 Transportation Agreement

Service Provider will provide the Services on the terms and conditions set out in a Transportation Agreement for the relevant Service from time to time. The provision of the Services by Service Provider under a Transportation Agreement is subject to the User complying with the Transportation Agreement.

2.1.3 4.1.3 Right to Access

Service Provider will not discriminate between Prospective Users in the provision of Services on the basis of:

- (a) past transactions or relationships with Service Provider;
- (b) the identity of the Prospective User;
- (c) the fact that the Prospective User is a related party of Service Provider; or

- (d) the source of the Natural Gas proposed to be transported, subject only to the Natural Gas meeting the specifications required under the Transportation Agreement.

Note:

There is currently no firm capacity available on the Pipeline, with all capacity utilised under pre-existing Transportation Agreements for services in the nature of the Firm Service.

In recognition that a firm bidirectional haulage service is the Service which is likely to be sought by the market, Service Provider has defined the Firm Service to enable Users and Prospective Users to understand the conditions on which the Service would be offered if capacity becomes available in the Pipeline.

The Interruptible Service is offered because, while Service Provider does not believe it will be sought by a significant part of the market, it enables Users and Prospective Users to understand the conditions on which capacity may be available in the Pipeline at this time.

2.2 Access and Requests for Services

In order to obtain access to a Service, a Prospective User must observe the following procedures:

- (a) A Prospective User must lodge a Request and meet Service Provider's prudential requirements as follows:
 - (i) the User or Prospective User must be resident in, or have a permanent establishment in, Australia;
 - (ii) the User or Prospective User must not be under external administration as defined in the Corporations Law or under any similar form of administration in any other jurisdiction; and
 - (iii) the User or Prospective User may be required to provide reasonable security in the form of a parent company guarantee or a bank guarantee or similar security. The nature and extent of the security will be determined having regard to the nature and extent of the obligations of the User or Prospective User under the Transportation Agreement.
- (b) A Request must include as a minimum the level of detail envisaged by Schedule 4.
- (c) A Prospective User may have only one active Request for the same tranche of capacity to a particular Delivery Point.
- (d) Service Provider will advise the Prospective User where a Request is incomplete. If the Prospective User corrects the deficiency within 7 Days, the priority of the Request will depend on the date on which Service Provider first received the Request. Otherwise, the priority will depend on the date on which Service Provider receives the complete Request.
- (e) Service Provider will within the shortest reasonable time, and in any event within 30 Days of receiving a complete Request, advise whether Capacity is

available in the Pipeline and at what price, and whether a queue exists for the capacity.

- (f) A Request will lapse unless, within 30 Days of Service Provider advising that Capacity is available, the Prospective User has either entered into a Transportation Agreement or commenced bona fide negotiations.²
- (g) Where there is sufficient Capacity in the Pipeline to meet a Request, there will be no queue.
- (h) Where there is insufficient Capacity in the Pipeline to fully satisfy a Request, then a queue will be formed and the Queuing requirements in section 6 will apply.

In this section 2.2, "Prospective User" does not include a User which is exercising its rights under a Transportation Agreement which existed as at the commencement date of the Access Arrangement.

2.3 Firm Service³

2.3.1 General

Service Provider will provide the Firm Service to Users with whom it has a Transportation Agreement to provide the Firm Service, for each Day of the Term on the following basis:

- (a) the receipt by Service Provider at the Receipt Points of quantities of Gas Nominated by the User not exceeding the Firm MDQ, at a rate per Hour not exceeding the Firm MDQ multiplied by the MDQ factor described below;
- (b) the transportation of the Gas referred to paragraph (a) above on a firm basis and without interruption, except as permitted under the Transportation Agreement; and
- (c) the delivery by Service Provider to or on account of the User at the Delivery Points of the quantities of Gas Nominated by the User, not exceeding the applicable MDQ and in aggregate not exceeding the Firm MDQ at a rate per Hour not exceeding the MHQ applicable to that Delivery Point,

as Scheduled in accordance with the Transportation Agreement.

The terms and conditions of the Transportation Agreement for the Reference Service will be consistent with this Access Arrangement (including the General Terms and Conditions) and in the event of any inconsistency between the terms and conditions of

² A Request will not lapse in the event of a dispute being notified under the National Gas Law until that dispute has been resolved in accordance with the dispute resolution procedures in the National Gas Law and the Rules, unless the parties agree otherwise.

³ This section presents an overview of key elements of the Firm Service. The terms and conditions applying to the Service are more fully described in Schedule 3.

the Transportation Agreement and this Access Arrangement, the terms and conditions in this Access Arrangement will prevail.

2.3.2 MHQ, MDQ and Firm MDQ

Before the commencement of the Transportation Agreement Users will be required to establish:

- (a) an MHQ which fairly reflects the User's expected maximum hourly requirement for each Delivery Point;
- ~~(d)~~ (b) an MDQ which fairly reflects the User's expected Daily requirements for each Delivery Point; and
- ~~(e)~~ (c) a Firm MDQ which fairly reflects the User's expected Daily requirements across all Delivery Points;

under the Firm Service.

The MHQ for a Delivery Point must not exceed the amount calculated as follows:

$$\frac{\text{MDQ for a Delivery Point} \times \text{MHQ Factor}}{24}.$$

Where the MHQ Factor is 1.1.

2.3.3 Term

The term of the Firm Service will be three Years or such longer period ending on the anniversary of the commencement of the User's Transportation Agreement, as the User elects at the time of entering into the Transportation Agreement.

2.3.4 Reference Tariff applicable under a Firm Service

The Reference Tariff for the Firm Service is payable on the aggregate of all Delivery Point MDQs. The charges for the Firm Service are described in section 4.

2.3.5 Terms and Conditions

The General Terms and Conditions in Schedule 3 apply to the Firm Service.

2.4 Interruptible Service⁴

2.4.1 General

To the extent that the spare capacity of the Pipeline is not sufficient to meet the User's requirements, in their entirety, for the Firm Service, Service Provider will, on the User contracting to take the entire spare capacity as the Firm Service, offer the Interruptible

⁴ This section presents an overview of key elements of the Interruptible Service. The terms and conditions applying to the ~~Service will be negotiated at the time the~~ Interruptible Service ~~is sought~~ are more fully described in Schedule 3.

Service, for the balance of the User's requirements in excess of that contracted as the Firm Service. Should capacity become available on the Pipeline which can be used for provision of the Firm Service, the User will be required to contract for that spare capacity as the Firm Service and reduce the amount of Interruptible Service accordingly.

Unless otherwise agreed by Service Provider, the Interruptible Service is available only to the extent the Firm Service is not available.

Service Provider will provide the Interruptible Service to Users with whom it has a Transportation Agreement to provide the Interruptible Service ~~which involves the transportation of quantities of Gas from the Receipt Points to any Delivery Points on a particular Day on an interruptible basis based on the Gas Scheduled by Service Provider on behalf of the User under the Interruptible Service.~~ for each Day of the Term on the following basis:

- (a) the receipt by Service Provider at the Receipt Points of quantities of Gas Nominated by the User not exceeding the quantities Scheduled for delivery under the Interruptible Service;
- (b) the transportation of the Gas referred to paragraph (a) above, on an interruptible basis; and
- (c) the delivery by Service Provider ~~is not obliged to provide to or on account of the User at the Delivery Points of the quantities of Gas Nominated by the User, not exceeding the quantities Scheduled for delivery under~~ the Interruptible Service ~~to a User on a Day on which:~~
 - ~~(a) the provision of the Service or the transportation of the requested quantities would cause Service Provider to curtail a Service;~~
 - ~~(ii) that Service Provider is obliged to provide to any User on a firm basis under a as Scheduled in accordance with the Transportation Agreement; ~~or.~~~~

The terms and conditions of the Transportation Agreement for the Reference Service will be consistent with this Access Arrangement (including the General Terms and Conditions) and in the event of any inconsistency between the terms and conditions of the Transportation Agreement and this Access Arrangement, the terms and conditions in this Access Arrangement will prevail.

- ~~(iii) already Scheduled for transportation to another User at the time the User's Nomination is received by Service Provider; or~~
- ~~(b) The User has failed to provide Gas to Service Provider at the Receipt Point:~~
 - ~~(i) within 4 hours of the commencement of deliveries under the relevant Service on the Day; and~~
 - ~~(ii) in accordance with its obligations under the Transportation Agreement; or~~

~~in Service Provider's reasonable opinion, there is or is reasonably expected to be insufficient Capacity in the Pipeline, or insufficient other Scheduled (if applicable) receipts or deliveries of quantities of Gas, to facilitate the Service.~~

~~4.4.2~~ **4.4.2 Interruption to Service**

~~If Service Provider curtails or interrupts Services where necessary for operational purposes or in response to emergencies or Force Majeure Events, Services to Users of the Interruptible Service will be curtailed or interrupted prior to Services to other Users. Full details of the circumstances where Service Provider may curtail or interrupt the Interruptible Service and other Services will be set out in the relevant Interruptible Transportation Agreement.~~

~~2.4.2~~ **4.4.3 Term**

The term of the Interruptible Service will be ~~as negotiated with Service Provider, one Year or such longer period that may be agreed by the parties ending on the anniversary of the commencement of the User's Transportation Agreement, as the User elects at the time of entering into the Transportation Agreement.~~

~~2.4.3~~ **2.4.3 Reference Tariff applicable under an Interruptible Service**

~~The Reference Tariff for the Interruptible Service is payable on the aggregate quantity of Gas, delivered to the User at all Delivery Points under the Interruptible Service. The charges for Interruptible Service are described in section 4.~~

~~2.4.4~~ **2.4.4 Terms and Conditions**

~~4.4.4 Charges for~~ The General Terms and Conditions in Schedule 3 will apply to the Interruptible Service.

~~The charges for the Interruptible Service~~ The charges for Interruptible Service are described in section 4.

~~4.4.5~~ **4.4.5 Terms and Conditions**

~~The Terms and Conditions as agreed between Service Provider and the User in an Interruptible Transportation Agreement will apply.~~

2.5 Negotiated Services

Where a Prospective User has specific needs which differ from those which would be satisfied by the ~~Firm Service~~ Reference Services, the Prospective User may seek to negotiate different terms and conditions as a Negotiated Service.

Should a dispute arise in relation to whether a Negotiated Service is available, it will be resolved in accordance with Chapter 6 of the National Gas Law and Part 12 of the Rules unless the parties agree otherwise.

3. DETERMINATION OF TOTAL REVENUE

3.1 Principles

Total Revenue was calculated using a building block approach in accordance with Rule 76.

In addition, Total Revenue may vary during the Access Arrangement Period, as Reference Tariffs are varied (see section 4).

Reference Tariffs were determined using a nominal weighted average of the return on equity and the return on debt resulting in an allowed rate of return on capital over the Access Arrangement Period as detailed in the Access Arrangement Information.

~~The expected revenue has been allocated to the Reference Tariff on the basis of Rule 95.~~

For the purpose of calculating Reference Tariffs, the portions of Total Revenue referable to providing the Reference Services have been determined in accordance with Rule 95.

3.2 New Capital Expenditure

Reference Tariffs have been determined on the basis of:

- (a) the Capital Base; and
- (b) New Capital Expenditure that is forecast to occur within the Access Arrangement Period and is reasonably expected to satisfy the requirements of Rule 79 ~~(Forecast Capital)~~.

Service Provider may increase the Capital Base for the Pipeline for any part of the New Capital Expenditure that satisfies Rule 79.

Service Provider may undertake New Capital Expenditure that does not satisfy Rule 79. Where Service Provider does so, Service Provider may increase the Capital Base for any part of that New Capital Expenditure that does satisfy Rule 79. Service Provider may also increase the Capital Base for Capital Contributions under Rules 82(2) and (3).

Where Capital Contributions are rolled into the Capital Base under Rule 82(2), the following mechanism is applied to ensure that Service Provider does not receive any benefit through increased Revenue from that User's contribution to the Capital Base.⁵

Capital Contributions are treated as Revenue in the year in which they are received. The forecast amount of Capital Contributions is then deducted from the total Revenue requirement in determining the Revenue requirement to be recovered through tariffs. Through this process, Service Provider returns to customers, by way of lower tariffs,

⁵ As required under Rule 82(3)

the full benefit associated with the return on and return of contributed capital. The up-front reduction in tariff revenue exactly equals, in present value terms, the return on and return of capital over the life of the capital investment.

The amount that does not satisfy the requirements of Rule 79, to the extent that it is not to be recovered through a Surcharge on Users or a Capital Contribution, forms part of the Speculative Capital Expenditure Account (as contemplated by Rule 84). Service Provider may increase the Capital Base in accordance with Rule 84(3) if a part of the Speculative Capital Expenditure Account subsequently satisfies the requirements of Rule 79.

Any increase in the Capital Base under this section 3.2, or in accordance with Rule 80, may only take effect from the Revisions Commencement Date, or in accordance with the operation of the Cost Pass-through Reference Tariff Variation Mechanism.

3.3 Surcharge

Service Provider may charge Users a Surcharge where permitted by the National Gas Rules. Service Provider will notify the AER of any proposed Surcharge to be levied on Users of incremental services and designed to recover non-conforming capital expenditure or a specified portion of non-conforming capital expenditure. Non-conforming capital expenditure which is recovered by means of a Surcharge will not be rolled into the Capital Base.

3.4 Capital Contributions

Service Provider may charge Users a Capital Contribution to new capital expenditure where permitted by the National Gas Rules (see Rule 82).

3.5 Depreciation for opening capital base for next access arrangement period

The depreciation schedule for establishing the ~~opening asset base~~ Capital Base at 1 July ~~2021-2026~~ will be based on forecast capital expenditure.

4. REFERENCE TARIFF AND CHARGES

4.1 Reference Tariff [for the Firm Service](#)

The Reference Tariff for the Firm Service is a capacity tariff and is set out in the Details.

The User will pay a charge for a Day calculated by multiplying the Reference Tariff [for the Firm Service](#) by the Firm MDQ expressed in GJ.

~~6.2 Tariff and Charges for Interruptible Service (Non-Reference Service)~~

~~4.2 The tariff [Reference Tariff for the Interruptible Service](#) and any applicable charges will be negotiated, and adjusted in accordance with the Transportation Agreement agreed between Service Provider and the User.~~

~~[The Reference Tariff for the Interruptible Service is a quantity tariff and is set out in the Details.](#)~~

~~[The User will pay a charge for the Day calculated by multiplying the Reference Tariff for the Interruptible Service by the aggregate quantity of Gas \(expressed in GJ\) delivered to the User at the Delivery Points under the Interruptible Service on that Day.](#)~~

4.3 Daily Variance Charge

A Daily Variance occurs when a quantity of Gas:

- (a) delivered from or on behalf of the User at any Delivery Point during a Day is different from the quantity of Gas Scheduled for that Delivery Point; or
- (b) received from or on behalf of the User at any Receipt Point during a Day is different from the quantity of Gas Scheduled for that Receipt Point,

the absolute value of the quantity of which at each Delivery Point and Receipt Point (as applicable), in GJ, is the **Daily Variance Quantity**.

The User must pay to Service Provider the Daily Variance Charge, for each Day on which the Daily Variance Quantity:

- (c) at a Receipt Point exceeds the Daily Variance Allowance; or
- (d) at a Delivery Point exceeds the Daily Variance Allowance,

excluding any portion of the Daily Variance that is caused by Service Provider or by a Force Majeure Event.

The **Daily Variance Charge** is calculated by multiplying the Daily Variance Rate by the aggregate of Daily Variance Quantities for that Day at Receipt Points and Delivery Points (as applicable) for which the Daily Variance Charge is payable under the above paragraph.

4.4 Overrun Charge

The User must pay to Service Provider each Month during the Term the Overrun Charge in respect of all Overrun Quantities delivered in that Month.

The User is not liable to pay the Overrun Charge in respect of a Day to the extent that, without the prior written approval of the User, Service Provider (other than in the exercise of its rights under the Transportation Agreement) solely causes the delivery of Overrun Quantities on that Day.

4.5 Imbalance Charge

Service Provider may charge the User an Imbalance Charge for each Day on which an Imbalance, the absolute value of which exceeds the Imbalance Allowance, occurs, calculated by multiplying the Imbalance Rate by the amount which the aggregate of the absolute value of Unauthorised Imbalances for a Day exceed the Imbalance Allowance for a Day.

4.6 General

The rates applicable to the Daily Variance Charge, Overrun Charge and Imbalance Charge are set out in the Details.

Any Overrun Charge, Imbalance Charge or Daily Variance Charge is payable in addition to, and not substitution for, any other charge payable by the User and does not affect the MDQ specified in the Transportation Agreement.

4.7 Reference Tariff Variation Mechanism

The Reference Tariff for the Firm [Service and the Reference Tariff for the Interruptible Service](#) may be varied during the Access Arrangement Period through the operation of the Reference Tariff Variation Mechanism, which is made up of:

- (a) A Scheduled Reference Tariff Variation Mechanism – which applies in respect of each year of the Access Arrangement Period; and
- (b) A Cost Pass-through Reference Tariff Variation Mechanism - under which Service Provider may seek to vary the Reference Tariff as a result of occurrence of a Cost Pass-through Event.

4.7.1 Scheduled Reference Tariff Variation Mechanism

The Reference Tariff for the Firm Service [and the Interruptible Service](#) to apply on 1 July ~~2017~~2022 and on each subsequent 1 July, will be adjusted according to the following formula:

$$Reference\ Tariff_t = Reference\ Tariff_b \times \frac{CPI_t}{CPI_b} \times \prod_{j=1}^t (1 - X_j) \times (1 + PT_t)$$

where:

Reference Tariff_t is the Reference Tariff for the year t

t	is the year in which the adjusted Reference Tariff is to be applied
<i>Reference Tariff_b</i> 17 <u>2021-22</u>	is the Reference Tariff for the Firm Service for the year 2016- 17 <u>2021-22</u>
<i>CPI</i>	is the ABS CPI All Groups, Weighted Average of Eight Capital Cities. If the ABS does not, or ceases to, publish the index, then CPI will mean an index which the AER considers is the best available alternative index.
CPI_t	is the ABS CPI All Groups, Weighted Average of Eight Capital Cities for the December quarter in financial year $t-1$
CPI_b	is the ABS CPI All Groups, Weighted Average of Eight Capital Cities for the December quarter in financial year 2015-16 <u>2020-21</u>
X	is the X factor for each financial year of the 2016-21 <u>2021-22</u> access arrangement period as determined in the PTRM as approved in the AER's final decision, and annually revised for the return on debt update calculated for the relevant financial year during the access arrangement period in accordance with that approved in the AER's final decision.

$\prod_{j=1}^n (1 - X_j)$ is the product of X factors calculated as follows:

where

n is the number of X factors

- for ~~2017-18~~2022-23, $n=1$, and

$$\prod_{j=1}^n (1 - X_j) = 1 - X_{2017-18}$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~2022-23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-18~~2022-23

- for ~~2018-19~~2023-24, $n=2$, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~2022-23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-~~

~~18~~2022–23, and $X_{2018-19}$ is the X factor for ~~2018–19~~2023–24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for 2018–19

- for ~~2019–20~~2024–25, $n=3$, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})(1 - X_{2019-20})$$

where $X_{2017-18}$ is the X factor for ~~2017–18~~2022–23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017–18~~2022–23, and $X_{2018-19}$ is the X factor for ~~2018–19~~2023–24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2018–19~~2023–24, and $X_{2019-20}$ is the X factor for ~~2019–20~~2024–25 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2019–20~~2024–25

- for ~~2020–21~~2025–26, $n=4$, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})(1 - X_{2019-20})(1 - X_{2020-21})$$

where $X_{2017-18}$ is the X factor for ~~2017–18~~2022–23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017–18~~2022–23, and $X_{2018-19}$ is the X factor for ~~2018–19~~2023–24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2018–19~~2023–24, and $X_{2019-20}$ is the X factor for ~~2019–20~~2024–25 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2019–20~~2024–25, and $X_{2020-21}$ is the X factor for ~~2020–21~~2025–26 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2020–21~~2025–26

PT_t is the cost pass through factor for financial year t calculated as outlined below.

PT_t is:

- zero when financial year t refers to financial year ~~2016–17~~2021–22
- the value of PT'_t determined for the financial year t for all other financial years in the access arrangement period

and

$$PT'_t = \frac{AP_t}{\left(\frac{CPI_t}{CPI_b}\right) \times \prod_{j=1}^t (1 - X_j) \times \sum_{j=1}^n ReferenceTariff_b q_{t-2}}$$

where

AP_t is:

- (a) any determined costs that the AER approves in respect of a pass through amount under section 4.7.4 in financial year t; and/or
- (b) any pass through amounts arising from pass through events (as that termed is defined in the access arrangement applying to APTNT in the immediately prior access arrangement period) occurring in the immediately prior access arrangement period that APTNT proposed to pass through in whole or in part in financial year t,

CPI is the ABS CPI All Groups, Weighted Average of Eight Capital Cities. If the ABS does not, or ceases to, publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

CPI_t is the ABS CPI All Groups, Weighted Average of Eight Capital Cities for the December quarter in financial year t-1

CPI_b is the ABS CPI All Groups, Weighted Average of Eight Capital Cities for the December quarter in financial year ~~2015-16~~2020-21

X is the X factor for each financial year of the ~~2016-21~~2021-26 access arrangement period as determined in the PTRM as approved in the AER's final decision, and annually revised for the return on debt update calculated for the relevant financial year during the access arrangement period in accordance with that approved in the AER's final decision.

$\prod_{j=1}^n (1 - X_j)$ is the product of X factors calculated as follows:

where

n is the number of X factors

- for ~~2017-18~~2022-23, $n=1$, and

$$\prod_{j=1}^n (1 - X_j) = 1 - X_{2017-18}$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~ 2022-23, as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-18~~ 2022-23

- for ~~2018-19~~ 2023-24, n=2, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~ 2022-23, as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-18~~ 2022-23, and $X_{2018-19}$ is the X factor for ~~2018-19~~ 2023-24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2018-19~~ 2023-24

- for ~~2019-20~~ 2024-25, n=3, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})(1 - X_{2019-20})$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~ 2022-23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-18~~ 2022-23, and $X_{2018-19}$ is the X factor for ~~2018-19~~ 2023-24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2018-19~~ 2023-24, and $X_{2019-20}$ is the X factor for ~~2019-20~~ 2024-25 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2019-20~~ 2024-25

- for ~~2020-21~~ 2025-26, n=4, and

$$\prod_{j=1}^n (1 - X_j) = (1 - X_{2017-18})(1 - X_{2018-19})(1 - X_{2019-20})(1 - X_{2020-21})$$

where $X_{2017-18}$ is the X factor for ~~2017-18~~ 2022-23 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2017-18~~ 2022-23, and $X_{2018-19}$ is the X factor for ~~2018-19~~ 2023-24 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2018-19~~ 2023-24, and $X_{2019-20}$ is the X factor for ~~2019-20~~ 2024-25 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2019-20~~ 2024-25, and $X_{2020-21}$ is the X factor for ~~2020-21~~ 2025-26 as determined in the PTRM as approved in the AER's final decision after revision for the return on debt for ~~2020-21~~ 2025-26

$Reference\ Tariff_b$ is the Reference Tariff for the ~~Firm Service for the year 2016–17~~2021–22

q_{t-2} is the quantity of component reference tariff that was sold in year t–2 (expressed in the units in which that component is expressed, e.g. GJ)

t is the financial year for which the reference tariff is being set.

4.7.2 Scheduled Reference Tariff Variation process

Service Provider will notify the AER in respect of any Reference Tariff variations, such that variations occur on the first of July of any year. The notification will be made at least 50 business days before the date of implementation and will include:

- (a) an explanation and details of how the proposed variations have been calculated;
- (b) the cost of the Cost Pass Through Events previously approved by the AER;
- (c) the updated return on debt to be used in the Post-Tax Revenue Model to determine the total revenue for the year commencing on the first of July;
- (d) the X factor for the year commencing on the first of July which is calculated in the Post-Tax Revenue Model; and
- (e) the Reference ~~Tariff for the Firm Service~~Tariffs for the year commencing on the first of July.

If Service Provider proposes variations to the Reference ~~Tariff~~Tariffs (other than as a result of a Cost Pass-through Event) and those variations have not been approved by the next 1 July, then the Reference ~~Tariff~~Tariffs will be varied with effect from that next 1 July, until such time as variations to Reference ~~Tariff~~Tariffs are approved by the AER.

If it appears that any past annual tariff variation contains a material error or deficiency because of a clerical mistake, accidental slip or omission, miscalculation or mis-description, the AER may change subsequent tariffs to account for these past issues.

Within 30 business days of receiving Service Provider's tariff variation notice, the AER will inform Service Provider in writing of whether or not it has verified the proposed Reference Tariffs.

The 30 business day period may be extended for time taken by the AER to obtain information from Service Provider, obtain expert advice or consult about the notification. However, the AER must assess a cost pass through application within 90 business days, including any extension of the decision making time.

4.7.3 Cost Pass-through Reference Tariff Variation Mechanism

Subject to the approval of the AER under the National Gas Rules, the Reference ~~Tariff~~Tariffs may be varied after one or more Cost Pass-through Event/s occurs, in which each individual event materially increases or materially decreases the cost of

providing the Reference ~~Service~~Services. Any such variation will take effect from the next 1 July.

In making its decision on whether to approve the proposed Cost Pass-through Event variation, the AER must take into account the following:

Whether:

- the costs to be passed through are for the delivery of pipeline services
- the costs are incremental to costs already allowed for in the Reference ~~Tariff~~Tariffs
- the total costs to be passed through are building block components of total revenue
- the costs to be passed through meet the relevant National Gas Rules criteria for determining the building block for total revenue in determining the Reference ~~Tariff~~Tariffs
- any other factors the AER considers relevant and consistent with the National Gas Rules and National Gas Law.

For the purpose of any defined event, an event is considered to materially increase or materially decrease costs where the incurred or expected costs of that individual event meet the Materiality Threshold defined below.

Cost Pass-through Events are:

- a regulatory change event;
- a service standard event;
- a tax change event;
- a terrorism event;
- an insurer credit risk event;
- an insurance cap event;
- a natural disaster event.

Where:

Regulatory change event—means:

A change in regulatory obligation or requirement that:

- (a) falls within no other category of pass through event; and
- (b) occurs during the course of an access arrangement period; and

- (c) substantially affects the manner in which the Service Provider provides the ~~Firm Service~~Reference Services; and
- (d) materially increases or materially decreases the costs of providing these services.

Service standard event—means:

A legislative or administrative act or decision that:

- (a) has the effect of:
 - (i) substantially varying, during the course of an access arrangement period, the manner in which a Service Provider is required to provide the ~~Firm Service~~Reference Services; or
 - (ii) imposing, removing or varying, during the course of an access arrangement period, minimum service standards applicable to the ~~Firm Service~~Reference Services; or
 - (iii) altering, during the course of an access arrangement period, the nature or scope of the ~~Firm Service~~Reference Services, provided by the ~~service provider~~Service Provider; and
- (b) materially increases or materially decreases the costs to the ~~service provider~~Service Provider of providing the ~~Firm Service~~Reference Services.

Tax change event—means:

A tax change event occurs if any of the following occurs during the course of the access arrangement period for Service Provider:

- (a) a change in a relevant tax, in the application or official interpretation of a relevant tax, in the rate of a relevant tax, or in the way a relevant tax is calculated;
- (b) the removal of a relevant tax;
- (c) the imposition of a relevant tax; and

in consequence, the costs to Service Provider of providing the Reference ~~Service~~Services are materially increased or decreased.

Terrorism event—means:

An act (including, but not limited to, the use of force or violence or the threat of force or violence) of any person or group of persons (whether acting alone or on behalf of in connection with any organisation or government), which:

- (a) from its nature or context is done for, or in connection with, political, religious, ideological, ethnic or similar purposes or reasons (including the intention to influence or intimidate any government and/or put the public, or any section of the public, in fear): and
- (b) increases the costs to the Service Provider of providing ~~a Firm Service~~the Reference Services.

Note for the avoidance of doubt, in making a determination on a Terrorism Event, the AER will have regard to, amongst other things:

- i. whether the Service Provider has insurance against the event;
- ii. the level of insurance that an efficient and prudent service provider would obtain in respect of the event; and
- iii. whether a declaration has been made by a relevant government authority that an act of terrorism has occurred.

Insurer credit risk event

Insurer Credit Risk Event means an event where:

- (a) An insurer of the Service ~~Providers~~ Provider becomes insolvent, and
- (b) As a result, in respect of an existing, or potential, claim for a risk that was insured by the insolvent insurer, the Service Provider:
 - i. is subject to a higher or lower claim limit or higher or lower deductible than would have otherwise applied under the insolvent insurer's policy; or
 - ii. incurs additional costs associated with self-funding an insurance claim, which would otherwise have been covered by the insolvent insurer.

Note for the avoidance of doubt, in making a determination on an Insurer Credit Risk Event, the AER will have regard to, amongst other things:

- i. the Service Provider's attempts to mitigate and prevent the event from occurring by reviewing and considering the insurer's track record, size, credit rating and reputation, and
- ii. in the event that a claim would have been made after the insurance provider became insolvent, whether the Service Provider had reasonable opportunity to insure the risk with a different provider.

Insurance cap event

Insurance Cap Event means an event where:

- (a) the Service Provider makes a claim or claims and receives the benefit of a payment or payments under a relevant insurance policy;
- (b) the Service Provider incurs costs beyond the relevant policy limit; and
- (c) the costs beyond the relevant policy limit increase the costs to Service Provider of providing the ~~Firm Service~~ Reference Services.

For this Insurance Cap Event:

- (d) a relevant insurance policy is an insurance policy held during the Access Arrangement Period or a previous period in which access to the pipeline services was regulated; and
- (e) the Service Provider will be deemed to have made a claim on a relevant insurance policy if the claim is made by a related party of the Service Provider in relation to any aspect of the Network or the Service Provider's business

Note for the avoidance of doubt, in making a determination on an Insurance Cap Event, the AER will have regard to, amongst other things:

- i. the insurance policy for the event
- ii. the level of insurance that an efficient and prudent service provider would obtain in respect of the event, and
- iii. any assessment by the AER of the Service Provider's insurance in approving the access arrangement for the AGP for the relevant period.

Natural disaster event—means:

Any natural disaster including but not limited to fire, flood or earthquake that occurs during the access arrangement period and materially increases the costs to Service Provider in providing the ~~Firm Service~~ Reference Services, provided the fire, flood or other event was not a consequence of the acts or omissions of the Service Provider.

Note for the avoidance of doubt, in making a determination on a Natural Disaster Event, the AER will have regard to, amongst other things:

- (a) whether the Service Provider has insurance against the event
- (b) the level of insurance that an efficient and prudent service provider would obtain in respect of the event.

Materiality threshold—means:

For the purpose of any defined Cost Pass-through Event, an event is considered to materially increase or materially decrease costs where that event has an impact of one per cent of the smoothed forecast revenue specified in the access arrangement information, in the years of the access arrangement period that the costs are incurred.

4.7.4 Tariff variation process for cost pass through events

Service Provider will notify the AER of a Cost Pass-through Event within 90 business days of the Cost Pass-through Event occurring, whether the Cost Pass-through Event would lead to an increase or decrease in Reference Tariffs.

When the costs of the Cost Pass-through Event incurred are known (or able to be estimated to a reasonable extent), then those costs shall be notified to the AER. When making such notification to the AER, Service Provider will provide the AER with a statement, signed by an authorised officer of Service Provider, verifying that the costs of any pass through events are net of any payments made by an insurer or third party which partially or wholly offsets the financial impact of that event (including self insurance).

The AER must notify Service Provider of its decision to approve or reject the proposed variations within 90 business days of receiving the notification. This period will be extended for the time taken by the AER to obtain information from Service Provider, obtain expert advice or consult about the notification.

However, if the AER determines the difficulty of assessing or quantifying the effect of the relevant Cost Pass-through Event requires further consideration, the AER may exceed the 90 business day limit. The AER will notify Service Provider of the

extension, and its duration, within 90 business days of receiving a notification from Service Provider.

The approved cost of the Cost Pass-through Event will be included in the tariff variation mechanism in ~~section 4.7.2(b)~~[section 4.7.2\(b\)](#).

4.8 Reference ~~Tariff~~[Tariffs](#) after 30 June ~~2021~~[2026](#)

In the event that the Revisions Commencement Date is later than 30 June ~~2021~~[2026](#), the ~~tariff~~[tariffs](#) in effect at 30 June ~~2021~~[adjustment-2026](#) shall continue to apply to the provision of the ~~Firm Service~~[Reference Services](#) between 30 June ~~2021~~[2026](#) and that later Revisions Commencement Date.

If the Reference Services under the revised Access Arrangement are different to those in this Access Arrangement, the applicable Reference ~~Tariff~~[Tariffs](#) and terms for an existing Service being supplied to a User as at the Revisions Commencement Date are the Tariff and terms for the nearest comparable service under the revised Access Arrangement.

4.9 Capital Redundancy Mechanism

In accordance with Rule 85, the AER may review, and if necessary, adjust the Opening Capital Base at 1 July ~~2021~~[2026](#) based on the following principles:

- (a) any assets that cease to contribute in any way to the delivery of Services to Users shall be removed from the Capital Base; and
- (b) costs associated with a decline in the volume of sales of Services provided by means of the Pipeline will be shared between Service Provider and Users.

Subject to the New Capital Expenditure criteria under Rule 79, if, after the reduction of the Capital Base by the value of assets identified as redundant, the assets later contribute to the delivery of pipeline services, the assets will be treated as New Capital Expenditure (for the purposes of Rules 79, 81 and 84) equal to the value of the assets identified as redundant increased annually on a compounded basis by the weighted average cost of capital from the time the assets identified as redundant were removed from the Capital Base.

5. CAPACITY TRADING REQUIREMENTS

5.1 Governing provisions

Transfers of Contracted Capacity will be undertaken:

- (a) where the relevant parties are registered as participants in a particular gas market - in accordance with rules or procedures governing the relevant market; or
- (b) If the relevant parties are not so registered, or the relevant rules or procedures do not deal with capacity trading - in accordance with Rule 105 and sections 5.2 and 5.3.

5.2 Assignment of Contracted Capacity by subcontract

The User may, without Service Provider's consent, assign, by way of subcontract, all or any of the User's Contracted Capacity to another person (the **third party**) with the following consequences:

- (a) the User's rights against, and obligations to, Service Provider are (subject to paragraph (b)) unaffected by the assignment; and
- (b) the User must immediately give notice to Service Provider of:
 - (i) the subcontract and its likely duration; and
 - (ii) the identity of the third party; and
 - (iii) the amount of the Contracted Capacity assigned and any other details (other than price) reasonably requested by Service Provider.

Service Provider is not under any obligation to the User or the third party in respect of an assignment under this section 5.2 unless and until the User notifies Service Provider in accordance with paragraph (b)(ii) above.

5.3 Other assignments

The User may, with Service Provider's prior written consent which must not be unreasonably withheld, assign its Receipt MDQ or Delivery MDQ (or both), other than an assignment under section 5.2, provided that:

- (a) The User pays Service Provider's reasonable costs and expenses (including legal costs, internal costs and other costs as reasonably determined) in respect of application for consent (whether or not the assignment proceeds to completion) and any assignment;
- (b) Service Provider and the assignee execute a Transportation Agreement acceptable to Service Provider in relation to the Receipt MDQ or Delivery MDQ in a form and substance similar to the User's Transportation Agreement;

- (c) the Receipt MDQ or Delivery MDQ to be assigned relates to the Receipt Points and Delivery Points or, if different receipt points or delivery points are proposed, the assignee meets Service Provider's reasonable requirements;
- (d) the assignee agrees with any other User using the relevant Receipt Points and Delivery Points to sharing of the use of facilities and any conditions and charges, at no additional cost to Service Provider;
- (e) the assignee confirms in writing that it has made all necessary arrangements with producers of Gas for the assignee, purchasers of Gas from the assignee and any other party relating to that service, including all Gas purchase, Gas sale, operating and multi-party Receipt Point and Delivery Point arrangements;
- (f) if the assignment of part or all of the Receipt MDQ or Delivery MDQ to the assignee requires additional facilities at the Receipt Point or Delivery Point, the User or the assignee (or both) agree to pay Service Provider for the cost of construction on terms and conditions reasonably determined by Service Provider;
- (g) The User agrees to comply with any other reasonable commercial or technical conditions of Service Provider.

Service Provider may withhold its consent to an assignment under this [clause-section 5.3](#) on reasonable commercial and technical grounds. An example might be if Service Provider would not receive at least the same amount of revenue it would have received before the change.

An assignment made under the [clause-section 5.3](#) does not affect rights or liabilities that had accrued under, or in relation to, the Transportation Agreement before the relevant assignment took effect.

5.4 Changing delivery and receipt points

The User may, by giving at least 45 Days written notice before the proposed change, request substitution of an existing MDQ in relation to a Delivery Point or a Receipt Point to another Delivery Point or Receipt Point (respectively) provided the proposed substitution is to a Receipt Point or Delivery Point which has all the necessary facilities required to be located at the applicable Delivery Point or Receipt Point.

Service Provider may withhold its consent to all or part of the above request on reasonable commercial or technical grounds or make its consent subject to conditions which are on reasonable commercial or technical grounds. An example of such grounds might be if a reduction in the amount of MDQ at the initial Delivery Point will not result in a corresponding increase in Service Provider's ability to provide that service to the alternative Delivery Point.

Service Provider will notify the User, within 30 Days of receiving the User's notice, whether it can consent to all or part of the User's request.

If the MDQ for a Receipt Point or a Delivery Point is substituted, the amount payable under the Transportation Agreement will be no less than what was payable prior to the substitutions having been made.

6. QUEUING REQUIREMENTS

6.1 Forming the Queue

Where there is insufficient Capacity to satisfy a Request lodged under section 2.2, a queue will be formed.

A queue will include all relevant Requests which cannot be satisfied. Where an offer has been made in response to a Request received prior to formation of the queue, that Request will take first position in the queue.

At the time a Request is placed in a new or existing queue, Service Provider will advise the Prospective User of:

- (a) its position on the queue;
- (b) the aggregate capacity sought under Requests which are ahead on the queue;
- (c) its estimate of when Capacity may become available; and
- (d) the size of any surcharge or other contribution that may apply to Developable Capacity.

When the position of a Request changes relative to other Requests which are ahead in the queue (such as where a Request ceases to be on the queue) or where the timing of availability of a new tranche of Developable Capacity changes, Service Provider will provide revised information to the Prospective User.

6.2 Conditions Applicable on Queue

A Prospective User may reduce but not increase the capacity sought in a Request which is in a queue.

Once every three Months, Service Provider may seek confirmation from a Prospective User that it wishes to continue with its Request. If a Prospective User fails to respond within 14 Days the Request will lapse.

A Prospective User will advise Service Provider if it does not wish to proceed with a Request, which will then lapse.

Any lapsed Request will be removed from the queue and priority will be lost.

A Prospective User may only assign a Request on a queue to a bona fide purchaser of the Prospective User's business and/or assets, subject to Service Provider's prudential requirements.

A Request may lapse if, on assignment of a controlling interest in the shares of the Prospective User, the assignee fails to provide a guarantee as required by Service Provider or to meet Service Provider's prudential requirements.

6.3 Procedure When Capacity Can Be Made Available

When Capacity can be made available which meets the requirements of any Request in a queue:

- (a) that Capacity will be progressively offered to each Prospective User in the queue in order of priority (notwithstanding that such Capacity is not sufficient to meet the needs of that Prospective User);
- (b) Service Provider will advise each of those Prospective Users of its plans to make Capacity available, and the terms and conditions on which the Capacity will be available.
- (c) Where a Prospective User is offered part of the Capacity in a Request:
 - (i) but declines it because the Prospective User wants all the capacity requested or nothing; or
 - (ii) accepts the Capacity offered but the Prospective User wants to remain in the Queue for the remainder of the requested capacity

the Prospective User will not lose priority in respect of any capacity requested but not taken provided that it notifies Service Provider that it wishes to remain in the Queue.

A Prospective User will have 30 Days after an offer is made to enter into a Transportation Agreement (conditional if necessary on Service Provider entering into Transportation Agreements with other Prospective Users), failing which the Request will lapse or lose priority to those entering into such a Transportation Agreement (upon that Agreement becoming unconditional).

6.4 Priority of Prospective Users in Obtaining Services

The priority date of a Request is the date a complete Request is received by Service Provider (see section 2.2).

Where Service Provider determines that two or more Requests relate to the same tranche of Capacity for the same Delivery Point, all those Requests will have the priority date of the earliest Request.

A Request for a Reference Service will have priority over a Request for a Negotiated Service or a Request for an Interruptible Service.

If a User exercises a contractual right in force as at the commencement date of the access arrangement to increase the capacity reservation under its existing Transportation Agreement, that advice will be treated as a Request and will be accorded first priority, including priority as against any Request under which an offer has been made to enter into a Transportation Agreement but where the User has not yet entered into that Transportation Agreement.

6.5 General

A Request will not lapse and will retain its priority in a queue in the event of a dispute being notified, until that dispute has been resolved in accordance with Chapter 6 of the National Gas Law and Part 12 of the Rules.

Where a queue exists a Prospective User must on request demonstrate to Service Provider that the Prospective User will have access to a supply of Gas at the time it is anticipated that the Prospective User will be offered access to the Service.

7. EXTENSIONS AND EXPANSIONS

7.1 Extensions to the Pipeline

- (a) If Service Provider proposes an extension of the covered pipeline, it must apply to the AER in writing to decide whether the proposed extension will be taken to form part of the covered pipeline and whether this access arrangement will apply to the incremental services provided by the proposed extension.

A notification given by Service Provider under this section 7.1 must:

- (i) be in writing
- (ii) state whether Service Provider intends for the proposed pipeline extension to be covered by this Access Arrangement
- (iii) describe the proposed pipeline extension and describe why the proposed extension is being undertaken and
- (iv) be given to the AER before the proposed pipeline extension comes into service.

Service Provider is not required to notify the AER under this section 7.1 to the extent that the cost of the proposed high pressure pipeline extension has already been included and approved by the AER in the calculation of Reference Tariffs.

After considering Service Provider's application, and undertaking such consultation as the AER considers appropriate, the AER will inform Service Provider of its decision on Service Provider's proposed coverage approach for the pipeline extension.

The AER's decision referred to above, may be made on such reasonable conditions as determined by the AER and will have the effect stated in its decision on Service Provider's proposed coverage approach for the pipeline extension.

The AER's decision referred to above, may be made on such reasonable conditions as determined by the AER and will have the effect stated in the decision.

- (b) Where this Access Arrangement applies to the incremental Services provided by that extension, Service Provider will elect whether access to incremental Services provided through that extension will be offered as part of the Reference Service at the Reference Tariff, or as a Negotiated Service at a negotiated tariff.
- (c) This Access Arrangement will not apply to New Services provided as the result of the interconnection of a new lateral to the pipeline to serve a market or connect a source of gas without an existing connection to the pipeline.

- (d) The capital investment, operating costs and usage associated with an extension offered as a Negotiated Service will not be considered in the calculation of the Reference Tariff.

7.2 Expansion of Capacity above the Existing Capacity

- (a) In the event that Service Provider expands the capacity of the Pipeline above the existing Capacity, this Access Arrangement will apply to the incremental Services provided as a result of the expansion at the time it comes into operation, unless Service Provider proposes and the AER agrees that this Access Arrangement will not apply to the incremental Services provided as a result of that Expansion.
- (b) Where this Access Arrangement applies to the incremental Services provided by an expansion, Service Provider will elect whether access to incremental Services provided using that Capacity will be offered as part of the Reference Service at the Reference Tariff, or as a Negotiated Service at a negotiated tariff.
- (c) The capital investment, operating costs and usage associated with an expansion offered as a Negotiated Service will not be considered in the calculation of the Reference Tariff.

7.3 Reference Tariffs

Reference Tariffs in the Access Arrangement Period will not be affected by any extension or expansion made.

8. EFFICIENCY CARRYOVER MECHANISM

8.1 Efficiency Carryover mechanism

- (a) An efficiency carryover mechanism will apply to operating expenditure.
- (b) The incentive mechanism will operate in the following way:
- (i) the Service Provider will retain the benefit of actual operating expenditure being lower, or incur the cost of actual operating expenditure being higher, than forecast operating expenditure included in the Total Revenue in each Financial Year of the Access Arrangement Period;
 - (ii) the mechanism carries forward the Service Provider's incremental efficiency gains (or losses) for five Financial Years from the Financial Year those gains (or losses) occur;
 - (iii) annual carryover amounts accrue in each Financial Year of the subsequent access arrangement period as the summation of the incremental efficiency gains (or losses) in the immediately prior access arrangement period that are carried forward for five years or less into the Financial Year; and
 - (iv) the annual carryover amounts are added to the Service Provider's Total Revenue in each Financial Year of the subsequent access arrangement period. If necessary, the annual efficiency gain (or loss) is carried forward into the access arrangement period commencing 1 July 2021 until it has been retained by the Service Provider for a period of five years.
- (c) The incremental efficiency gain (or loss) for the Financial Year ~~2016-17~~ 2021-22 will be calculated as:

$$F_{(2016-17)} - A_{(2016-17)}$$

where:

$F_{(2016-17)}$ is the forecast operating expenditure for Financial Year ~~2016-17~~ 2021-22; and

$A_{(2016-17)}$ is the actual operating expenditure for Financial Year ~~2016-17~~ 2021-22.

- (d) The incremental efficiency gain (or loss) for Financial Years ~~2017-18 to 2019-20~~ 2022-23 to 2024-25 (inclusive) will be calculated as:

$$E_t = (F_t - A_t) - (F_{(t-1)} - A_{(t-1)})$$

where:

E_t is the incremental efficiency gain (or loss) in Financial Year t of the Access Arrangement Period;

- F_t is the forecast operating expenditure in Financial Year t of the Access Arrangement Period;
- A_t is the actual operating expenditure in Financial Year t of the Access Arrangement Period;
- $F_{(t-1)}$ is the forecast operating expenditure in Financial Year t-1 of the Access Arrangement Period; and
- $A_{(t-1)}$ is the actual operating expenditure in Financial Year t-1 of the Access Arrangement Period.

- (e) Actual operating expenditure in the Financial Year ~~2020-21~~2025-26 is to be estimated using the following equation:

$$A_{(2020-21)}^* = A_{(2019-20)} + F_{(2020-21)} - F_{(2019-20)}$$

where:

- $A_{(2020-21)}^*$ is the estimate of operating expenditure for Financial Year ~~2020-21~~2025-26;
- $A_{(2019-20)}$ is the actual operating expenditure for Financial Year ~~2019-20~~2024-25;
- $F_{(2020-21)}$ is the forecast operating expenditure for Financial Year ~~2020-21~~2025-26; and
- $F_{(2019-20)}$ is the forecast operating expenditure for Financial Year ~~2019-20~~2024-25.

- (f) For the avoidance of doubt:
- (i) the incremental efficiency gain (or loss) for Financial Year ~~2020-21~~2025-26 will be assumed to equal zero;
 - (ii) the incremental efficiency gain (or loss) for Financial Year ~~2021-22~~2026-27 will be carried over for 5 years and be calculated with reference to the actual operating expenditure for Financial Year ~~2020-21~~2025-26 and not $A_{(2020-21)}^*$; and
 - (iii) the incremental efficiency gains (or losses) are carried over from Financial Year to Financial Year in real dollars to ensure that these gains (or losses) are not eroded by inflation. The price indices used in this calculation are to be consistent with those used in the Access Arrangement determination.
- (g) Increments or decrements from the summation of incremental efficiency gains or losses calculated in accordance with the approved incentive mechanism in the Access Arrangement Period will give rise to an additional 'building block' in the calculation of the Total Revenue amounts for each Financial Year of the subsequent access arrangement period.

- (h) The following costs will be excluded from the operation of the efficiency carryover mechanism:
- (i) pigging costs;
 - (ii) any additional opex associated with interconnection of the Northern Gas Pipeline (formerly NEGI) to the Amadeus Gas Pipeline; and
 - (iii) any cost category that:
 - (1) is not forecast using a single year revealed cost approach in the access arrangement period following this Access Arrangement Period (intended to commence 1 July ~~2021~~2026); and
 - (2) the AER determines, as part of a decision on revisions to apply to this Access Arrangement, to exclude from the operation of the efficiency carryover mechanism because it is satisfied that it would not promote the National Gas Objective.
- (i) The forecast operating expenditure amount for each year of the Applicable Access Arrangement Period will be adjusted to include any Determined Pass Through Amounts or other AER approved expenditure arising from Cost Pass Through Events which apply in respect of that year
- (j) Where the Service Provider changes its approach to classifying costs as either capital expenditure or operating expenditure during the Access Arrangement Period, the Service Provider will adjust the forecast operating expenditure in the Access Arrangement so that the forecast expenditures are consistent with the capitalisation policy changes.
- (k) If there is a change in the Service Provider's approach to classifying costs as either capital expenditure or operating expenditure during the access arrangement period, the Service Provider must provide to the AER a detailed description of the change and a calculation of its impact on forecast and actual operating expenditure for the access arrangement period.

SCHEDULE 1: DETAILS SCHEDULE

Pipeline: Amadeus Gas Pipeline, being the pipeline from the Amadeus Basin to Darwin described in Pipeline Licence 4 under the Energy Pipelines Act 1983 (NT)

Service Provider: APT Pipelines NT Pty Ltd ACN 075 733 336

Tariffs:

Reference ~~Tariff~~ Tariffs: The Reference Tariff for the Firm Service applicable at ~~the~~ ~~Adjustment Date of~~ 1 July, ~~2016-2021~~ is \$0.5959/GJ of Firm MDQ.

~~**Interruptible Tariff:** as negotiated with the User~~

The Reference Tariff for the Interruptible Service applicable at 1 July 2021 is \$x.xxxx/GJ of Gas Scheduled by Service Provider for delivery at the applicable Delivery Points under the Interruptible Service.

Overrun Rate: 250% of Reference Tariff for the Firm Service

Imbalance Rate: 250% of Reference Tariff for the Firm Service

Daily Variance Rate: 250% of Reference Tariff for the Firm Service

Imbalance Allowance: 5% (either positive or negative) of the sum of the MDQ for all Delivery Points

Daily Variance Allowance: 5% (either positive or negative) of the MDQ for the applicable Delivery Point or Receipt Point

Notes on Tariffs:

1. Reference Tariffs apply from the date on which the approval of the AER takes effect under Rule 62.
2. These tariffs and rates apply as at 1 July ~~2016-2021~~ to firm or interruptible (as applicable) forward haul services for a term exceeding three years. For other services and shorter terms, rates will be determined by negotiation.
3. Refer to section 4 of this Access Arrangement for details of the charges to which the above rates apply.
4. These rates are quoted on a GST-exclusive basis.

Payment Date: Within 14 Days after the receipt by the User of the Service Provider's valid tax invoice.

Contact details: ~~General~~ Business Development Manager ~~APTNT-~~

Courier deliveries:
16 Georgina Crescent
Palmerston NT 0830

Postal address:
PO Box 7
Palmerston NT 0831

Phone: 08 8924 8100

~~Fax: 08 8932 1663~~

SCHEDULE 2: GLOSSARY

1. Definitions

These definitions apply to this Access Arrangement unless the context requires otherwise:

Access Arrangement has the meaning given to it in the National Gas Law and refers to this Access Arrangement.

Access Arrangement Information has the meaning given to it in the National Gas Law and refers to the Access Arrangement Information for the Pipeline, amended to reflect the AER's Final Decision.

Access Arrangement Period has the meaning given to it in the Rules.

Adjustment Date means the date specified for adjustment of tariffs as specified in section 4.7.

AEMO means the Australian Energy Market Operator Limited ACN 072 010 327.

AER's Final Decision means the final decision of the AER under Rule 62 of the National Gas Rules;

APA Group means Australian Pipeline Limited ACN 091 344 704, as responsible entity for the Australian Pipeline Trust and the APT Investment Trust, and its Related Bodies Corporate (which includes Service Provider).

Approval means the consents, authorisations, registrations, certificates, permissions, permits, licences, approvals, registrations, determinations, administrative decisions or exemptions which are required from, by or with any Authority or under any law (including any conditions or requirements under any of them).

Australian Energy Regulator or **AER** means the Australian Energy Regulator established by section 44AE of the Competition and Consumer Act 2010 of the Commonwealth.

Australian Statistician means the Australian Bureau of Statistics or any equivalent body which replaces it.

Authorised Imbalances means one or more of the following:

- (a) any Imbalance caused by the User providing User's Line Pack share in accordance with the Transportation Agreement; or
- (b) ~~(b)~~ any Imbalance caused by the User providing System Use Gas in accordance with the Transportation Agreement.

Authority means:

- (a) any national, federal, state, provincial, territory or local government (and all agencies, authorities, departments, ministers or instrumentalities or any of them);

(b) ~~(m)~~any:

- (i) administrative or judicial body; or
- (ii) public tribunal, commission, corporation, authority, agency or instrumentality,

having jurisdiction or authority in respect of a Transportation Agreement or this Access Arrangement (as applicable); and

(c) ~~(n)~~without limiting or being limited by paragraphs (a) or (b), Australian Energy Regulator, AEMO, their successor or replacement entities and any other entities established under legislation from time to time with the authority to regulate, operate or administer the operations of gas pipelines or gas markets.

Bank Bill Rate means the one month Australian Bank Bill Swap Reference Mid Rate specified by Reuters Monitor Service Page BBSY at or about 10.00 am (Sydney time) on the first Business Day of each Month provided that if the Bank Bill Rate cannot be so determined, then Bank Bill Rate shall mean the rate (expressed as a percentage yield per annum to maturity) quoted at or about such time by Westpac Banking Corporation as the rate at which it would be prepared to purchase bills of exchange accepted by an Australian trading bank and having a tenor of 90 days and a face value of \$100,000.00.

Base Line Pack has the meaning given in clause ~~25-33~~ of the General Terms and Conditions.

Business Day means a day other than a Saturday, Sunday or public holiday in the capital city of the relevant jurisdiction.

Capacity means the measure of the potential of the Covered Pipeline as currently configured to deliver a particular Service between a Receipt Point and a Delivery Point at a point in time.

Capital Base has the meaning given in the National Gas Rules.

Capital Contribution is a contribution made by a User under Rule 82.

Change in Control of an entity occurs if a person who did not previously do so acquires or holds, directly or indirectly:

(a) Securities conferring 50% or more of the voting or economic interests in the entity;

(b) ~~(e)~~The power to control the appointment or dismissal of the majority of the entity's directors; or

(c) ~~(p)~~The capacity to control the financial or operating policies of management of the entity.

Charge means tariffs, charges and other amounts pursuant to the Reference ~~Service~~ Services as set out in Part 4 of the Access Arrangement.

Confidential Information means information (whether or not recorded in a material form) that is not publicly available and that becomes available to a Party in respect of the Transportation Agreement, including (without limitation) the terms and conditions of the Transportation Agreement.

Consequential Loss means any of the following, however arising and even if it is reasonably contemplated by the Parties, at the date of the Transportation Agreement, as a probable result of breach of the Transportation Agreement:

- (a) loss or damage which does not arise directly or naturally from a breach of the Transportation Agreement;
- (b) ~~(a)~~ indirect, incidental, special, remote, unforeseeable or consequential loss or damage;
- (c) ~~(b)~~ direct or indirect loss of revenue, profit, income, bargain, opportunity or anticipated savings but excluding loss of amounts payable by another User under another Transportation Agreement;
- (d) ~~(c)~~ costs or expenses incurred to prevent or reduce loss or damage which otherwise may be incurred or suffered by a third party; or
- (e) ~~(d)~~ direct or indirect loss or damage incurred or suffered by a third party.

Consumer Price Index or **CPI** has the meaning given in section 4.

Contracted Capacity means that part of the capacity of the Pipeline which has been reserved by a User or Users pursuant to a Transportation Agreement.

Contract Year means the period of a Year commencing on the first Day of the Term of a Transportation Agreement (which shall in turn be the first Day of a Month), or on the anniversary of the first Day.

Corporations Act means the *Corporations Act 2001* (Cth).

Cost Pass-through Reference Tariff Variation Mechanism has the meaning given to it under section 4.

Covered Pipeline means that part of the Pipeline to which this Access Arrangement relates, and is described in the Access Arrangement Information (System Description).

CPI has the meaning given in section 4.

Daily Variance, Daily Variance Charge, Daily Variance Quantity have the meanings given in section 4.3.

Day means —:

- (a) if a standard gas day applies under the National Gas Rules, a period corresponding to that standard gas day; or

(b) otherwise, a period of 24 consecutive hours beginning at 8:00 am Australian Central Standard Time.

Delivery Point MDQ means the MDQ applicable to a particular Delivery Point.

Delivery Points means the Delivery Points, as specified in the Transportation Agreement, to which the Gas will be delivered under the Transportation Agreement. The term includes a reference to equipment connected to, or forming part of, the Pipeline that facilitates delivery of Gas at the Delivery Points.

Details means the details set out in Schedule 1 of this Access Arrangement.

Developable Capacity means Pipeline capacity which, in Service Provider's opinion, is economic to develop taking into account its operational and technical requirements.

Final Decision means the decision made by the AER under either of Rule 62 or Rule 64 of the NGR (as the case requires) or, where relevant, a variation to that decision made under Rule 67 of the NGR.

Firm MDQ means the maximum quantity of Gas which the Service Provider is from time to time obliged to deliver across all Delivery Points to or on account of the User on any Day under the Firm Service.

Firm Service means the services provided by Service Provider to the User in accordance with section 2.3.

Firm Transportation Agreement means a Transportation Agreement (including the agreement with the User) which provides for transportation services on a similar basis to the Firm Service.

Forecast Capital has the meaning given to it in section 3.2.

Force Majeure Event has the meaning set out in clause ~~82~~89 of the General Terms and Conditions.

Gas means gas which meets the specifications required under the Transportation Agreement.

Gas Specification means the gas specifications published by APA from time to time in respect of the Pipeline, which must comply with all applicable laws, and which at the date of this Access Arrangement are set out on Schedule 6. Until otherwise advised by APA, the gas specifications are available at <http://www.apa.com.au/our-business/energy-infrastructure.aspx>

General Terms and Conditions means the terms and conditions applying to the ~~Firm Service~~Reference Services, as set out in Schedule 3.

Good Engineering and Operating Practice means generally accepted practices, methods, acts and omissions practised in the Australian pipeline industry at the relevant time to operate, maintain and repair a pipeline, exercising reasonable judgement, lawfully, safely, reliably, efficiently and economically, having regard to the type, size, design, configuration, location and other attributes and operating conditions of the applicable pipeline.

Goods and Services Tax or **GST** has the meaning given in *the A New Tax System (Goods and Services) Tax Act 1999* (Cth).

Gross Heating Value means the energy produced by the complete combustion of one cubic metre of gas with air, at an absolute pressure of 101.325 kPa and temperature of 15 degrees Celsius, with the gas and air free of all water vapour, the products of combustion cooled to a temperature of 15 degrees Celsius and the water vapour formed by combustion condensed to the liquid state.

Gross Negligence means a negligent act or omission, committed with reckless disregard for the consequences and in circumstances where the negligent party knows or ought to know that those consequences would likely result from the act or omission, an which is not due to an honest mistake, oversight, error of judgement or accident~~:-~~.

Hour means a period of 60 consecutive minutes, beginning on the hour, in any Day.

Hub has the meaning set out in the STTM Rules.

Imbalance means, in respect of a period of time, the difference between the quantity of Gas received from or on account of the User at the Receipt Points and the quantity of Gas delivered to or for the account of the User at the Delivery Points during that period.

For any period, an Imbalance is **positive** when receipt quantities exceed delivery quantities, and **negative** when delivery quantities exceed receipt quantities, during the period.

Information Interface means any secure, digital interface operated by the Service Provider and used by the User for:

- (a) submitting Nominations under the Transportation Agreement; and
- (b) ~~(u)~~ obtaining access to information regarding receipts, delivery, balances and gas flows under the Transportation Agreement.

Insolvent means in relation to a Party:

- (a) it is (or states that it is) an insolvent under administration or insolvent (each as defined in the Corporations Act); or
- (b) ~~(v)~~ it has had a controller appointed or is in liquidation, in provisional liquidation, under administration or wound up or has had a receiver or receiver and manager appointed to any part of its property; or
- (c) ~~(w)~~ it is subject to any arrangement, assignment, moratorium or composition, protected from creditors under any statute or dissolved (in each case, other than to carry out a reconstruction or amalgamation while solvent on terms approved by the other Party); or
- (d) ~~(x)~~ an application or order has been made (and in the case of an application, it is not stayed, withdrawn or dismissed within 30 days), resolution passed, proposal put forward, or any other action taken, in each case in connection

with that person, which is preparatory to or could result in any of (a), (b) or (c) above; or

- (e) ~~(y)~~ it is taken (under section 459F(1) of the Corporations Act) to have failed to comply with a statutory demand; or
- (f) ~~(zz)~~ it is the subject of an event described in section 459C(2)(b) or section 585 of the Corporations Act (or it makes a statement from which another party to the agreement reasonably deduces it is so subject); or
- (g) ~~(aa)~~ it is otherwise unable to pay its debts when they fall due; or
- (h) ~~(bb)~~ something having a substantially similar effect to (a) to (g) happens in connection with that person under the law of any jurisdiction.

Interconnect Party means the User or another person that operates facilities that are located up stream or down stream of the Interconnection Facilities.

Interconnection Facilities means those pipeline facilities that are required to connect the Pipeline to the facilities of another person.

Interruptible Service means the services provided by Service Provider to the User in accordance with section ~~2.3~~2.4.

Interruptible Transportation Agreement means a Transportation Agreement which provides for transportation services on an interruptible basis, including any parts of the User's agreement relating to an Interruptible Service.

Line Pack means the quantity of Gas, other than quantities of Gas being transported and System Use Gas, which the Service Provider determines is necessary to be in the Pipeline for the physical operation of the Pipeline from time to time in order to ensure that the Service Provider meets its obligations under all Transportation Agreements.

Maximum Allowable Operating Pressure means 9,650kaP_g.

MDQ means the maximum quantity of Gas which the Service Provider is from time to time obliged to receive at a Receipt Point and/or deliver at a Delivery Point (as applicable) to or on account of the User on any Day, and if in respect to a particular Service, the quantity for that particular Service. Where the term is used in relation to a Transportation Agreement other than the User's Transportation Agreement, the term means the maximum quantity of Gas which the Service Provider is obliged to deliver on any Day under that Transportation Agreement or the relevant Service under that Transportation Agreement (as applicable).

Metering and Measurement Requirements means specifications published by Service Provider from time to time in relation to metering and measurement in relation to the Pipeline which are made available to the User.

Metering Equipment means all the equipment and facilities required to be installed or provided at each Receipt Point to conform to the Metering and Measurement Requirements.

MHQ means the maximum quantity of Gas which the Service Provider is from time to time obliged to receive at a Receipt Point and/or deliver at a Delivery Point (as applicable) to or on account of the User in any Hour, and if in respect to a particular Service, the quantity for that particular Service. Where the term is used in relation to a Transportation Agreement other than the User's Transportation Agreement, the term means the maximum quantity of Gas which the Service Provider is obliged to deliver in any Hour under that Transportation Agreement.

Month means the period beginning on the first Day of the calendar month and ending on the first Day of the succeeding calendar month.

National Gas Law (NGL) means the gas law implemented under the *National Gas (South Australia) Act 2008* in South Australia and made applicable in the relevant jurisdiction (other than South Australia) under the relevant mirror application legislation.

National Gas Rules (NGR) has the meaning given in the National Gas Law and **Rules** has a similar meaning.

Natural Gas has the meaning given to it in the National Gas Law.

Negotiated Service means a pipeline service provided on terms and conditions different to those of [a the Reference Service Services](#).

New Capital Expenditure has the meaning given to it under Rule 79.

Nomination means a request by the User to the Service Provider for Services under the Transportation Agreement, given in accordance with the Transportation Agreement, in the manner and form (which may include by digital interface) advised by the Service Provider from time to time, including intra-day nominations. **Nominate** has a corresponding meaning.

Nomination Deadline means:

- (a) [if a standard nomination cut-off time applies under the National Gas Rules, that time; and](#)
- (b) [otherwise, 2:30 pm Australian Central Standard Time on the Day prior to which the Nomination relates \(or such other time as the Service Provider advises the User in writing from time to time\).](#)

Off-Specification Gas means gas offered by the User for transportation on the Pipeline which fails to meet the quality specifications referred to in clause [40-47](#) of the General Terms and Conditions.

Overrun Charge for any Day or any Hour means the amount in dollars calculated by multiplying the Overrun Rate by any Overrun Quantities for that Day or Hour (as applicable).

Overrun Quantity means each quantity of Gas which is delivered to or on account of the User at each Delivery Point:

- (a) on a Day in excess of:

- (i) if Service Provider curtails deliveries in accordance with the Transportation Agreement, the quantity of Gas (if any) Scheduled and not curtailed; or
 - (ii) otherwise, the greater of the Delivery Point MDQ or the quantity of Gas Scheduled to be delivered to that Delivery Point on that Day to or on account of the User; or
- (b) at a rate per Hour in excess of the Delivery Point MHQ for the relevant Delivery Point (or, if Service Provider curtails deliveries in accordance with the Transportation Agreement, at a rate per Hour in excess of the curtailed rate).

Party means either the Service Provider or the User and **Parties** means them collectively.

Pipeline includes all facilities associated with the Pipeline, such as Receipt Points and Delivery Points and their respective facilities, Interconnection Facilities, odorisation facilities, pipeline control facilities, lateral pipelines and compressors.

Pipeline Licence means the pipeline licence issued by the relevant Authority, as amended or replaced, to construct and operate the Pipeline.

Prospective User has the meaning given to it in the National Gas Law.

Receipt MDQ means the Firm MDQ.

Receipt Points means the Receipt Points, as specified in the Transportation Agreement, at which the Gas will be received by the Service Provider under the Transportation Agreement. The term includes a reference to equipment connected to, or forming part of, the Pipeline that facilitates receipt of Gas at the Receipt Points.

Reference Service means the ~~the~~

- (a) Firm Service ~~;~~
- (b) [Interruptible Service](#); or
- (c) [where the context requires, both.](#)

Reference Transportation Agreement means a Transportation Agreement in respect of ~~a~~ [the](#) Reference ~~Service~~ [Services](#).

Reference Tariff has the meaning given to it in the National Gas Law.

Related Body Corporate means a related body corporate as defined in the Corporations Act.

Request means a Request for Service as described in section 2.5.

Revisions Commencement Date has the meaning given in section 1.6.

Schedule, for a Day, means a determination made prior to the Day by the Service Provider (acting reasonably, in accordance with the Transportation Agreement and

having regard to nominations of (and appropriate receipt point and delivery point allocations between) all Users, the capacity of the Pipeline, rights and obligations under Transportation Agreements and Good Engineering and Operating Practice) of the Service Provider's intended Schedules of receipt quantities and delivery quantities of Gas on that Day under Transportation Agreements, as amended by the Service Provider for intra-day nominations (before or on the Day) or for operational reasons.

Service means a service provided by Service Provider in relation to the Pipeline under a Transportation Agreement, including but not limited to the Reference ~~Service~~ [Services](#).

Speculative Capital Expenditure Account has the meaning given in Rule 84.

STTM means the short term trading market for the supply of Natural Gas and related services to be operated and administered by AEMO.

STTM Rules means the short term trading market rules and procedures applicable in accordance with the National Gas Rules.

Surcharge has the meaning given to it in Rule 83.

System Use Gas means the quantities of gas:

- (a) used as compressor fuel and for other purposes necessary for the management, operation and maintenance of the Pipeline; or
- [\(b\)](#) ~~(ee)~~ otherwise lost and unaccounted for in connection with the operation of the Pipeline,

other than Line Pack and Gas lost through the negligence of the Service Provider.

Term means, unless otherwise agreed, the period specified in the Transportation Agreement for the provision of a Service.

Total Revenue has the meaning given in Rule 76.

Transportation Agreement means any contract entered into between the Service Provider and a User for Services for that User.

Unauthorised Imbalance means any Imbalance which is not an Authorised Imbalance.

User has the meaning given to it in the National Gas Law.

User's Line Pack means the quantity of Gas, in the Pipeline at any time, received by the Service Provider on account of the User under the Transportation Agreement, other than quantities of Gas Scheduled for transportation and System Use Gas.

Wilful Misconduct means any act or omission done or omitted to be done with deliberate or reckless disregard for foreseeable, harmful and avoidable consequences which is not otherwise an act or omission done in good faith

Year means a period of 365 consecutive Days but, for any Year which contains a date of 29 February, means 366 consecutive Days.

2. Interpretation

2.1 Terms used in the Details (such as **Pipeline**) have the meaning set out in the Details.

2.2 Unless the context requires otherwise:

(a) a reference to a 'Rule' is a reference to a Rule of the National Gas Rules;

(b) ~~(dd)~~ a reference to a 'section' or a 'schedule' is a reference to a section in, or schedule to, this Access Arrangement;

(c) ~~(ee)~~ a reference to a 'clause' is a reference to a clause in Schedule 3;

(d) ~~(ff)~~ the singular includes the plural and the opposite also applies; and

(e) ~~(gg)~~ references to any statute, regulations or other statutory instrument, standard or by-laws are deemed to be references to the statute, regulations, statutory instrument, standard or by-laws as are from time to time amended, consolidated, re-enacted or replaced, including substituted provisions that substantially correspond to those referred to.

SCHEDULE 3: TERMS AND CONDITIONS APPLYING TO THE **FIRM SERVICE** REFERENCE SERVICES

Obligation to provide the **Firm Service** Reference Services

- 1 Service Provider will provide the **Firm Service** Reference Services to Users with whom it has a Transportation ~~Agreement~~ Agreements to provide ~~the Firm Service~~ those Services, in accordance with the terms and conditions set out in this Schedule 3.

Prudential requirements

- 2 Service Provider may:
- (a) require the User to provide, prior to commencement of the **Firm Service** Reference Services and thereafter as reasonably required, financial security in the form of a parent company guarantee, bank guarantee or similar security as reasonably determined by Service Provider for the performance of the User's obligations under the Transportation Agreement; and
 - (b) ~~(hh)~~ where the User:
 - (ii) fails to pay when due any amounts payable under the Transportation Agreement, excepting any contested amounts; or
 - (iii) fails to obtain and maintain any Approvals required to meet its obligations under the Transportation Agreement; or
 - (iv) has a material adverse change to its credit rating or credit worthiness during the term of the Transportation Agreement and does not provide Service Provider with additional financial security as reasonably required to reflect this change in circumstance.

subject to providing at least 7 days written notice to the User, refuse to provide or suspend the provision of the **Firm Service** Reference Services, without liability to the User.

Nominations – Firm Service

- 3 The User must give to Service Provider, at least 3 Days before the beginning of each Month, a completed Nomination for the Firm Service for each day of the Month about to commence. If the User fails to provide such a Nomination by this time then its Nomination for each Day it has failed to give a Nomination will be deemed to be zero GJ.
- 4 The User may revise its Nomination:
- (a) for the Firm Service for a Day; or
 - (b) ~~(#)~~ for a Receipt Point for a Day in order to correct an Imbalance ~~–~~.

by giving Service Provider an updated Nomination for that Day prior to the Nomination Deadline.

5 Service Provider is not liable to provide Firm Services Nominated by the User (other than to process that Nomination in accordance with the relevant nomination provisions of the Transportation Agreement) except to the extent that Service Provider Schedules the Firm Service for the User in accordance with the Transportation Agreement.

6 Service Provider will not be obliged to receive or deliver on any Day a quantity of gas in excess of the quantities Scheduled.

Nominations – Interruptible Service

7 User may request the Interruptible Service on a particular Day by giving a completed Nomination to Service Provider at any time prior to or during the relevant Day.

8 Upon receipt of the Nomination, Service Provider must review the availability of the Interruptible Services requested by User and must, as soon as possible, advise User that:

(a) the Interruptible Services requested are available; or

(b) the Interruptible Services are available for the relevant Day but not as requested, together with details of the Interruptible Services which are available on the relevant Day; or

(c) the Interruptible Services requested are not available for the relevant Day.

9 If pursuant to clause 7(a) Service Provider advises User that the Interruptible Services requested are available or if Service Provider Schedules Interruptible Services in accordance with the request, then User's request constitutes a Nomination for the relevant Interruptible Service in accordance with the Transportation Agreement.

10 Within one hour of receipt of an advice under clause 7(b), User may request provision of the Interruptible Services described by Service Provider in its advice under that clause and the request constitutes a Nomination for the Interruptible Services in accordance with the Transportation Agreement.

11 User acknowledges that Service Provider cannot advise User of the availability of an Interruptible Service referred to in clause 7 prior to Scheduling pursuant to the Transportation Agreement for the relevant Day.

12 Service Provider is not liable to provide the Interruptible Service or to provide the Interruptible Service in respect of quantities or at a rate Nominated by User, on a Day which:

(a) the provision of the Service or the transportation of the requested quantities would cause Service Provider to curtail a Service:

(i) that Service Provider is obliged to provide to any User on a firm basis under a Transportation Agreement; or

- (ii) already Scheduled for transportation to another User at the time the User's Nomination is received by Service Provider; or
- (b) the User has failed to provide Gas to Service Provider at the Receipt Point:
 - (i) within 4 hours of the commencement of deliveries under the relevant Service on the Day; and
 - (ii) in accordance with its obligations under the Transportation Agreement;
or
- (d) in Service Provider's reasonable opinion, there is or is reasonably expected to be insufficient Capacity in the Pipeline, or insufficient other Scheduled (if applicable) receipts or deliveries of quantities of Gas, to facilitate the Service;
or
- (e) the Capacity in the Pipeline is not fully contracted on a firm basis.

13 ~~6~~Service Provider will not be obliged to receive or deliver on any Day a quantity of gas in excess of the quantities Scheduled.

Scheduling

14 ~~7~~Following the receipt of the User's Nomination, Service Provider must (subject to any adjustments Service Provider (acting reasonably) deems necessary to maintain the operational integrity of the Pipeline or to comply with any laws or STTM Rules and subject to certain other exceptions specified in these General Terms and Conditions) Schedule for acceptance at the Receipt Points and Delivery Points the lesser of:

in respect of Receipt Points,

(a) the quantity of Gas Nominated by the User for receipt at the Receipt Points; and

(b) ~~(j)~~the aggregate quantity of Gas confirmed for supply on account of the User at the Receipt Points by the Interconnect Parties at the Receipt Points; and

in respect of Delivery Points,

(c) ~~(k)~~the quantity of Gas Nominated by the User for receipt at the Delivery Points; and

(d) ~~(l)~~the quantity of Gas confirmed for acceptance on account of the User at the Delivery Point by the Interconnect Party at the Delivery Point.

15 ~~8~~If there is not sufficient capacity to transport all the quantities of Gas nominated by all Users on a Day, then the Service Provider will (subject to STTM Rules, other laws and the operability of applicable gas markets and pipeline networks) Schedule the quantities nominated by Users (including the User) in the following priority and sequence. Scheduling limitations will be applied only to the portion or portions of the Pipeline that are capacity constrained.

- (a) First — quantities nominated by Users under Firm Transportation Agreements, not to exceed their respective MDQs for firm services under those agreements. If the capacity available is not sufficient to receive or deliver all such Users' nominated quantities, then the available capacity will be allocated among those Users pro rata on the basis of their respective MDQs for firm services under those agreements.
- (b) ~~(mm)~~ Second – quantities nominated by Users with as available Transportation Agreements, not to exceed their respective MDQs for as available services under those agreements. If the Capacity available is not sufficient to receive or deliver all Users' nominations pursuant to as available services, then the available Capacity will be allocated among those Users pro rata based on their nominations for as available services.
- (c) ~~(nn)~~ Third – quantities nominated by Users pursuant to authorised overrun services. If the Capacity available is not sufficient to receive or deliver for all Users requesting authorised overrun services, then the available Capacity will be allocated among those Users pro rata based on their nominations for authorised overrun services.
- (d) ~~(oo)~~ Fourth— quantities nominated pursuant to Interruptible Transportation Agreements. If the capacity available is not sufficient to receive or deliver for all Users requesting that service, then the Service Provider will allocate the available capacity equitably (that is on the basis of tariffs paid, first-come-first-served, pro rata based on nominated quantities or such other basis as APA reasonably determines) among Users who have entered into Interruptible Transportation Agreements.

16 ~~9~~In accordance with clauses ~~7 to 15~~14 to 22, Service Provider may Schedule or re-Schedule at any time receipts and deliveries Nominated by the User, without liability to the User.

17 ~~10~~If, on Service Provider's request, the User does not provide a schedule of its nomination priorities for the purpose of Scheduling then Service Provider may, without liability to the User, select which Nominated receipts or deliveries will not be Scheduled to balance the User's Scheduled receipts and deliveries.

Curtailment

18 ~~11~~If on any Day the capacity of the Pipeline or any portion of it, or the capacity of any Receipt Point or the Delivery Point, is insufficient to serve all the quantities of Gas Scheduled for all Users, then the Service Provider may curtail or interrupt the receipt, transportation or delivery of Gas (as the case may be) in accordance with the sequence and priorities set out below to the extent necessary to provide transportation services within the capacity of the Pipeline on the Day (subject to STTM Rules, other laws and the operability of applicable gas markets and pipeline networks). Curtailment will be applied only to the portion or portions of the Pipeline that are capacity-constrained.

- (a) First – Overrun Quantities under the User's Transportation Agreement and overrun quantities under other Transportation Agreements.

- (b) ~~(pp)~~ Second – quantities pursuant to Interruptible Transportation Agreements. If the capacity available is not sufficient to receive or deliver for all Users requesting such service, then the Service Provider will allocate the available capacity equitably (that is, on the basis of tariffs paid, first-come-first-served, pro rata based on nominated quantities or such other basis as APA reasonably determines) among Users who have entered into Interruptible Transportation Agreements.
- (c) ~~(qq)~~ Third – quantities for transportation for Users pursuant to authorised overrun services. If the Capacity available is not sufficient to receive or deliver all Users' authorised overrun quantities, then the available Capacity will be allocated among those Users pro rata based on Scheduled quantities.
- (d) ~~(rr)~~ Fourth – quantities for transportation for Users with as available Transportation Agreements up to their respective MDQs (or Receipt Point MDQs or Delivery Point MDQs, as applicable) for as available services under those agreements. If the Capacity available is not sufficient to receive or deliver all Users' as available quantities, then the available Capacity will be allocated among those Users pro rata based on Scheduled quantities.
- (e) ~~(ss)~~ Fifth – quantities Scheduled for transportation to Users pursuant to Firm Transportation Agreements, not to exceed their respective MDQs for firm transportation services under those agreements. If the capacity available is not sufficient to receive or deliver all such Users' quantities then the available capacity will be allocated among those Users pro rata on the basis of their respective MDQs (or Receipt Point MDQs or Delivery Point MDQs, as applicable) for firm transportation services under those agreements.

19 ~~12~~ If Service Provider interrupts or curtails receipts or deliveries of quantities of Gas under ~~clause 14~~clause 18, Service Provider is not liable to the User in respect of the interruption or curtailment if the interruption or curtailment:

- (a) results from planned or unplanned maintenance in respect of the Pipeline and the Service Provider acts in accordance with clause ~~30~~37 or clause ~~34~~38; or
- (b) ~~(tt)~~ is, in the Service Provider's opinion (acting reasonably), necessary in accordance with Good Engineering and Operating Practice to ensure the safe and efficient operation or integrity of the Pipeline and the Service Provider provides to the User as much notice of the interruption or curtailment as is reasonably practicable; or
- (c) ~~(uu)~~ is a result of a Force Majeure Event; or
- (d) ~~(vv)~~ results from damage to adjoining/interconnecting pipelines or facilities used to provide the Service and such damage is not caused by the Service Provider's breach of the Transportation Agreement, negligence or Wilful Misconduct and the Service Provider provides to the User as much notice of the interruption or curtailment as is reasonable practicable; or
- (e) ~~(ww)~~ results from circumstances under which Service Provider is not obliged under the Transportation Agreement to provide the Service.

- 20 ~~13~~If, on any Day, because of a reduction in the average Gross Heating Value (in MJ/m³) of Gas below the specified heating value amount under the Transportation Agreement, Service Provider is reasonably of the opinion that the aggregate quantities of Gas to be delivered to all Users may exceed the Pipeline capacity, the Delivery MDQ and Receipt MDQ for the Day will be adjusted by a mechanism which takes into account the difference between the two heating values specified above for the Day multiplied by 102%.
- 21 ~~14~~The adjustment provided for in clause ~~13~~20 does not affect the Delivery MDQ for the purpose of calculating the Charges.

Imbalances

- 22 ~~15~~The User must use reasonable endeavours to ensure that receipts of Gas at Receipt Points and deliveries of Gas at Delivery Points are equal, adjusted for any Authorised Imbalances.
- 23 ~~16~~The User must promptly take steps to correct Unauthorised Imbalances or potential Unauthorised Imbalances by adjusting Nominations and co-ordinating receipts and deliveries with Service Provider.
- 24 ~~17~~If Service Provider believes on reasonable grounds that its ability to transport the quantities of Gas Scheduled under the User's Transportation Agreement or any other Transportation Agreement may be impaired by an Unauthorised Imbalance and the User does not, within 4 hours of receipt of a notice from Service Provider, take all steps reasonably practicable to correct such Unauthorised Imbalance as soon as possible, then Service Provider may (but is not obliged to) correct such Unauthorised Imbalance by reducing the User's receipts and/or deliveries of quantities of Gas or buying or selling sufficient quantities of the User's Gas or a combination of both, to the extent necessary to enable Service Provider to transport the quantities of Gas Scheduled under the User's Transportation Agreement or any other Transportation Agreement, or to operate the Pipeline in accordance with Good Engineering and Operating Practice.
- 25 ~~18~~The User will indemnify the Service Provider for 100% of all costs and expenses reasonably incurred by the Service Provider in purchasing or selling Gas or re-Scheduling when making the correction contemplated in clause ~~17~~24.
- 26 ~~19~~Service Provider is not responsible for eliminating any imbalances between the User and an Interconnect Party or any other person operating Interconnection Facilities and, except in certain circumstances (eg. as required by Good Engineering and Operating Practice), is not obliged to adjust or deviate from its standard operating and accounting procedures in order to alleviate those imbalances.

Adjustments to Rates and Charges/ Additional Payments

- 27 ~~20~~All tariffs, charges and amounts payable under this Access Arrangement are expressed to be exclusive of GST. In addition to any tariff, Charge or amount payable under this Access Arrangement by the User or Prospective User, the User or Prospective User will pay any applicable GST calculated by multiplying the relevant tariff, Charge or amount by the prevailing GST rate.

28 ~~21~~The A Reference Tariff payable under a Transportation Agreement may be varied in accordance with the Reference Tariff Variation Mechanism set out in Part 4 of this Access Arrangement.

System Use Gas and Line Pack

29 ~~22~~Each User must supply, at no cost to Service Provider and at times and in the manner notified by Service Provider, the quantity of System Use Gas required by Service Provider at that time to operate the Pipeline, as determined by Service Provider (acting reasonably).

30 ~~23~~Service Provider will make this determination from time to time acting reasonably but at its discretion. Service Provider may have regard to:

(a) the total quantity of System Use Gas that is required by the relevant APA Entity from time to time in order to operate the Pipeline;

(b) ~~(xx)~~the total quantities of Gas to be received or delivered on the Pipeline on account of all Users during the relevant period; and

(c) ~~(a)~~compressor fuel, necessary for the management, operation and maintenance of the Pipeline, which is reasonably attributable to the Services,

but Service Provider must allocate System Use Gas equitably (that is, on a user pays basis, a total share basis or such other basis as Service Provider reasonably determines) between all Users.

31 ~~24~~Service Provider will own the System Use Gas supplied in the above manner.

32 ~~25~~Service Provider will provide (and retain ownership of) an amount of Gas to ensure that Service Provider can operate the Pipeline in accordance with Good Engineering and Operating Practice (**Base Line Pack**).

33 ~~26~~The User will provide Line Pack in addition to the Base Line Pack provided by Service Provider on the first Day the User uses the Firm Service and otherwise when advised by Service Provider from time to time, in such proportion, as determined by Service Provider from time to time, equal to the proportion that the Delivery MDQ bears to the total of all Users' MDQs (including the Delivery MDQ). The Service Provider will provide all Users a monthly statement showing the amount of User's Line Pack.

34 ~~27~~The User must give Service Provider directions about the delivery of the User's Line Pack on or before the end of the Term, otherwise title to the User's Line Pack transfers to Service Provider, and the Service Provider must comply, if reasonably able to do so, with such directions at no cost to the User.

Operation of Pipeline

35 ~~28~~The Service Provider must operate and maintain the Pipeline in accordance with Good Engineering and Operating Practice.

36 ~~29~~The provision of the ~~Firm Service is~~ Reference Services are subject to compliance with all laws and any Approvals.

- 37 ~~30~~If the Service Provider wishes to carry out Pipeline works, repairs or maintenance then it may, without liability to the User, curtail the ~~Firm Service~~ Reference Services to the User to the extent necessary to carry out such works provided it gives the User at least 1 Month's notice of the proposed Pipeline works and, after consultation with the User, uses reasonable endeavours to carry out such works:
- (a) so as to avoid or minimise, so far as is reasonably practicable, disruption to the ~~Firm Service~~ Reference Services to the User; and
 - (b) ~~(yy)~~ during a period in which the Service Provider reasonably forecasts will have relatively low aggregate demand for Gas.
- 38 ~~31~~If the Service Provider believes it is necessary to carry out Pipeline works, repairs or maintenance (other than the works set out in clause ~~30~~37) in order to protect the operational integrity or safe operation of the Pipeline or to comply with any applicable laws or Approvals, the Service Provider may, without liability to the User, curtail the ~~Firm Service~~ Reference Services to the User to the extent necessary to carry out such works, repairs or maintenance provided the curtailment is not predominantly caused by the Service Provider's negligence, failure to comply with Good Engineering and Operating Practice or breach of the Transportation Agreement and the Service Provider gives the User as much notice of the proposed curtailment as is reasonably practicable.
- 39 ~~32~~The User will ensure its arrangements for Gas supply to Receipt Points and Gas acceptance at the Delivery Points are compatible with the Service Provider's Pipeline operations.
- 40 ~~33~~The User must facilitate the Service Provider's access as reasonably required by the Service Provider to relevant charts, electronic and other data and records, including (without limitation) access to relevant measurement and SCADA information, at no cost to Service Provider.

Metering

- 41 ~~34~~The Service Provider will provide reasonable notice to the User of any changes to the Metering and Measuring Requirements and such changes are to be reasonably determined by the Service Provider.
- 42 ~~35~~The Service Provider will operate and maintain metering equipment at Receipt and Delivery Points unless otherwise agreed. If the User or another Interconnect Party owns equipment used for measuring or monitoring Gas at a Receipt Point or a Delivery Point, the User must, or must cause the Interconnect Party to, install Metering Equipment or upgrade its equipment to conform to the Metering and Measurement Requirements.
- 43 ~~36~~The User will, at its cost, cause to be provided, operated, validated and maintained all Metering Equipment required for the purposes of the Transportation Agreement other than that which measures the quantity of Gas used at each of Service Provider's compressor stations on the Pipeline.

- 44 ~~37~~The User must use reasonable endeavours to cause to be installed, at the Receipt Points and the Delivery Points, facilities which will permit co-ordination of activities by Service Provider and the User in the metering, nomination, Scheduling and transportation of Gas under the Transportation Agreement.
- 45 ~~38~~The Parties must take all action reasonably necessary to ensure that access to their respective Metering Equipment is provided to permit inspections and tests to be carried out as required in the Metering and Measurement Requirements.
- 46 ~~39~~The Metering and Measurement Requirements govern the measurement of Gas for the purposes of the Transportation Agreement, unless otherwise negotiated by the Parties.

Quality

- 47 ~~40~~The Gas delivered by or on behalf of the User at the Receipt Point must be in accordance with the quality required by the Gas Specification or any other quality as the law in the relevant jurisdiction requires. The Service Provider may, by notice to the User, vary the above specifications if it is authorised or required to do so by law or any Authority.
- 48 ~~41~~Subject to any requirements under law, Service Provider's right to vary the Gas Specification is subject to the recognition and preservation of existing contractual rights and obligations, unless that change to the Gas Specification is necessary to ensure the safety or integrity of the Pipeline, or is required in accordance with Good Engineering and Operating Practice.
- 49 ~~42~~Provided the User complies with clause ~~40~~47, the gas delivered by Service Provider to the User at the Delivery Points must meet the quality specifications set out in clause ~~40~~47.
- 50 ~~43~~The User and the Service Provider must each notify the other immediately on becoming aware that gas offered for transportation is or may be Off-Specification Gas.
- 51 ~~44~~The Service Provider may refuse to accept all or any portion of Off-Specification Gas and must advise the User as soon as is practicable after such refusal. Such refusal, or the Service Provider not transporting Off-Specification Gas after acceding to an instruction or request from the User to reject receipts of such gas, does not relieve the User from its obligation to pay any Charge.
- 52 ~~45~~Subject to the responsibilities of the Service Provider in clause ~~46~~37, if the User offers, and Service Provider receives, Off-Specification Gas for transportation then the User is responsible for and indemnifies and holds harmless the Service Provider from and against any loss or damage suffered or incurred by the Service Provider to the extent it results from the receipt, transportation and delivery of that gas by the Service Provider.
- 53 ~~46~~If the User instructs the Service Provider in writing to reject receipt of Off-Specification Gas and the Service Provider continues to accept receipts and to transport and deliver the gas notwithstanding the instruction, the Service Provider is responsible for any loss or damage suffered or incurred by itself, the User or any other person as a result of the continued receipt, transportation or delivery of the gas

after the time at which the Service Provider, in accordance with Good Engineering and Operating Practice, could reasonably have stopped receipt, transportation or deliveries.

Receipt pressures

- [54](#) ~~47~~The User must supply Gas to the Service Provider at the Receipt Points at pressures nominated by the Service Provider from time to time as being sufficient to allow Gas to enter the Pipeline, but in no case greater than the Maximum Allowable Operating Pressure.
- [55](#) ~~48~~The User must indemnify the Service Provider for all loss and damage suffered or incurred by the Service Provider as a result of the User breaching the above obligation to the extent that the loss or damage was not caused or contributed to, by the negligence of the Service Provider.
- [56](#) ~~49~~The Service Provider is under no obligation to install inlet compression or other facilities to permit the entry of User's Gas into the Pipeline.

Possession of gas and responsibility

- [57](#) ~~50~~The Service Provider is in control and possession of the Gas following receipt of the Gas from the User at the Receipt Points and prior to delivery of the Gas, net of any System Use Gas provided by the User, to the User at the Delivery Points.
- [58](#) ~~51~~In the absence of the Service Provider's negligence, breach of the agreement or Wilful Misconduct, the Service Provider is not responsible for losses of the User's Gas while Gas is in the Service Provider's control and possession.
- [59](#) ~~52~~Service Provider will have no responsibility or liability with respect to any Gas prior to its supply to Service Provider at the Receipt Points or after its delivery to the User at the Delivery Points on account of anything which may be done, happen or arise with respect to that Gas prior to receipt at the Receipt Points or after delivery at the Delivery Points.
- [60](#) ~~53~~The Gas received by the Service Provider at the Receipt Points may be commingled with other Gas in the Pipeline and with other elements for the operation and maintenance of the Pipeline in accordance with Good Engineering and Operating Practice. Subject to certain obligations of the Service Provider regarding the quality of gas delivered, Service Provider may commingle gas received and deliver it in a commingled state to the User, despite clauses ~~55-62~~ and ~~56 (Title 63 (Title))~~.

Warranties & Representations

- [61](#) ~~54~~The User warrants and represents (among other things set out in the Transportation Agreement) that at the time of supply of Gas to the Service Provider at the Receipt Points the User has unencumbered title to, and the right to supply, that Gas at the Receipt Points for transportation by the Service Provider under the Transportation Agreement.

Title

- 62 ~~55~~ Service Provider may commingle gas of various Users in the Pipeline. On the termination of a Transportation Agreement, the User will be entitled to:
- (a) recover a quantity of gas equivalent to any quantity delivered by or on behalf of the User into the Pipeline (net of System Use Gas) and not delivered to or for the account of the User; or
 - (b) ~~(zzz)~~ sell the gas to another User and advise the Service Provider of the quantity and identity of that User, provided that the purchaser of the gas from the User has a Transportation Agreement in place with Service Provider.
- 63 ~~56~~ Title to the Gas received by the Service Provider at the Receipt Point does not pass to Service Provider except for:
- (a) any liquid hydrocarbons which, during normal transportation operations and in accordance with Good Engineering and Operating Practice, separate or condense from the gas stream after receipt of the gas and before its delivery by Service Provider; and
 - (b) ~~(aaa)~~ System Use Gas the User is required to supply to the Service Provider under the Transportation Agreement.

Allocation of receipts and deliveries

- 64 ~~57~~ If the quantities of Gas actually received at the Receipt Points or delivered at the Delivery Points (other than deliveries to a Delivery Point which is a hub) do not equal the quantities Scheduled by the Service Provider in accordance with the Transportation Agreement on any Day, then those quantities actually received or delivered by the Service Provider (as the case may be) must be allocated among Users for a particular Hour or on a particular Day on a pro rata basis according to the User's Scheduled receipts for a Receipt Point or Scheduled deliveries for a Delivery Point (as the case may be) as a proportion of all Users' Scheduled receipts at the relevant Receipt Point or Scheduled deliveries at the relevant Delivery Point (as the case may be).
- 65 ~~58~~ If all Users for a Receipt Point or Delivery Point agree on an alternative allocation methodology then the Service Provider may (but is not obliged to) apply such alternative methodology.
- 66 ~~59~~ The Service Provider may revise its allocation methodology set out above from time to time to reflect, as far as reasonably possible, any allocation methodologies imposed on the Service Provider by a third party in respect of a particular Receipt Point or Delivery Point.

Addition of Receipt Points and Delivery Points

- 67 ~~60~~ The User may by notice to the Service Provider request that Service Provider provide Services under the Transportation Agreement to receipt points and delivery points on the Pipeline in addition to those set out in the Transportation Agreement.

- 68 ~~61~~The User's notice must specify certain proposed details (as set out in the Transportation Agreement) regarding the proposal for an additional receipt point or additional delivery point, such as the proposal for location, MDQ, MHQ, changes to existing MDQs and MHQs, date of commencement and period required (which must be not less than 12 months). The User must also supply Service Provider with any additional information that Service Provider reasonably requires to evaluate the User's request.
- 69 ~~62~~The Service Provider will determine acting reasonably, whether and the extent to which it is able to meet the User's request and, if so, any conditions on which it will offer to accommodate the request. The User will pay the Service Provider's reasonable costs incurred in evaluating the request.
- 70 ~~63~~The Service Provider will not be required to agree to a request for an additional receipt point or an additional delivery point if:
- (a) in its reasonable opinion, taking into account the capacity of the Pipeline, to do so may reduce the Service Provider's ability to meet its obligations under other Transportation Agreements;
 - (b) ~~(bbb)~~the Parties are unable to agree in respect of payment by the User of the associated costs;
 - (c) ~~(ccc)~~the User has not made all appropriate arrangements with Interconnect Parties necessitated by the additional receipt point or the additional delivery point; or
 - (d) ~~(ddd)~~in its reasonable opinion it will be unable to secure any necessary amendment to the Pipeline Licence or obtain any other necessary approval.
- 71 ~~64~~If the User requests an additional receipt point or an additional delivery point that:
- (a) does not exist; or
 - (b) ~~(eee)~~in the opinion of Service Provider, does not meet the specifications and standards published by Service Provider from time to time,
- so that the additional receipt point or additional delivery point needs to be constructed or modified then:
- (c) ~~(fff)~~the User may undertake construction itself or request that Service Provider undertake construction;
 - (d) ~~(ggg)~~if the User undertakes the construction itself then it must do so in accordance with certain requirements set out in the Transportation Agreement, including undertaking construction under the supervision and in accordance with any reasonable directions of the Service Provider, in accordance with designs and specification reasonably required by the Service Provider and connecting the additional receipt point or additional delivery point to the Pipeline on terms acceptable to the Service Provider.
 - (e) ~~(hhh)~~the User must pay only the incremental costs that are incurred by the Service Provider in:

- (i) designing and constructing the additional receipt point or additional delivery point;
- (ii) obtaining a reasonable rate of return on capital expended to make the additional receipt point or additional delivery point available to the User, where the costs are being recovered over time;
- (iii) reviewing the designs and specification for, and supervising construction of, the additional receipt point or additional delivery point;
- (iv) constructing improvements for increases in the capacity of the Pipeline reasonably required as a result of an additional receipt point or additional delivery point (including the regulation, metering and quality monitoring facilities); and
- (v) operating and maintaining any of the above improvements.

72 ~~65~~ If a receipt point or a delivery point is added, the amount payable under the Transportation Agreement will be no less than what was payable prior to the additions having been made.

Dispute Resolution

73 ~~66~~ Either Party may propose to refer, for determination by a specified independent expert, an issue in respect of the Transportation Agreement in dispute between the Parties that is only capable of determination by audit or by reference to accounting, engineering or scientific knowledge and practice, to the extent that it does not otherwise involve the interpretation of the Transportation Agreement. If the Parties agree on the referral to that independent expert then the issue will be referred to the independent expert for consideration. However, if the Parties are unable to agree on the identity of an independent expert within 10 days of the proposed referral, the Parties must request that the Institute of Arbitrators and Mediators nominate a person with appropriate commercial, technical and practical experience to determine the issue.

74 ~~67~~ The independent expert's decision, in the absence of manifest bias or error, is final and binding upon the Parties.

75 ~~68~~ Once a dispute is referred to an independent expert for determination then neither Party may commence or continue court proceedings (except where seeking interlocutory relief) in relation to that dispute until the dispute is determined by the independent expert.

Default

76 ~~69~~ The Transportation Agreement may, by written notice, be terminated or suspended for default by a Party, after a 7 business day cure period for a financial default (including if a Party is Insolvent) and after a 21 business day cure period for a non-financial default. If a non-financial default is not capable of remedy then a non-defaulting Party may terminate or suspend the Transportation Agreement, after the 21 business day cure period, if the defaulting Party does not:

- (a) take the steps and do the things that the non-defaulting Party, acting reasonably, requires to ensure that the event of default will not be repeated; and
- (b) ~~(iii)~~ pay the non-defaulting party the sum (if any) that the non-defaulting party reasonably determines is required to compensate the non-defaulting party for the event of default and its consequences.

This clause does not apply to a default where either Party has disputed that default, until such time as the dispute is resolved in accordance with clauses ~~66 to 68~~73 to 75.

77 ~~70~~ In addition to the above right to terminate or suspend the Transportation Agreement a non-defaulting Party may also sue for damages or exercise any other available legal or equitable remedy.

78 ~~74~~ Termination pursuant to the above procedure will not affect any rights or obligations which may have accrued prior to termination.

Billing & Payment

79 ~~72~~ The Service Provider will render monthly accounts in respect of the Charges and any other amounts payable to the Service Provider under the Transportation Agreement or Access Arrangement.

80 ~~73~~ The User will pay the Service Provider's tax invoices by the Payment Date. Late payment will attract an interest charge payable at the Bank Bill Rate plus two percentage points.

81 ~~74~~ Any disputed amount which is subsequently found to be payable by or repayable to the User will be due and payable no later than 14 Days after issue of an adjustment note by the Service Provider (such note must be issued within 28 Days of resolution regarding the disputed amount), together with interest on that amount.

82 ~~75~~ If an error is discovered in any tax invoice, then the error will be adjusted, with interest, on the next tax invoice provided to the User after the error is discovered. However, no adjustment will be made for errors discovered more than 12 months after the date of the delivery of Gas to which the erroneous tax invoice relates.

Information Interface

83 ~~76~~ The Service Provider retains ownership of and all intellectual property rights in the Information Interface and grants the User a non-exclusive, non-assignable, non-transferable right to access the Information Interface solely for the purposes of submitting Nominations and for receiving information regarding receipts, deliveries, balances and Gas flows under the Transportation Agreement.

84 ~~77~~ Only the User's employees authorised by the Service Provider may use the Information Interface pursuant to the above right of access. The User is liable for any loss incurred by the Service Provider resulting from use of the Information Interface other than to the extent such loss is caused by the negligence of the Service Provider.

Limitation of Liability & Indemnity

85 ~~78~~ Unless otherwise agreed by the Parties and set out in the Transportation Agreement, to the extent permitted by law, neither Party (including the Service Provider's Related Bodies Corporate) is liable to the other Party for Consequential Loss or for punitive or exemplary damages arising in respect of the Transportation Agreement except where such Consequential Loss or punitive or exemplary damage arises out of:

- (a) Gross Negligence or Wilful Misconduct by either the Service Provider or the User;
- (b) the Service Provider's or the User's liability relating to rates, Charges and other payments under the Transportation Agreement; or
- (c) the User's liability relating to the indemnity described in clause ~~80~~73.

86 ~~79~~ The aggregate liability of the Service Provider and its Related Bodies Corporate in respect of the Transportation Agreement, excluding for the Gross Negligence or Wilful Misconduct of the Service Provider or its Related Bodies Corporate, will be limited to a monetary liability cap of 10 per cent of the contract value over the life of the Transportation Agreement.

87 ~~80~~ The User indemnifies the Service Provider and its Related Bodies Corporate from and against any liability, claim, action, loss, damage, cost or expense the Service Provider or its Related Bodies Corporate sustains or incurs, whether during or after the expiry of the Transportation Agreement, because of any of the following:

- (a) a customer or contract counterparty of the User suffers, or claims to suffer, loss or damage in respect of the Service Provider's or its Related Bodies Corporate acts or omissions under the Transportation Agreement, except that the obligation to indemnify will be reduced in proportion to the extent that the loss or damage is caused by the Gross Negligence or Wilful Misconduct of the Service Provider or its Related Bodies Corporate; or
- (b) ~~(iii)~~ a third party (including another User and a customer or contract counterparty of the User or another User) suffers, or claims to suffer, loss or damage in respect of the User's acts or omissions under the Transportation Agreement.

88 ~~81~~ Each Party indemnifies the other for any loss arising out of its Gross Negligence or Wilful Misconduct.

Force Majeure

89 ~~82~~ **Force Majeure Event** means any event or circumstance, or combination of events or circumstances, which is beyond the control of a Party, which by the exercise of due diligence, that Party is not reasonably able to prevent or overcome and which has the effect of preventing a Party from performing an obligation under the Transportation Agreement, including, without limitation (provided that they meet the foregoing criteria):

- (a) acts of God, including without limitation, earthquakes, floods, washouts, landslides, lightning, storms and other acts caused by the elements;

- (b) ~~(kkk)~~ strikes, lockouts, bans, slowdowns or other industrial disturbances;
- (c) ~~(lll)~~ acts of enemy, wars (declared or undeclared), acts of terrorists, blockades or insurrections, riots and civil disturbances, arrest and restraint of rulers and peoples;
- (f) ~~(mmm)~~ fire or explosion;
- (g) ~~(nnn)~~ epidemic or quarantine;
- (h) ~~(ooo)~~ any order or direction of any Authority, or omission or failure to act by any Authority; or the failure to obtain or maintain any necessary Approval;
- (i) ~~(ppp)~~ in respect of the Pipeline, and any lateral pipelines owned or operated by the Service Provider and related machinery, equipment or facilities (including Interconnection Facilities), accidents or breakdown or the necessity to undertake alterations, repairs or maintenance (other than routine maintenance for which notice has not been given).

90 ~~83~~ The following events however caused:

- (a) lack of finances;
- (b) changes in market conditions for the transportation, purchase or sale of Gas;
- (c) the inability of the User or a person supplying Gas at or upstream of the Receipt Points to obtain a supply of Gas for transportation under the Transportation Agreement; or
- (d) the inability of the User, or a person consuming Gas at or downstream of the Delivery Point to take gas

will under no circumstances constitute or cause a Force Majeure Event.

91 ~~84~~ Subject to certain exceptions as specified under clause ~~86~~93, a Party's obligations under the Transportation Agreement are suspended during the time, and to the extent, that their performance is prevented, wholly or in part, by a Force Majeure Event and no liability to the other Party accrues for loss or damage of any kind arising out of, or in any way connected with that non-performance.

92 ~~85~~ However, such suspension does not relieve the User of its obligation to pay a Charge unless during a Month the Service Provider fails to deliver quantities of Gas Scheduled under ~~the Firm a Reference~~ Service as a result of a Force Majeure Event affecting the Service Provider in which case any Charge for that Month for the ~~Firm applicable Reference~~ Service will be reduced by the Service Provider, acting reasonably, having regard to the proportion of the Month in which the Service Provider fails to deliver quantities of Gas to the User as a result of the Force Majeure Event.

93 ~~86~~ Force Majeure Events do not relieve a Party of liability:

- (a) if and to the extent that its negligence, Wilful Misconduct or breach of contract caused or contributed to its failure to perform under the Transportation Agreement;

(b) ~~(qqq)~~ if and to the extent that it fails to use all reasonable endeavours to remedy the situation and to remove the circumstance giving rise to the Force Majeure Event adequately and promptly; or

(c) ~~(rrr)~~ to make payments of amounts then due in respect of Gas previously delivered.

94 ~~87~~ If performance of an obligation under the Transportation Agreement is prevented for a period of 12 Months as a result of a Force Majeure Event then, after a 7 Day period of consultation between the Parties, either Party may terminate the Transportation Agreement by giving no less than 2 Months written notice.

Assignment

95 ~~88~~ A Party may assign the whole or part of its interest in the Transportation Agreement if the assignment is part of a corporate acquisition, merger or reorganisation and the financial standing of the assignee is at least substantially equivalent to the financial standing of the assigning Party.

96 ~~89~~ The Service Provider may assign its interest in the Transportation Agreement to another person who owns the Pipeline.

97 ~~90~~ A Party may assign the whole or part of its interest in the Transportation Agreement to any person if the assigning Party remains bound by the Transportation Agreement.

98 ~~91~~ Any other assignment by a Party of a whole or partial interest in the Transportation Agreement requires the consent of the other Party (which must not be unreasonably withheld).

99 ~~92~~ Execution by the assignee of a covenant to be bound by the Transportation Agreement, in a form satisfactory to the non-assigning party acting reasonably, is a condition precedent to any assignment permitted above.

100 ~~93~~ If there is a Change in Control of a Party (**Affected Party**) or its ultimate holding company, neither the Affected Party or its ultimate holding company is listed on a recognised public securities exchange and the Change in Control is not imposed by law, then:

(a) the Affected Party cannot enforce the Transportation Agreement unless and until it procures the written consent of the other Party (which consent must not be unreasonably withheld); and

(b) ~~(sss)~~ the other Party may terminate the Transportation Agreement if consent is not obtained within 60 Business Days.

Confidentiality

101 ~~94~~ A Party receiving Confidential Information may use it solely for the purposes of performing its obligations under the Transportation Agreement or for internal purposes related to the governance of the Party or its Related Bodies Corporate.

102 ~~95~~ A Party must obtain the prior written consent of the other Party in order to use or disclose Confidential Information for any other purpose except where disclosure is

required by law or lawfully required by an Authority or if the information is at that time lawfully generally available to the public, other than as a result of a breach of the Transportation Agreement, or disclosure is required in order to comply with the listing rules of a recognised stock exchange.

[103](#) ~~96~~ The Service Provider must comply with any confidentiality requirements imposed on it pursuant to the National Gas Law and the National Gas Rules (Part 16).

Appendix A – Gas Specification – Amadeus Gas Pipeline

COMPONENT	UNITS	LIMITS	
		Minimum	Maximum
Gross Heating Value	MJ/sm ³	33.0	42.0
Wobbe Index	MJ/sm ³	44.0	51.0
Cricodentherm	Deg C		10.0
Water Content	Mg/sm ³		80.0
Nitrogen	Mol %		11.0
Carbon Dioxide	mol %		5.0
Total Inerts	mol %		12.0
Hydrogen Sulphide	ppm (wt)		10.0
Total Sulphur	Mg/sm ³		50.0
Oxygen	mol %		0.2
Mercury	Mg/sm ³		0.2
Solids size	microns		10
Methanol	Mg/sm ³		1.0
Glycols	Mg/sm ³		1.0
Radioactivity	Bq/sm ³		8,000
Receipt Temperature	Deg C		60.0
Delivery Temperature	Deg C		60.0

Appendix B - Metering And Measurement Requirements

1. GENERAL

- 8.2 Metering Equipment must be categorised according to the proportion of MDQ which is expected to be delivered at that Delivery Point. This Appendix B defines the four categories.
- 8.3 This Appendix B shows the minimum metering requirements for each metering category. All metering must satisfy or exceed the requirements of the respective category.
- 8.4 The Metering Equipment for each Delivery Point must continuously record the volume flow rate and all measurements used in the computations. Metering systems of category 3 or 4 must also continuously record the energy flow rate and Gross Heating Value.
- 8.5 The overall accuracy of the Metering Equipment must comply with the requirements set forth from time to time in any legislation or regulations applicable to Metering Equipment in the Northern Territory.
- 8.6 Service Provider and User may inspect any aspect of the design or item of Metering Equipment hardware at any reasonable time by giving reasonable notice.

9. MEASUREMENT

9.1 General

Metering Equipment of categories 2, 3 or 4 must satisfy the requirements of Sections 2 and 3. Category 1 metering must be by an agreed method based on these requirements.

9.2 Volumetric Measurement

- 9.2.1 Volumetric measurement must be in cubic metres at Standard Conditions. It must be calculated by a Flow Computer to be installed and maintained by User or Service Provider at the respective Delivery Point (the Flow Computer) from flow meter signals, associated instruments, relative density and composition analyses.
- 9.2.2 The volumetric flow rate must be continuously recorded and integrated.
- 9.2.3 Calculations for Metering Equipment of category 1 or 2 must use, unless otherwise agreed, the corresponding billing Month's average gas composition and relative density for a representative metering facility. Metering Equipment of category 3 or 4 must use on-line instantaneous measurement. The Metering Method Schedule contained in this Appendix B shows these requirements.
- 9.2.4 All measurements, calculations and procedures used in determining volume, except for the correction for the deviation from the Ideal Gas Law, must be made in accordance with the instructions contained in the American Gas Association Report No. 3 (AGA 3), A.P.I. 14.3, Parts 1 to 4 of the Third Edition August 1991-92, for the Orifice Plate Metering systems, AGA Transmission Measurement Committee Report

No. 7 for Turbine Metering or ANSI B 109.3 (1986) for Positive Displacement (PD) Metering together with all presently existing supplements, amendments and appendices to those Reports or any revisions thereof acceptable to User and Service Provider. Those instructions will be converted where necessary for compliance with Australian Standard AS1000 “The International System of Units (SI) and its Application”, the Commonwealth “National Measurement Act 1960” and regulations thereunder and the Australian Gas Association publication “Metric Units and Conversion Factors for use in the Australian Gas Industry” or any revision thereof acceptable to User and Service Provider.

- 9.2.5 The correction for deviation from the Ideal Gas Law must be determined from the relevant method contained in “Supercompressibility: AGA Transmission Measurement Committee Report No. 8” (1992), or any revision thereof acceptable to User and Service Provider. Metering Equipment of category 3 or 4 must calculate supercompressibility using compositional data. Metering Equipment of category 1 or 2 may calculate supercompressibility by using an alternate method in AGA Report No.8.

9.3 Energy Measurement

- 9.3.1 For Metering Equipment of category 3 or 4, the Flow Computer must calculate the energy flow in gigajoules per hour (GJ/hr) from the product of Gross Heating Value and volumetric flow at Standard Conditions. The heating value must be derived in accordance with the Metering Method Schedule. The energy flow rate must be continuously recorded and integrated.
- 9.3.2 Metering Equipment of category 1 or 2 must measure volumetric flow at Standard Conditions. The Monthly energy total may be calculated by multiplying the monthly volumetric flow by the monthly average Gross Heating Value measured at the nearest gate station with a gas chromatograph. Alternatively, and preferably, ‘Live GC data’ may be serially written to this Metering Equipment if available.

9.4 Other Measurement

All primary measurement data must be measured and continuously recorded, such that the readings are representative of the flowing conditions. Turbine and PD meters must use a direct-mounted mechanical index of uncorrected flow to achieve this.

Measurements must be independent of the Flow Computers so that the data must still be recorded if the Flow Computer fails or is removed.

10. METERING EQUIPMENT

For the purposes of this Access Arrangement, Metering Equipment must satisfy the following:

10.1 Flow Devices

- 10.1.1 Orifice metering systems must be constructed and installed in accordance with the provisions of AGA Report No. 3 such that the maximum uncertainty of the discharge co-efficient is $\pm 0.5\%$ and the maximum uncertainty of flow measurement is $\pm 1.0\%$.
- 10.1.2 Turbine metering systems must be constructed and installed in accordance with the provisions of AGA Report No. 7 such that the maximum uncertainty of flow measurement is $\pm 1.0\%$.
- 10.1.3 Positive Displacement Metering Systems must be constructed and installed in accordance with the provisions of ANSI B109.3 (1986) such that the maximum uncertainty of flow measurement is $\pm 1.0\%$.
- 10.1.4 Other standards as agreed between User and Service Provider with a maximum uncertainty of $\pm 1.0\%$

10.2 Differential Pressure, Pressure and Temperature

- 10.2.1 Differential pressure, pressure and temperature measurement must satisfy the requirements of the Metering Method Schedule. The stated accuracies required include the calculated effects of static pressure and ambient temperature. Calibrated ranges must be selected to minimise the uncertainty of readings.
- 10.2.2 For orifice plate metering systems, high and low range differential pressure transmitters may be installed to maintain the overall system accuracy. If fitted, the Flow Computer must automatically select the transmitter with the optimum operating range.

10.3 Flow Computer

- 10.3.1 For each flow device of Metering Equipment of category 3 or 4, a self contained single channel proprietary type Flow Computer must be installed. For Metering Equipment of category 1 or 2, a self contained multi channel proprietary type flow computer must be installed where one flow device will be connected to each channel. The following outputs, and the instantaneous values for all Primary Measurement inputs, must be continuously recorded and available for display from the Flow Computer or from SCADA trend data:

- Instantaneous corrected volumetric flow.
- Cumulative corrected volumetric flow.
- Volumetric flow today.
- Volumetric flow yesterday.

- Instantaneous energy flow (metering categories 3 and 4).
- Cumulative energy flow (metering categories 3 and 4).
- Energy flow today.
- Energy flow yesterday.
- Instantaneous uncorrected volumetric flow (turbine and PD metering systems only).
- Cumulative uncorrected volumetric flow (turbine and PD metering systems only).
- Supercompressibility factor.

The cumulative flows must be displayed or stored on equipment independent of the Flow Computer. If the Flow Computer fails, the last reading must be retained.

10.3.2 The Flow Computer must be manually configured with input data for calculation factors, constants, the Standard Conditions, fall back values for out of limit input signals, and alarm outputs. Configuration data must be available on a local display.

10.3.3 The Flow Computer input and output circuits and central processing unit must not increase the uncertainty of any measurement or calculation by more than 0.1% of the range of that measurement or calculation.

10.4 Energy and Relative Density

10.4.1 The energy content of the measured gas must be determined in accordance with the Metering Method Schedule.

All samples must be analysed in accordance with ASTM D1945 “Standard Method for Analysis of Natural Gas by Gas Chromatography”, and the calculations for Gross Heating Value and relative density must be determined in accordance with ISO6976 Natural Gas – Calculation of calorific values, density, relative density and Wobbe index from composition, or in accordance with equivalent standards as agreed by User and Service Provider. In the event of the failure of the gas chromatograph normally supplying data to the flow computer, data may be sourced from a gas chromatograph at another location agreed to be representative of the gas passing through this station.

10.4.2 All gas chromatographs must provide instantaneous outputs of dry Gross Heating Value in megajoules per cubic metre (MJ/m³), real relative density, Wobbe Index and component mole percentages of carbon dioxide, nitrogen and all hydro-carbon gasses to a minimum of C9+. These values must be generated for the “Stream Gas” and if possible, for the “Calibration Stream”. The un-normalised total of all streams must also be provided. Active alarm and unacknowledged alarm indications must also be supplied.

10.4.3 All data should be transmitted by serial digital communication where possible.

10.4.4 All gas chromatographs must be factory tested and calibrated using a certified natural gas gravimetric standard and must perform with an accuracy of $\pm 0.15\%$ for gross

heating value and $\pm 0.15\%$ for relative density. The cycle time for all gas chromatographs must be less than 6 minutes.

10.4.5 All gas chromatographs must include the facility for automatic recalibration against a certified calibration gas.

10.4.6 Calibration intervals for gas chromatograph must be no greater than a weekly basis.

11. STANDARD CONDITIONS

11.1 Standard conditions for the gas measurement (Standard Conditions) must be as follows:

Standard Pressure	101.325 kPa
Standard Temperature	15.0°C
Combustion Reference Pressure	101.325 kPa
Combustion Reference Temperature	15.0°C
Density of air at standard temperature and pressure	1.2255 kg/m ³

11.2 At each Delivery Point, local barometric pressure will be determined by Service Provider based on prevailing conditions as determined by the Bureau of Meteorology.

12. PROVISION OF METERING INFORMATION

12.1 For Metering Equipment not owned by Service Provider, the following data must be made available on a continuous basis to Service Provider (in respect of the particular Receipt Point or Delivery Point):

- All primary measurement data.
- Instantaneous and totalised corrected volumetric flow rate – m³/hr.
- Instantaneous and totalised energy flow rate – GJ/hr (metering categories 3 and 4 only).
- Supercompressibility Factor.
- Flow Computer Failure.
- Flow and energy accumulators described in paragraph 3.3.1.

The data must be available in serial form suitable for direct input into a Telecom Data Link or other communication systems acceptable to Service Provider.

In respect of Metering Equipment not owned by User and only for as long as the relevant Receipt Point or Delivery Point receives or delivers gas only for User, if

required by User the above data will, at no cost to Service Provider, be made available on a continuous basis to User.

12.2 Reporting

12.2.1 User must cause to be provided to Service Provider a monthly measurement report for Metering Equipment owned by User or a person selling Gas to User not more than two Business Days after the end of the relevant Month. Service Provider must cause to be provided a monthly measurement report in an acceptable form to all interested parties.

The report must contain full details of all metering operations. For example:

- Breakdowns.
- Shutdowns (with explanation of causes (where known), duration, action taken etc).
- Gas usages (installation, relief valves, compressor fuel, generator fuel, scrubbers, pigging, purging etc).
- Gas vented.
- Calibrations.
- Meter readings.
- Corrections to meter readings.
- Back-up laboratory reports.
- Daily volume and energy quantities.

12.2.2 Service Provider must use the reports referred to in paragraph 5.2.1 and provide a monthly volume and energy balance report to User not more than 4 Business Days after the end of the relevant Month or such later time as may be agreed by User if the reports referred to in paragraph 5.2.1 are delayed, but in any event not later than 8 Business Days after the end of the relevant Month.

If the energy balance report indicates a metering difference of 2% or more then Service Provider must carry out an investigation of the cause of the metering difference at its own cost and advise User of the cause. Service Provider and User must use reasonable endeavours to cause any imbalance to be reduced to the minimum practicable level.

13. CALIBRATION INSPECTION AND TESTING

13.1 Scheduled tests

- 13.1.1 Service Provider and User will ensure that metering certifications in respect of equipment they own or are responsible for are completed in accordance with the Metering Method Schedule.

If requested by User, Service Provider will complete metering certifications in respect of equipment owned by or the responsibility of User, at User's cost.

For the purposes of this Schedule:

Master Meter means a standard meter, certified by an Independent Testing Authority, which is dedicated to the testing of site meters. This meter must not be used as an 'on-line' meter. This meter should be used for validation purposes only. This meter may be used as a spare provided any faulty meter replaced by this meter is repaired and recertified as a new meter. The repaired meter would then become the "Master Meter".

The Master Meter must where reasonably practicable be calibrated over the range of operating pressures, temperatures and densities which are representative of the operational range of each site meter to be tested. New meters must be delivered with calibration certificates for pressure, temperature and density representative of the meter site and for air at atmospheric pressure.

Independent Testing Authority means the National Association of Testing Authorities of Australia (**NATA**) or other testing authority of equivalent standing agreed between the Parties.

- 13.1.2 Transmitter certification includes calibration at 0, 25, 50, 75 and 100% of transmitter span. If a system is proven reliable the period between certification may be increased to a longer period as agreed between User and Service Provider, with intermediate checks, as described in the Metering Method Schedule against a secondary standard at the operating point.
- 13.1.3 User and Service Provider must give at least fourteen (14) Days notice of the time and date of all tests, and must supply to Service Provider and User respectively, a list of items to be tested and on an annual basis the forward forecast dates for verification of all metering sites for the following year.

All test results, including field data and calculations, must be distributed to Service Provider and User for acceptance within three (3) Business Days.

If no response is received from a Party within this period, the test results must be deemed accepted by that Party.

13.2 Unscheduled Tests

- 13.2.1 In the event of a Metering Equipment breakdown User and Service Provider must be invited to attend the investigation, repair and re-test provided no delays are incurred which could jeopardise the Metering Equipment integrity or, would adversely affect the ability to deliver Gas under this Access Arrangement or any other contract.

- 13.2.2 All test results, including field data and calculations, must be distributed among Service Provider and User for acceptance within three (3) Business Days.

If no response is received from a Party within this period, the test results must be deemed accepted by that Party.

13.3 Correction Procedures

- 13.3.1 If at any time, any of the Metering Equipment is found to be unserviceable or registering inaccurately, it must be adjusted immediately to within the required accuracy limits. The previous reading of that Metering Equipment must be corrected for any period of inaccuracy greater than that set out in clause 3.1 of this Schedule which is definitely known or agreed upon, provided that the period of correction must not extend beyond the date of the last previous test. If the Parties are unable to agree upon the period of correction then the period will be one half of the period between the previous test and the date of adjustment. Measurement during the correction period must be reasonably determined by Service Provider on the basis of the best data available using the first of the following methods which is feasible:

- (a) recordings by any other acceptable measuring equipment;
- (b) trend data recorded by User or Service Provider where this data can be proven to represent an accurate estimate of the actual measurement;
- (c) by making the appropriate correction if the deviation from the accurate reading is ascertainable by calibration test or mathematical calculation; or
- (d) by estimation based upon receipts or deliveries under similar conditions during a period when the Metering Equipment was registering accurately.

- 13.3.2 If the Parties are unable to reach agreement on the appropriate correction method to be used, then the matter will be referred to resolution in accordance with Clauses ~~67 to 69~~ 74 to 76 of the General Terms and Conditions.

13.4 Calibration Equipment and Procedures

- 13.4.1 Calibration equipment must have where reasonably practicable measurement accuracy four times better than the accuracy requirements of the Metering Equipment to be calibrated.
- 13.4.2 Calibration equipment must be provided with current NATA endorsed certification of its accuracy. The appropriate certificates must be available for inspection during business hours at the offices of the owner of the Metering Equipment.
- 13.4.3 Certification procedures and frequencies or changes thereto must be approved by Service Provider and User. Such approval must not be unreasonably withheld.

13.5 Additional Tests

The Party responsible for the Metering Equipment may be required to carry out tests in addition to the scheduled and unscheduled tests referred to in clauses 6.1 and 6.2 of this Schedule. That Party requiring the tests must reimburse to the Party responsible for the Metering Equipment the cost of the additional tests unless it is

shown from the results of such tests that the equipment being tested is not operating within the permissible limits of tolerance.

14. INSPECTION OF EQUIPMENT AND RECORDS

14.1 Service Provider and User may:

14.1.1 have access to the relevant measuring and testing equipment at all reasonable times for inspection purposes;

14.1.2 be present during testing of the quality and quantity of gas; and

14.1.3 be present when measuring or testing equipment is cleaned, installed, repaired, inspected, calibrated or adjusted.

The Party responsible for the Metering Equipment must give reasonable notice to the other Party prior to undertaking these activities.

14.2 Calibration and adjustment of the Metering Equipment must be completed only by appropriately qualified and experienced personnel.

Metering Method Schedule

CAT.	RECEIPT & DELIVERY POINT MDQ GJ/DAY	METERING STANDARDS	TRANSMITTER REQUIREMENTS & ACCURACY (% OF RANGE)	GAS QUALITY, GHV AND SG MEASUREMENT METHOD	REMARKS
1	0 – 1,750	Agreed method based on Standards referenced in Sec 2.	Pressure < $\pm 0.25\%$ Diff. Press. < $\pm 0.25\%$ Temperature < $\pm 0.5\%$	Refer to section 3.2.2 of Appendix B.	<ul style="list-style-type: none"> 6 monthly validation by an Approved Person. Orifice plate inspections 6 monthly. Turbine meter spin test must be carried out every 12 months. Master Meter (where used) certified every 5 years. Other primary metering devices (ie Coriolis & Ultrasonic meters) as agreed between User & Service Provider.
2	1,750-3,500	Satisfies all Standards referenced in Sec 2.	Pressure < $\pm 0.25\%$ Diff. Press. < $\pm 0.25\%$ Temperature < $\pm 0.5\%$	Refer to section 3.2.2 of Appendix B.	<ul style="list-style-type: none"> Monthly validation (includes orifice plate inspections) by an Approved Person. The validation period may be extended to a maximum of 6 months by agreement between User and Service Provider subject to satisfactory test history and check procedures. Turbine meters spin test must be carried out every 12 months. Orifice meter runs inspected, cleaned and certified every two years. Turbine and PD meters certified by an independent testing authority or Master Meter every 12 months up to a maximum of 2 years. Master Meter certified every 5 years. Other primary metering devices (ie Coriolis & Ultrasonic meters) as agreed between User & Service Provider.
3	3,500-17,500	Satisfies all Standards referenced in Sec	Smart transmitters	On-line instantaneous telemetered data (GHV, SG, CO ₂ , N ₂) from	<ul style="list-style-type: none"> Monthly validation (includes orifice plate inspections) by an Approved Person. The validation period may be extended to a maximum of 6

CAT.	RECEIPT & DELIVERY POINT MDQ GJ/DAY	METERING STANDARDS	TRANSMITTER REQUIREMENTS & ACCURACY (% OF RANGE)	GAS QUALITY, GHV AND SG MEASUREMENT METHOD	REMARKS
		2.	Pressure < $\pm 0.10\%$ Diff. Press. < $\pm 0.10\%$ Temperature < $\pm 0.25\%$	nearby representative metering facility. The Gas Chromatograph must be validated by approved method monthly.	<p>months by agreement between User and Service Provider subject to satisfactory test history and check procedures.</p> <ul style="list-style-type: none"> • Turbine meter spin test must be carried out every 6 months. • Orifice meter runs inspected, cleaned and certified every 2 years. • Turbine and PD meter certified by a Master Meter or independent testing authority every 12 months. User and Service Provider may agree to extend the period to no greater than 24 months subject to satisfactory test history and check procedures. • Master meter certified annually. • Other primary metering devices (ie Coriolis & Ultrasonic meters) as agreed between User & Service Provider.
4	> 17,500	Satisfies all Standards referenced in Sec 2.	Smart transmitters Pressure < $\pm 0.10\%$ Diff. Press. < $\pm 0.10\%$ Temperature < $\pm 0.25\%$	On-line instantaneous measurement except where otherwise agreed between User and Service Provider. The Gas Chromatograph must be validated by approved method monthly.	<ul style="list-style-type: none"> • Monthly validation (includes orifice plate inspections) by an approved person. Validation period may be extended to a maximum of 3 months by agreement between User and Service Provider subject to satisfactory test history and check procedures. • Turbine meter spin test must be carried out every 6 months. • Turbine meters certified 12-monthly by Master Meter or by an independent testing authority. • Master Meter certified annually. • Orifice meter runs inspected, cleaned and certified every 2 years. • Other primary metering devices (ie Coriolis & Ultrasonic meters) as agreed between User & Service Provider.

For facilities with Series prove facilities. These time intervals are to be used unless the “Series Prove” test indicates that further testing is required. Agreement between User and Service Provider must be subject to satisfactory test history.

Cat.	Series prove test.	Transmitter spot checks as an option to paragraph 6.1.2 of Appendix B.	Full validation of meter run. (One or both meters as agreed.) as in paragraph 6.1.3 of Appendix B.
1	6 monthly or 12 monthly as agreed between User and Service Provider.	6 monthly or 12 monthly as agreed between User and Service Provider	24 monthly
2	3 monthly or 6 monthly as agreed between User and Service Provider.	3 monthly or 6 monthly as agreed between User and Service Provider	12 monthly
3	Monthly or 3 monthly as agreed between User and Service Provider.	3 monthly or 6 monthly as agreed between User and Service Provider	6 monthly or 12 monthly as agreed between User and Service Provider
4	Monthly	3 monthly	6 monthly or 12 monthly as agreed between User and Service Provider

SCHEDULE 4: FORM OF REQUEST FOR SERVICE

1. Prospective User Detail:

Name of Prospective User:

ACN:

Contact Officer:

Title:

Address:

Telephone:

Fax:

Email:

Service Requested:

If requested service is not a Reference Service, then what conditions, different from those available under a Reference Service, are sought, and what are the special circumstances or conditions which give rise to that need?

Date for Commencement of Service:

Duration of Transportation Agreement sought:

2. Receipt Point Information:

Receipt Point Location:

Entity Responsible for
Delivery of Gas to Receipt
Point:

(if other than the Prospective User)

ACN:

Contact Officer:

Title:

Address:

Telephone:

Fax:

Email:

3. Delivery Point Information:

Delivery Point Location:

Entity Controlling
Withdrawal of Gas at
Delivery Point:

(if other than the prospective User)

ACN:

Contact Officer

Title:

Address:

Telephone:

Fax:

4. Transportation Information:

Annual Quantity to be Transported (GJ):

Maximum Daily Quantity - MDQ (GJ):

Maximum Hourly Quantity - MHQ (GJ):

Transportation Patterns:

(graphically if possible, to assist with the assessment of the request)

Typical Daily Profile

Typical Weekly Profile

Typical Annual Profile

Examples of Atypical Profiles

Is the transportation service being sought to serve a new load or an existing load on the Pipeline?



Draft: 20 April 2020

Amadeus Gas Pipeline

**2021-26 access arrangement
revision proposal: demand**





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1 Demand for and utilisation of pipeline services

APTNT can reasonably provide, using the AGP, the pipeline services listed in Table 1.¹

Although each of these services might be provided, the AGP, like all other gas transmission pipelines, has been built for the primary purpose of transporting gas.

Table 1: Services that can reasonably be provided using the AGP

Service	Description
Firm transportation service	<ul style="list-style-type: none"> - Transportation from a receipt point to a delivery point - Highest priority service - Available between any receipt point and any delivery point
Interruptible transportation service	<ul style="list-style-type: none"> - Transportation from a receipt point to a delivery point - Lower priority service (may not be available on a day) - Available between any receipt point and any delivery point
Firm parking service	<ul style="list-style-type: none"> - Pipeline storage of gas - Highest priority right to store
Firm loan service	<ul style="list-style-type: none"> - Borrowing of gas from pipeline line pack - Highest priority right to borrow
Interruptible parking service	<ul style="list-style-type: none"> - Pipeline storage of gas - Lower priority service (may not be available on a day)
Interruptible loan service	<ul style="list-style-type: none"> - Borrowing of gas from pipeline line pack - Lower priority service (may not be available on a day)
In-pipe trade service	<ul style="list-style-type: none"> - Facilitation of trade of gas between pipeline user
Operational capacity transfer service	<ul style="list-style-type: none"> - Facilitation of transfer of firm transportation capacity between pipeline users
Interconnection service	<ul style="list-style-type: none"> - Provision, or facilitation, of interconnection to another pipeline

¹ The list in Table 3 does not include the exchange capacity trading service, which APTNT can, and must, provide in accordance with specific regulatory requirements of the NGR.

The demand for pipeline transportation service is driven by the business needs of the end users of the gas transported. End users requiring highly reliable gas supplies for power generation, for industrial process heat, or as a process feedstock, require a correspondingly reliable gas transportation service. Pipelines are, therefore, built to provide users with firm transportation service. The provision of other pipeline services is ancillary to the provision of firm transportation service.

Firm transportation service is the most reliable service a service provider can make available using its pipeline. Should the interruption or curtailment of pipeline services be necessary, firm transportation service has priority ahead of other types of transportation service and other services using pipeline capacity (such as parking service). Firm transportation service is not interrupted or curtailed until all of these other services have been interrupted or curtailed to the extent necessary to allow provision of the firm transportation service to continue.

The Access Arrangement for the AGP sets out terms and conditions for a firm transportation service reference service. That service is the Access Arrangement **firm service**.

1.1 Pipeline capacity for firm service provision

The AGP has a nameplate rating of 165 TJ/d.²

The nameplate rating of a transmission pipeline is the maximum daily capacity of the facility under normal operating conditions (NGR, rule 141(2)).

The nameplate rating of the AGP is its maximum daily capacity to provide firm transportation service under the pipeline's normal operating conditions.

These normal operating conditions changed with interconnection of the Northern Gas Pipeline (NGP) to the AGP, and commercial operation of the NGP, in January 2019.

Gas can now flow from the AGP into the NGP, at Warrego, near Tennant Creek, about 1,000 km south of Darwin. Gas delivered into the NGP flows into Queensland and, via other pipelines, into the East Coast gas market.

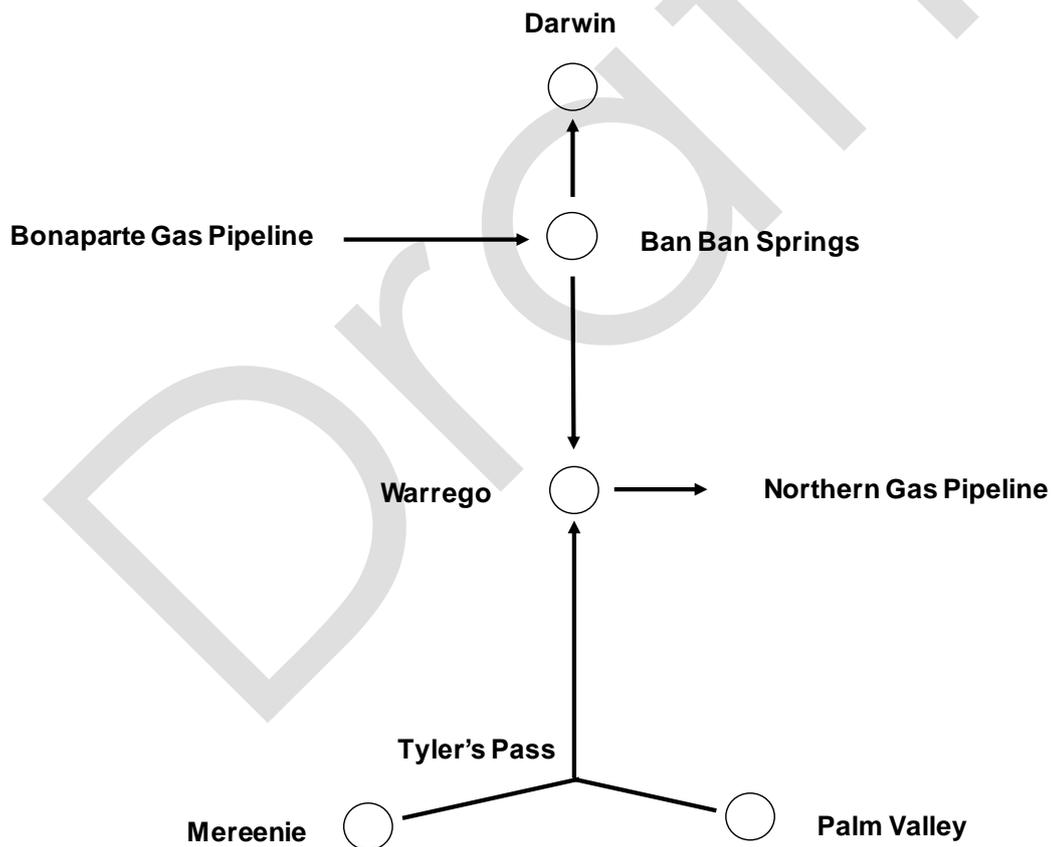
² <https://www.aemo.com.au/energy-systems/gas/gas-bulletin-board-gbb/data-portal>.

The capacity of the NGP is reported to be 90 TJ/d.³ In the 12 months from January 2019, flows from the AGP into the NGP averaged 77.1 TJ/d (see Table 4 below). This quantity exceeded the quantities which Central Australian gas producers have delivered into the southern part of the AGP, at Mereenie and Palm Valley.

Gas received into the AGP, from the Bonaparte Gas Pipeline (BGP), at Ban Ban Springs, about 175 km south of Darwin now flows north, to Darwin, and south, to Warrego and into the NGP. The direction of gas flow in the central section of the AGP has reversed since January 2019.

Gas flows in the AGP, after January 2019, are shown in Figure 1.

Figure 1: AGP gas flows after January 2019



³ <https://www.aemo.com.au/energy-systems/gas/gas-bulletin-board-gbb/data-portal>.

Interconnection with the NGP has segmented the capacity of the AGP.

Pressure reduction facilities at Ban Ban Springs ensure that gas flowing from the relatively high pressure BGP is received into the AGP at no more than 9,650 kPa, which is the maximum allowable operating pressure of the AGP mainline. (Raising pressure above the maximum allowable operating pressure risks rupturing the pipe.)

With this maximum allowable operating pressure, and assuming steady state flows, gas flow into the AGP at Ban Ban Springs has a maximum limit of 108 TJ/d. However, transient flows and pressure losses in the pressure reduction facilities, limit the capacity to a practical maximum of 104 TJ/d.

The capacity of the NGP is sustained with AGP gas deliveries to Warrego at pressures above 5,000 kPa. Gas flow modelling has shown that, with a maximum pressure differential of 4,650 kPa between Ban Ban Springs and Warrego, the maximum capacity of the AGP to transport gas south, to the NGP interconnection, is approximately 50.4 TJ/d.

The same gas flow modelling has shown that the maximum capacity of the AGP for gas transportation north to Darwin cannot exceed 91.0 TJ/d. However, if the maximum allowable operating pressure is not to be exceeded, additional gas cannot be received into the AGP at Ban Ban Springs. Furthermore, with gas now flowing from Ban Ban Springs south to Warrego, additional gas cannot physically flow north to Darwin. With a maximum capacity of 50.4 TJ/d to flow gas south to Warrego, and a maximum capacity for the receipt of gas at Ban Ban Springs of 104.0 TJ/d, the capacity of the Ban Ban Springs – Darwin segment of the AGP is restricted to 53.6 TJ/d.

Although the maximum allowable operating pressure of the pipeline between Mereenie and Tyler's Pass is 10,150 kPa, the maximum pressure at which the AGP can be operated between Palm Valley and Tyler's Pass, and north of Tyler's Pass, is 9,650 kPa. Gas flow modelling has shown that, with a maximum pressure differential of 4,650 kPa between Tyler's Pass and Warrego, the maximum capacity of the AGP to transport gas north from Mereenie and Palm Valley, to Warrego and the NGP, is approximately 61.0 TJ/d.⁴

⁴ This is the maximum capacity if all gas were to flow from Mereenie. If gas were supplied from Palm Valley, there would be a reduction in Mereenie lateral capacity: 1 TJ/d supplied from Palm Valley would reduce the capacity of the Mereenie lateral by around 0.5 TJ/d

The nameplate rating of the AGP – its capacity to provide firm transportation service under the operating conditions in effect since interconnection with the NGP in January 2019 – is segmented in the way shown in Table 2.

Table 2: AGP nameplate rating

Pipeline segment		Capacity
Ban Ban Springs - Darwin	TJ/d	53.6
Ban Ban Springs - Warrego	TJ/d	50.4
Mereenie, Palm Valley - Warrego	TJ/d	61.0
Nameplate rating	TJ/d	165.0

This segmentation of the capacity of the AGP has the following implications for the availability of capacity for the firm service reference service.

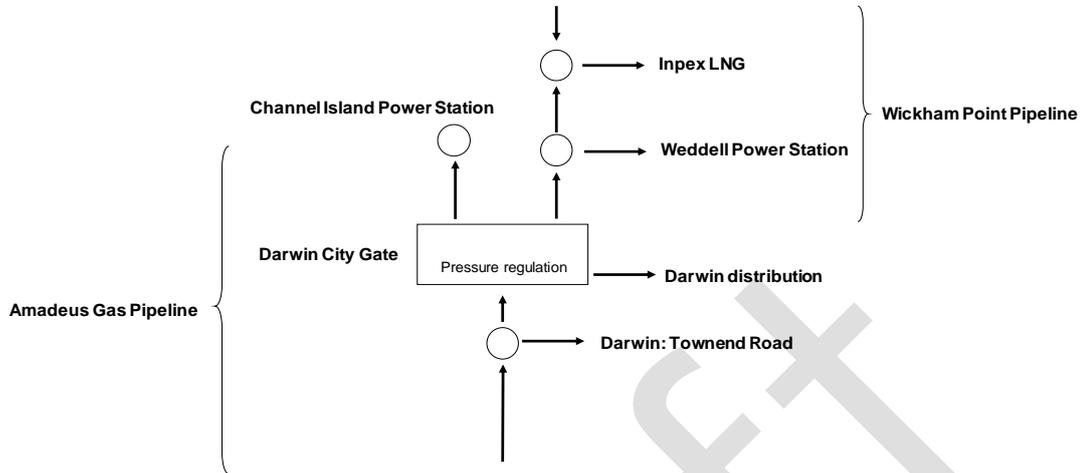
1.1.1 Capacity for firm service transportation: Ban Ban Springs – Darwin

Some 123 TJ/d of pipeline capacity is contracted, under pre-existing agreements, for the provision of firm transportation service to Darwin (to delivery points at Channel Island, Wickham Point Pipeline, and Darwin City Gate).⁵ The Darwin delivery points are shown in Figure 2.

(the lateral is longer than the segment of the mainline between Palm Valley and Tyler's Pass, and has smaller diameter).

⁵ The rights to capacity contracted under pre-existing agreements include rights to capacity at delivery points. The right to capacity at a delivery point is distinct from, and may exceed, the transportation capacity of a pipeline, which is the capability of the pipeline to transport gas between a receipt point and the delivery point.

Figure 2: Darwin delivery points



With a maximum capacity of 53.6 TJ/d available for transportation north from Ban Ban Springs, there is no capacity available for the provision of the firm service reference service between Ban Ban Springs and Darwin.

1.1.2 Capacity for firm service transportation to Warrego and the NGP

Gas in the AGP which flows south from Ban Ban Springs must be used to meet the requirements of end-users at the following locations:

- Pine Creek: gas is delivered into power generation for supply of electricity to the local township and into the Darwin-Katherine transmission system
- Katherine: gas is delivered into power generation for supply of electricity to Katherine and into the Darwin-Katherine transmission system
- Daly Waters: gas is delivered into the McArthur River Gas Pipeline for transport to Glencore's zinc, lead and silver mining operations at McArthur River
- Elliot: gas is delivered into power generation for supply of electricity to the local township.

Users with pre-existing agreements for firm transportation services have rights to maximum capacities at these four delivery points which total 25.8 TJ/d.

With a maximum capacity for gas transportation south from Ban Ban Springs of approximately 50.4 TJ/d, the remainder of the capacity available, 24.6 TJ/d,

can be used for firm service transportation south to Warrego (and into the NGP).

Gas flowing north in the AGP, from Mereenie and Palm Valley, must be used to meet the requirements of end-users:

- on the Tanami Gas Pipeline: the Tanami Gas Pipeline, which interconnects with the AGP at Tanami Road, transports gas for the generation of electricity for gold mining operations in the Tanami Desert
- at Tennant Creek: gas is delivered into power generation for supply of electricity to the local township and nearby mining operations.⁶

Users with pre-existing agreements for firm transportation services have rights to maximum capacities at these delivery points which total 16.1 TJ/d. With a maximum capacity for gas transportation north from Tyler's Pass of approximately 61.0 TJ/d, the capacity remaining for firm transportation north to Warrego is 44.9 TJ/d.

Users with pre-existing agreements for firm transportation services have contracted capacity at Warrego of 80.0 TJ/d, implying that capacity for gas transportation to Warrego, south from Ban Ban Springs (24.6 TJ/d) and north from Mereenie and Palm Valley (44.9 TJ/d), is fully contracted.

1.1.3 Capacity available for the firm service reference service

Effectively, all of the capacity which might be used to provide firm service in the AGP is fully contracted by users with pre-existing agreements for firm transportation services. None of these agreements is expected to terminate during the access arrangement period, and APTNT expects the capacity to remain fully contracted.

If a new user requires firm service, the capacity of the pipeline will have to be expanded to provide that service.

However, there is, at the present time, uncertainty around future demand for pipeline services provided using the AGP. Gas prices in the East Coast market

⁶ Gas flowing north from Palm Valley must also meet the requirements of end users on the Palm Valley to Alice Springs Pipeline. This pipeline connects into the AGP approximately 2.9 km from the Palm Valley receipt point. The maximum capacity north of Tyler's Pass is the capacity after gas deliveries into the Palm Valley to Alice Springs Pipeline.

have fallen, and market participants, including APTNT, are waiting for greater clarity around volumes and timings of gas supplies from the Beetaloo Basin.

Although prospective users and others have shown some interest in additional firm service in the AGP, that interest has not yet translated into the long term commitments to capacity necessary to support pipeline expansion.

At present, APTNT does not have a well-defined expansion plan for the AGP, and does not have associated costing for determining proposed tariffs.

The access arrangement revision proposal does not include any proposal for expansion of the capacity of the AGP during the access arrangement period.

With the AGP fully contracted, and expected to remain fully contracted, APTNT has forecast the demand for capacity for firm service to be the nameplate rating, 165 TJ/d, in each year of the access arrangement period.

1.2 AGP capacity utilisation: actual and forecast

AGP capacity utilisation (demand) from 2011-12 to 2018-19 is summarised, by delivery point, in Table 3.

Table 4 summarises AGP capacity utilisation, by month, during the 12 months from NGP interconnection in January 2019.

Gas received into the AGP during the same period, is summarised, by receipt point, in Table 5.

APTNT's forecast of AGP capacity utilisation during the access arrangement period is summarised in Table 6. Derivation of the forecast is more fully explained in the following subsections of this document.

A key assumption made by APTNT when preparing the forecast of capacity utilisation is that the pattern of gas use since January 2019 – since NGP interconnection – continues during the access arrangement period. That is, gas will continue to flow north, from Ban Ban Springs to Darwin, and south from Ban Ban Springs to Warrego and into the NGP. Gas from Mereenie and Palm Valley will flow north to Warrego and into the NGP.



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Table 3: AGP capacity utilisation: gas delivered 2011-12 – 2018-19

			2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
			Actual							
Darw in Channel Island	Minimum	TJ/d	16.7	17.8	16.3	15.2	17.9	19.7	21.0	19.8
	Maximum	TJ/d	44.1	44.9	47.7	45.2	45.4	48.2	48.4	46.0
	Average	TJ/d	31.6	30.5	31.3	30.2	32.1	33.3	33.5	30.2
	Total	TJ	11,520.1	11,120.0	11,439.8	11,031.1	11,733.2	12,151.6	12,244.7	11,010.1
Darw in City Gate (distribution system)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2
	Average	TJ/d	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Total	TJ	10.4	25.6	25.8	27.3	24.0	18.2	18.6	23.2
Darw in City Gate (into Wickham Point Pipeline)	Minimum	TJ/d	0.0	0.0	0.0	2.4	2.4	0.0	5.1	0.0
	Maximum	TJ/d	17.3	16.6	20.8	25.7	22.0	23.9	35.3	55.1
	Average	TJ/d	9.9	10.1	10.3	13.4	13.2	11.8	16.7	18.6
	Total	TJ	3,595.9	3,701.7	3,773.1	4,892.1	4,842.0	4,321.3	6,090.7	6,798.8
Darw in Tow nend Road (start: May 2014)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0
	Maximum	TJ/d	0.0	0.0	0.0	0.7	0.8	0.8	0.8	0.7
	Average	TJ/d	0.0	0.0	0.0	0.3	0.5	0.5	0.5	0.2
	Total	TJ	0.0	0.0	0.0	124.0	166.5	188.4	187.6	88.6
Pine Creek	Minimum	TJ/d	1.0	0.0	0.7	2.2	0.0	0.0	0.0	0.6
	Maximum	TJ/d	5.9	5.7	5.8	5.9	5.8	6.0	5.9	6.0
	Average	TJ/d	5.2	4.5	5.0	5.0	5.1	5.2	4.6	4.7
	Total	TJ	1,885.7	1,646.7	1,820.0	1,808.7	1,872.2	1,885.9	1,672.9	1,698.4
Katherine	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	4.0	4.9	3.6	6.2	4.3	6.5	5.2	8.3
	Average	TJ/d	0.9	1.2	0.7	0.7	0.3	1.0	0.8	1.4
	Total	TJ	340.7	443.5	252.5	225.9	126.4	351.5	298.7	524.6



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			2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
			Actual	Actual						
Daly Waters	Minimum	TJ/d	2.0	0.9	1.4	1.4	1.5	0.9	1.3	0.5
	Maximum	TJ/d	7.9	7.0	7.8	7.8	8.8	8.9	9.4	9.7
	Average	TJ/d	6.0	6.3	6.0	6.0	7.3	7.0	6.8	7.3
	Total	TJ	2,203.2	2,314.6	2,190.5	2,190.5	2,671.6	2,555.9	2,481.5	2,663.4
Elliot	Minimum	TJ/d	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2
	Average	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Total	TJ	35.0	35.1	37.1	37.1	43.2	37.3	34.5	41.7
Warrego (NGP) (start: January 2019)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.2
	Average	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.0
	Total	TJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15,750.2
Tennant Creek	Minimum	TJ/d	0.3	0.3	0.3	0.0	0.5	0.4	0.0	0.6
	Maximum	TJ/d	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
	Average	TJ/d	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2
	Total	TJ	403.7	403.7	403.7	413.5	392.4	391.6	394.4	426.7
Tanami Road (start: February 2019)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5
	Average	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
	Total	TJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	737.7
Palm Valley Interconnect (Alice Springs)	Minimum	TJ/d	6.1	5.8	6.7	6.1	2.2	2.8	1.8	0.2
	Maximum	TJ/d	13.0	13.4	14.1	12.2	10.7	9.4	7.7	8.3
	Average	TJ/d	9.5	9.6	10.0	8.9	6.5	5.2	5.4	5.3
	Total	TJ	3,465.6	3,505.4	3,642.3	3,255.7	2,363.3	1,910.0	1,963.2	1,931.5
Total	TJ	23,460.3	23,196.3	23,584.8	23,881.9	24,068.2	23,623.2	25,199.4	41,606.3	



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Table 4: AGP gas delivered: average flow: January 2019 – December 2019

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Average
Darw in Channel Island	TJ/d	31.1	30.3	28.2	30.2	33.4	24.7	23.8	24.9	23.5	32.0	31.9	31.3	28.8
Darw in City Gate (distribution system)	TJ/d	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1
Darw in City gate (into Wickham Point Pipeline)	TJ/d	13.4	16.5	19.6	12.4	10.9	13.4	17.3	26.3	28.8	20.4	24.0	22.0	18.7
Darw in Tow nend Road	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Darw in	TJ/d	44.7	47.0	48.1	42.9	44.6	38.4	41.3	51.4	52.6	52.6	56.2	53.4	47.8
Pine Creek	TJ/d	4.2	5.4	4.4	2.9	2.9	3.2	5.0	4.2	3.5	2.9	5.0	5.4	4.1
Katherine	TJ/d	1.1	1.1	3.0	2.0	1.5	0.7	0.7	1.9	2.4	1.8	1.4	0.9	1.5
Daly Waters	TJ/d	8.1	6.9	7.7	8.3	7.8	7.7	8.5	8.1	8.5	7.7	8.4	8.6	8.0
Elliot	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Warrego	TJ/d	76.4	70.0	76.9	83.2	84.9	82.3	63.8	81.4	72.9	80.8	76.8	76.1	77.1
Tennant Creek	TJ/d	1.5	1.3	1.2	1.1	1.0	0.7	0.7	0.6	0.8	1.2	1.4	1.6	1.1
Tanami Road	TJ/d	0.0	1.8	4.6	6.7	5.5	5.8	5.8	5.9	5.9	6.5	6.8	7.1	5.2
Palm Valley Interconnect	TJ/d	6.7	6.1	4.8	4.5	4.9	5.1	4.9	2.6	0.9	3.2	3.1	4.5	4.3
	TJ/d	142.8	139.9	150.8	151.8	153.1	144.0	130.9	156.3	147.7	156.8	159.1	157.8	149.2



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Table 5: AGP gas received at receipt points: average flow: January 2019 – December 2019

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Average
Received from Wickham Point Pipeline ¹	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Received at Ban Ban Springs	TJ/d	94.0	96.6	97.0	95.7	96.7	89.1	85.9	103.5	100.7	103.8	107.0	105.6	98.0
Received at Mereenie ²	TJ/d	40.4	38.0	45.9	50.5	49.9	44.4	36.7	43.8	39.3	40.6	41.1	40.3	42.6
Received at Palm Valley	TJ/d	7.3	7.8	7.1	6.0	8.2	11.8	9.4	10.2	8.5	11.9	12.5	12.1	9.4
	TJ/d	141.7	142.3	149.9	152.2	154.8	145.3	132.0	157.6	148.7	156.3	160.5	157.9	149.9

Notes:

1. Gas from LNG operations can be delivered, from the Wickham Point Pipeline, into the AGP, but the facility is intended only to provide emergency supplies of gas for Darwin power generation in the event of disruption of other gas supplies.
2. Total received need not be equal to total delivered. One user has contracted to park gas from Mereenie in the AGP.



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Table 6: AGP capacity utilisation (demand) forecast: 2019-20 to 2025-26

			2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
			Forecast						
Darw in Channel Island	Minimum	TJ/d	19.8	19.8	19.8	19.8	19.8	19.8	19.8
	Maximum	TJ/d	46.0	46.0	46.0	46.0	46.0	46.0	46.0
	Average	TJ/d	27.9	28.8	29.7	30.7	31.7	32.7	33.7
	Total	TJ	10,218.0	10,516.2	10,852.7	11,200.0	11,590.1	11,928.3	12,310.0
Darw in City Gate (distribution system)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Average	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Total	TJ	22.3	22.3	22.3	22.3	22.3	22.3	22.3
Darw in City Gate (into Wickham Point Pipeline)	Minimum	TJ/d	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	Maximum	TJ/d	23.9	23.9	23.9	23.9	23.9	23.9	23.9
	Average	TJ/d	12.5	12.9	13.3	13.7	14.2	14.6	15.1
	Total	TJ	4,575.0	4,708.5	4,859.2	5,014.7	5,189.3	5,340.7	5,511.6
Darw in Tow nend Road	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Average	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Total	TJ	69.0	68.8	68.8	68.8	69.0	68.8	68.8
Pine Creek	Minimum	TJ/d	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Maximum	TJ/d	6.0	6.0	6.0	6.0	6.0	6.0	6.0
	Average	TJ/d	4.6	4.7	4.9	5.0	5.2	5.3	5.5
	Total	TJ	1,667.6	1,716.2	1,771.1	1,827.8	1,891.5	1,946.7	2,009.0
Katherine	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	8.3	8.3	8.3	8.3	8.3	8.3	8.3
	Average	TJ/d	1.2	1.3	1.3	1.3	1.4	1.4	1.5
	Total	TJ	447.6	460.7	475.4	490.6	507.7	522.5	539.2



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			2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
			Forecast						
Daly Waters	Minimum	TJ/d	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Maximum	TJ/d	9.7	9.7	9.7	9.7	9.7	9.7	9.7
	Average	TJ/d	8.0	8.0	8.0	8.0	8.0	8.0	8.0
	Total	TJ	2,512.6	2,512.6	2,512.6	2,512.6	2,512.6	2,512.6	2,512.6
Elliot	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Average	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Total	TJ	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Warrego (NGP)	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	94.2	94.2	94.2	94.2	94.2	94.2	94.2
	Average	TJ/d	77.1	77.1	77.1	77.1	77.1	77.1	77.1
	Total	TJ	28,218.6	28,141.5	28,141.5	28,141.5	28,218.6	28,141.5	28,141.5
Tennant Creek	Minimum	TJ/d	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Maximum	TJ/d	1.7	1.7	1.7	1.7	1.7	1.7	1.7
	Average	TJ/d	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	Total	TJ	403.7	403.7	403.7	403.7	403.7	403.7	403.7
Tanami Road	Minimum	TJ/d	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Maximum	TJ/d	8.5	8.5	8.5	8.5	8.5	8.5	8.5
	Average	TJ/d	6.6	6.6	6.6	6.6	6.6	6.6	6.6
	Total	TJ	2,400.0	2,393.5	2,393.5	2,393.5	2,400.0	2,393.5	2,393.5
Palm Valley Interconnect (Alice Springs)	Minimum	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Maximum	TJ/d	8.3	8.3	8.3	8.3	8.3	8.3	8.3
	Average	TJ/d	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Total	TJ	1,566.4	1,562.2	1,562.2	1,562.2	1,566.4	1,562.2	1,562.2
Total demand (pipeline usage)		TJ	52,139.6	52,544.8	53,101.7	53,676.4	54,409.9	54,881.5	55,513.1

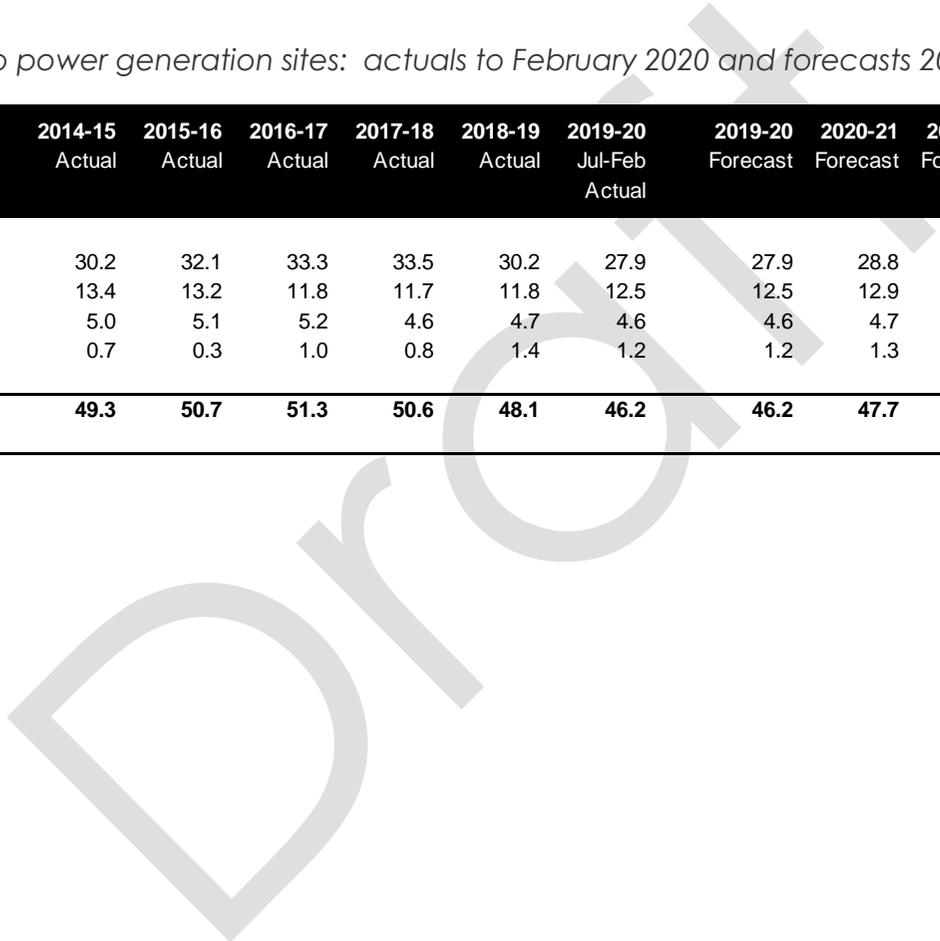


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Table 7: AGP average flows to power generation sites: actuals to February 2020 and forecasts 2019-20 to 2025-26

		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2019-20	2020-21	2021-22	2022-23	2023-24	2024-26	2025-26
		Actual	Actual	Actual	Actual	Actual	Jul-Feb Actual	Forecast						
Channel Island	TJ/d	30.2	32.1	33.3	33.5	30.2	27.9	27.9	28.8	29.7	30.7	31.7	32.7	33.7
Weddell	TJ/d	13.4	13.2	11.8	11.7	11.8	12.5	12.5	12.9	13.3	13.7	14.2	14.6	15.1
Pine Creek	TJ/d	5.0	5.1	5.2	4.6	4.7	4.6	4.6	4.7	4.9	5.0	5.2	5.3	5.5
Katherine	TJ/d	0.7	0.3	1.0	0.8	1.4	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5
	TJ/d	49.3	50.7	51.3	50.6	48.1	46.2	46.2	47.7	49.2	50.8	52.4	54.1	55.8





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Table 8: AGP capacity utilisation forecast: Ban Ban Springs – Warrego

		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
		Forecast						
Ban Ban Springs - Darwin, Ban Ban Springs - Warrego								
Receipts								
Ban Ban Springs	TJ/d	91.1	92.4	93.7	95.1	96.5	98.0	99.5
Deliveries								
Darw in Channel Island	TJ/d	27.9	28.8	29.7	30.7	31.7	32.7	33.7
Darw in City Gate (distribution system)	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Darw in City gate (into Wickham Point Pipeline)	TJ/d	12.5	12.9	13.3	13.7	14.2	14.6	15.1
Darw in Tow nend Road	TJ/d	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Darw in	TJ/d	40.7	42.0	43.3	44.7	46.1	47.6	49.1
Ban Ban Springs gas transported south	TJ/d	50.4	50.4	50.4	50.4	50.4	50.4	50.4
Deliveries								
Pine Creek	TJ/d	4.6	4.7	4.9	5.0	5.2	5.3	5.5
Katherine	TJ/d	1.2	1.3	1.3	1.3	1.4	1.4	1.5
Daly Waters	TJ/d	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Elliot	TJ/d	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	TJ/d	13.9	14.1	14.3	14.5	14.7	14.9	15.1
Ban Ban Springs gas delivered at Warrego	TJ/d	36.5	36.3	36.1	35.9	35.7	35.5	35.3



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Table 9: AGP capacity utilisation forecast: Mereenie, Palm Valley – Warrego

		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
		Forecast						
Mereenie, Palm Valley - Warrego								
Receipts								
Mereenie	TJ/d	42.6	42.6	42.6	42.6	42.6	42.6	42.6
Palm Valley	TJ/d	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Additional	TJ/d	0.6	0.7	1.0	1.1	1.4	1.5	1.8
Mereenie, Palm Valley	TJ/d	52.6	52.7	53.0	53.1	53.4	53.5	53.8
Deliveries								
Tennant Creek	TJ/d	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Tanami Road	TJ/d	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Palm Valley Interconnect	TJ/d	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	TJ/d	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Mereenie, Palm Valley gas delivered at Warrego	TJ/d	40.6	40.7	41.0	41.1	41.4	41.5	41.8
Total deliveries at Warrego								
Ban Ban Springs gas delivered at Warrego	TJ/d	36.5	36.3	36.1	35.9	35.7	35.5	35.3
Mereenie, Palm Valley gas delivered at Warrego	TJ/d	40.6	40.7	41.0	41.1	41.4	41.5	41.8
	TJ/d	77.1	77.1	77.1	77.1	77.1	77.1	77.1

1.2.1 Capacity utilisation: Ban Ban Springs – Darwin

In the 12 months from January 2019, gas deliveries into Darwin (Channel Island, Darwin City Gate (distribution), Darwin City Gate (Wickham Point Pipeline) and Townend Road delivery points) averaged 47.8 TJ/d (see Table 4). The largest flows were to Channel Island Power Station and into the Wickham Point Pipeline for transportation to the Weddell Power Station. These power stations (with generating capacities of 310 MW and 129 MW, respectively), and smaller stations at Pine Creek (26.6 MW) and Katherine (34.7 MW), supply electricity into the Darwin-Katherine transmission system.

In 2014-15 and 2015-16, AGP gas deliveries into the Wickham Point Pipeline were 13.4 TJ/d and 13.2 TJ/d, respectively (see Table 3). In 2016-17, gas deliveries were 11.8 TJ/d. Gas deliveries into the Wickham Point Pipeline subsequently increased, with gas delivered into the INPEX LNG plant at Bladin Point (which began LNG production in October 2018). In 2017-18, and in 2018-19, gas deliveries from the AGP into the Wickham Point Pipeline were, respectively, 16.7 TJ/d and 18.6 TJ/d. Gas flows to Weddell Power Station were 11.7 TJ/d and 11.8 TJ/d. APTNT understands that gas delivered into the LNG plant has been for the commissioning of power generation facilities at the plant, and those deliveries may not continue once commissioning has been completed.

Gas Bulletin Board data indicate an average flow of 10.6 TJ/d at the Bladin Point delivery point on the Wickham Point Pipeline during the six months to the end of December 2019. In January and February 2020, the Bladin Point flow dropped to zero. Gas deliveries from the AGP into the Wickham Point Pipeline during the six months to December 2019 averaged 23.1 TJ/d, implying an average flow to Weddell Power Station of 12.5 TJ/d.

After rising by 2.9% in 2015-16, and by 1.0% in 2017-18, gas delivered to sites generating power for the Darwin-Katherine transmission system declined by 1.2% in 2017-18, and by 5.1% in 2018-19.

The volume of gas delivered to Channel Island, and into the Wickham Point Pipeline for Weddell, increased by around 3.3% annually over the six years from 2011-12 to 2017-18. In 2018-19, it declined by 2.9%.

Gas use at Pine Creek and Katherine declined, by around 2.0% annually, from 2011-12 to 2017-18, but increased by some 12.7% between 2017-18 and 2018-19. The quantities of gas delivered at Pine Creek and Katherine were,

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however, much less than the quantities delivered to Channel Island and Weddell, and the 12.7% increase only partially offset the reduction in gas deliveries to the Darwin power stations.

The decline in power station gas deliveries appears to have continued during 2019.

A recent and rapid uptake of solar PV generation, displacing gas generation, may have contributed to the decline in gas use for power generation in 2018-19, but extent of the decline for that reason is difficult to quantify.

A fall in power station gas use is consistent with a fall in electricity generation accompanying a recent decline in economic activity in the Northern Territory. The decline in activity is indicated by the falls in Northern Territory gross state product and employment shown in Table 10.

Table 10: Northern Territory gross state product and employment

		2014-15	2015-16	2016-17	2017-18	2018-19
Gross State Product (chain volume)	\$ million	25,105	25,601	25,977	26,501	26,109
(ABS catalogue number 5220.0, Table 8)						
Year on year change			2.0%	1.5%	2.0%	-1.5%
Total employed (June)	'000	136.2	135.2	137.6	138.1	128.6
(ABS catalogue number 6202.0, Table 10)						
Year on year change			-0.7%	1.8%	0.4%	-6.9%

APTNT has forecast gas deliveries to power generation sites in 2019-20 as the actual rate from July 2019 to February 2020 (46.2 TJ/d). From 2020-21, power station gas deliveries are forecast to grow at the average rate of growth in gross state product (3.2%) as forecast by the Northern Territory Treasury for the Treasurer's *Mid-Year Report 2019*. The *Mid-Year Report* was dated 18 November 2019.

APTNT's forecasts of gas deliveries to power generation sites expected to supply electricity into the Darwin-Katherine transmission system during the access arrangement period (Channel Island, Wickham Point Pipeline (Weddell), Pine Creek and Katherine) are shown in Table 7.

Darwin distribution system

A small number of commercial and light industrial end-users of gas is supplied from the Darwin distribution system. There are no residential end-users in

Darwin. Gas flow from the AGP into the Darwin distribution system, at Darwin City Gate, has averaged 0.1 TJ/d over an extended period. Average flow in the 12 months to the end of December 2019 was 0.1 TJ/d.

APTNT has forecast gas deliveries into the Darwin distribution system to remain at 0.1 TJ/d during the access arrangement period.

Townend Road

Gas was delivered, via the Townend Road delivery point, to the Livingstone Beef processing facility. The facility owner, Australian Agricultural Company, curtailed and subsequently suspended operations in May 2018, leading to a fall in gas flow at Townend Road in 2018-19.

APTNT is not aware of any intentions to re-open the beef processing facility, and has forecast gas deliveries to Townend Road to be at the 2019 average of 0.2 TJ/d during the access arrangement period.

1.2.2 Capacity utilisation: Ban Ban Springs – Warrego

In the twelve months from January 2019 (that is, from commencement of deliveries into the NGP), gas has flowed into the AGP, from the BGP, at an average rate of 98.0 TJ/d (see Table 5). With gas flow north, to Darwin, at an average rate of 47.8 TJ/d, the flow south, from Ban Ban Springs to Warrego, has averaged 50.2 TJ/d.

Pine Creek and Katherine

As shown in Table 7, APTNT has forecast gas deliveries for power generation in Pine Creek and Katherine, during 2019-20, to be 5.8 TJ/d. Those deliveries are expected increase at the expected rate of increase in Northern Territory gross state product in 2020-21, and during the access arrangement period.

Daly Waters

Expansion of operations at Glencore's McArthur River Mine resulted in increased gas use from 2015-16, and a corresponding increase in AGP gas flow to the delivery point into the McArthur River Pipeline at Daly Waters. Over the four years from 2015-16 to 2018-19, this flow averaged 7.1 TJ/d. From January 2019 to December 2019, gas flow to the Daly Waters delivery point was 8.0 TJ/d.

Australian zinc production increased by 30% from 2017-18 to 2018-19. This increase was delivered from a small number of mines, among them, the

McArthur River Mine. Production at McArthur River increased 14%. The higher level of zinc production is expected to be maintained over the next two years, sustained by new mining operations and by continued high production at McArthur River.⁷

APTNT has therefore forecast AGP gas deliveries into the McArthur River Pipeline, at Daly Waters, to remain at around 8.0 TJ/d during the access arrangement period.

Elliot

Gas flow to Elliot is for local power generation, and has averaged 0.1 TJ/d during the eight years 2011-12 to 2018-19.

APTNT expects this use will continue to be around 0.1 TJ/d during the access arrangement period.

Warrego (NGP)

Commencement of gas flow in January 2019 makes forecasting deliveries at Warrego, for transportation via the NGP, difficult: the data are insufficient.

In the 12 months from January 2019, deliveries to Warrego and into the NGP averaged 77.1 TJ/d. In December 2019, a well-publicised agreement, for the supply of Northern Territory gas to Incitec Pivot in Brisbane, terminated. In January and February 2020 gas deliveries into the NGP averaged only 57.2 TJ/d.

APTNT understands that at least one market participant is seeking to find new buyers for the gas previously supplied under the now terminated agreement.

APTNT is, therefore, forecasting gas deliveries at Warrego, and into the NGP, to remain at around their 2019 average of 77.1 TJ/d during the access arrangement period.

A part of this gas is expected to be supplied from Ban Ban Springs, and the remainder is expected to be sourced from Mereenie and Palm Valley. The

⁷ Department of Industry, Science, Energy and Resources, *Resources and Energy Quarterly*, December 2019, page 114.

"mix" will depend on the success of the various parties marketing gas received into the AGP at Ban Ban Springs, and at Mereenie and Palm Valley.⁸

If the maximum capacity for transportation south from Ban Ban Springs is fully utilised, gas deliveries from Ban Ban Springs to Warrego could be as shown in Table 8.

1.2.3 Capacity utilisation: Mereenie, Palm Valley – Warrego

In the twelve months from January 2019 (that is, from commencement of deliveries into the NGP), gas has flowed into the AGP, from Mereenie, at an average rate of 42.6 TJ/d (see Table 5). During the same period an average of 9.4 TJ/d was received at Palm Valley. Some 52.0 TJ/d, less gas delivered to Tennant Creek, Tanami Road and the Palm Valley Interconnect (Alice Springs), flowed north to Warrego, and into the NGP.

Tennant Creek

Gas deliveries to Tennant Creek, for power generation for the local township and nearby mining operations, have been relatively stable at 1.1 to 1.2 TJ/d over the eight years from 2011-12 to 2018-19 (see Table 3).

Generation from solar PV installations is becoming an important component of remote area electricity supplies, and could augment gas generation at Tennant Creek, lowering the use of gas delivered from the AGP. However, in December 2018, Territory Generation installed 6 MW of new gas-fired generating plant to allow future retirement of aged diesel units.

APTNT has, in these circumstances, forecast gas deliveries to Tennant Creek to remain at around 1.1 TJ/d during the access arrangement period.

Tanami Road

Gas delivered from the AGP into the Tanami Gas Pipeline, at Tanami Road, is used in mine-site power generation for gold mining operations in the Tanami Desert.

Gas flow at Tanami Road commenced in February 2019, and a "ramp up" is discernible from the data in Table 4.

⁸ This mix will have implications for the capacity available for the interruptible service which APTNT is now required to provide as a reference service.

APTNT has forecast, for the access arrangement period, deliveries to Tanami Road at the average rate during the period from 1 July to 31 December 2019 (6.6 TJ/d), but is well aware that gold mining demand is sensitive to variations in the price of gold in international commodity markets.

Palm Valley Interconnect (Alice Springs)

Gas deliveries to the Palm Valley Interconnect, for subsequent transportation to Alice Springs, have declined from 9.5 TJ/d in 2011-12 to 5.3 TJ/d in 2018-19. From January 2019 to December 2019, gas deliveries to the Palm Valley Interconnect averaged 4.3 TJ/d.

In Alice Springs, gas is supplied to about 1,100 residential and commercial users through a small distribution network. The principal use of gas in the town is in power generation.

APTNT understands, from the gas producer, that gas from the Dingo field, south of Alice Springs, has been delivered into the Palm Alice to Springs Pipeline, and into Alice Springs, and has displaced gas delivered from the Amadeus Gas Pipeline. APTNT does not have visibility of gas flows on the Palm Valley to Alice Springs Pipeline.

In 2017, Territory Generation installed about 40 MW of new gas-fired generation in Alice Springs to replace generating units due for retirement. The replacement generation was also to provide support for planned renewables generation.

Territory Generation advises, on its website, that Alice Springs has a highly variable electricity load profile and a high penetration of solar PV into the network. To manage the highly variable load, 5 MW of battery storage was installed late in 2018.⁹

APTNT does not expect the volume of gas transported to the Palm Valley Interconnect, for use in Alice Springs, to rise during the access arrangement period. Additional solar PV generation could further displace gas-fired generation, but the extent of any displacement is difficult to predict.

APTNT has, therefore, forecast gas deliveries at the Palm Valley Interconnect to remain at their current level of 4.3 TJ/d during the access arrangement period.

⁹ At <https://territorygeneration.com.au/major-projects/alice-springs-energy-storage/>.

Warrego (NGP)

As noted above, APTNT is forecasting total gas deliveries at Warrego, and into the NGP, to remain at around their 2019 average of 77.1 TJ/d during the access arrangement period.

If the maximum capacity for transportation south from Ban Ban Springs is fully utilised, and gas deliveries from Ban Ban Springs to Warrego are as shown in Table 8, then Warrego deliveries from Mereenie and Palm Valley could be as shown in Table 9.

1.2.4 Capacity utilisation: minimum and maximum demand forecasts

APTNT has forecast the minimum and maximum demands of Table 6 in the ways shown in Table 11.

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Table 11: Forecasting minimum and maximum demands

Delivery point	Forecasting method
Darwin Channel Island	
Minimum	Minimum demand 2018-19
Maximum	Maximum demand 2018-19
Darwin City Gate (distribution system)	
Minimum	Minimum demand each year from 2011-12 to 2018-19 was zero
Maximum	Average of maxima 2014-15 to 2018-19
Darwin City Gate (into Wickham Point Pipeline)	
Minimum	Average of minima for 2014-15, 2015-16 and 2016-17
Maximum	Average of maxima for 2014-15, 2015-16 and 2016-18
Darwin Townend Road	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Pine Creek	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Katherine	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Daly Waters	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Elliot	
Minimum	Average of minima 2014-15 to 2018-19
Maximum	Average of maxima 2014-15 to 2018-19
Warrego (NGP)	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Tennant Creek	
Minimum	Average of minima 2014-15 to 2018-19
Maximum	Average of maxima 2014-15 to 2018-19
Tanami Road	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19
Palm Valley Interconnect (Alice Springs)	
Minimum	Minimum 2018-19
Maximum	Maximum 2018-19

1.3 Capacity available for interruptible service

On 10 December 2019, the AER published a reference service proposal decision for the AGP. The decision required that a revised AGP Access

Arrangement include, in addition to firm service, an interruptible service as a reference service.

The reference service proposal decision recognised, at least in part, prospective user concern that all of the capacity available for the provision of firm transportation service was fully contracted to users with pre-existing agreements.

In this section of the submission, a brief discussion of the form of interruptible service available on the AGP precedes a discussion of the quantity of that service which might be provided in each of the principal segments of the pipeline.

1.3.1 **Interruptible service**

An interruptible service can be made available using any unused part of the AGP capacity which has been contracted to users with pre-existing agreements. That capacity can be made available to other users subject to recognition of rights, in the pre-existing agreements, for gas to be scheduled ahead of gas scheduled for others.¹⁰

The service is interruptible because users with pre-existing agreements have higher priority access to pipeline service. It is not interruptible, as is the case with interruptible services on other pipelines, because plant and equipment must be periodically withdrawn for planned maintenance, or because of unexpected plant and equipment failure.

1.3.2 **Interaction with day-ahead auction of contracted but un-nominated capacity**

The capacity which might be used to provide an interruptible service using the AGP is the contracted but un-nominated capacity of existing users of

¹⁰ Like other commercially negotiated agreements, these pre-existing agreement are confidential. However, under the NGL, the AER has access to all of APTNT's agreements for gas transportation using the AGP. The current AGP Access Arrangement (approved by the AER) recognises the existence of the pre-existing transportation agreements explicitly, in the note to section 2.1, in the gas scheduling and curtailment priorities of the terms and conditions applying to firm service (Schedule 3), and in the queuing requirements (section 6.4 of the Access Arrangement).

The note to section 2.1 of the Access Arrangement advises that there is currently no capacity available for provision of the firm service reference service. All of the capacity available for the provision of firm transportation services is utilised under pre-existing transportation agreements.

firm transportation services. It is capacity which, in other circumstances, could be accessed under the day-ahead auction provisions of Part 25 of the NGR.

If the day-ahead auction provisions of the NGR were in effect in the Northern Territory, auctioned contracted but un-nominated capacity would be scheduled before any AGP interruptible service. However, a derogation has delayed auction implementation.

Under the derogation, no capacity on a gas transportation facility wholly or partly in the Northern Territory can be made available for purchase through the day-ahead auction.

The derogation ceases to apply at the discretion of the Northern Territory Minister, or on a date determined by the COAG Energy Council after the fifth anniversary of the commencement of the capacity trading reform amendments to the NGL. (The capacity trading reform amendments commenced on 1 March 2019.)

APTNT has assumed, when preparing proposed revisions to the AGP Access Arrangement, that the derogation delaying the implementation of the day-ahead auction in the Northern Territory has effect at the time of the AER's Final Decision on the revisions proposal. That is, at the time revisions to the Access Arrangement are expected to commence, the day-ahead auction for contracted but un-nominated capacity will not operate, and interruptible service, made available as a reference service, will be a viable option for prospective users.

Were the day-ahead auction to be implemented, users would have greater certainty of access to transportation service in the AGP if they sought capacity through the auction rather than contracting for interruptible service.

1.3.3 **Capacity available for interruptible service: Ban Ban Springs – Darwin**

With a maximum capacity of 53.6 TJ/d between Ban Ban Springs and Darwin, and forecast deliveries to Darwin increasing from 40.7 TJ/d in 2019-20 to 49.1 TJ/d in 2025-26, there will be, in the Ban Ban Springs – Darwin segment of the AGP, unused contracted capacity of 12.9 TJ/d in 2019-20, falling to 4.5 TJ/d in 2025-26.

This unused contracted capacity could be used to transport, into Darwin, gas sourced from the BGP. However, BGP capacity to deliver gas into the AGP is currently fully contracted.

With gas from Ban Ban Springs expected to flow south (as well as north to Darwin), the Ban Ban Springs – Darwin segment of the AGP cannot be accessed by a “third party” seeking to use interruptible service.

APTNT forecasts no interruptible service in the Ban Ban Springs – Darwin segment of the AGP during the access arrangement period.

1.3.4 Capacity available for interruptible service: Ban Ban Springs - Warrego

With BGP capacity fully contracted, and gas from Ban Ban Springs delivered to Warrego using firm transportation service possibly using the maximum capacity for transportation south (as shown in Table 8), APTNT forecasts no interruptible service in the Ban Ban Springs – Warrego segment of the AGP during the access arrangement period.¹¹

1.3.5 Capacity available for interruptible service: Mereenie, Palm Valley – Warrego

The series of actual gas deliveries in the twelve months from January to December 2019 indicates that about 7.5 TJ/d is delivered to Warrego using firm transportation service available under pre-existing transportation agreements. With forecast deliveries to Tennant Creek and Tanami Road (also made using firm transportation service available under pre-existing transportation agreements) totalling 6.3 TJ/d (see Table 6), some 13.8 TJ/d is transported north of Tyler's Pass using firm transportation service.

The capacity available for firm transportation service between Tyler's Pass and Warrego is 61.0 TJ/d, and that capacity is, as noted in section 1.1.2, fully contracted.

¹¹ Use of the maximum capacity is uncertain because, as noted earlier, it depends on the gas marketing activities of others.



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Table 12: Forecast of interruptible service

		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
		Forecast						
Ban Ban Springs - Darwin	TJ/d	0.0						
Ban Ban Springs - Warrego	TJ/d	0.0						
Mereenie, Palm Valley - Warrego								
Capacity: Tyler's Pass - Warrego	TJ/d	61.0	61.0	61.0	61.0	61.0	61.0	61.0
Firm transportation service: Tyler's Pass - Warrego								
Mereenie, Palm Valley gas delivered at Warrego	TJ/d	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Tennant Creek	TJ/d	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Tanami Road	TJ/d	5.2	5.2	5.2	5.2	5.2	5.2	5.2
	TJ/d	13.8	13.8	13.8	13.8	13.8	13.8	13.8
Mereenie, Palm Valley - Warrego: interruptible service	TJ/d	47.2						



There is, therefore, around 47.2 TJ/d of capacity available for interruptible service in the Mereenie, Palm Valley – Warrego segment of the AGP.

1.3.6 Forecast of capacity available for interruptible service

APTNT has assumed that all of the capacity available for interruptible service is used to provide that service.

APTNT's forecast of interruptible service during the access arrangement period is, then, as shown in Table 12.

During the 12 months from January to December 2019, deliveries of gas from Mereenie and Palm Valley to Warrego under transportation agreements which were not pre-existing agreements, and which were therefore agreements for a form of interruptible transportation service, averaged some 32.7 TJ/d. In January and February 2020, deliveries under these agreements averaged only 10.5 TJ/d. Substantial capacity appears to be available for the provision of the interruptible service reference service during the access arrangement period.