15 August 2025

Mr Arek Gulbenkoglu
General Manager, Network Expenditure
Australian Energy Regulator
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By email: aergasresets2026-31@aer.gov.au

Dear Mr Gulbenkoglu,

Stakeholder consultation on Amadeus Gas Pipeline 2026-31 Access Arrangement Proposal

Jemena welcomes the opportunity to provide a submission to the AER with respect to APA's Amadeus Gas Pipeline (**AGP**) 2026-31 Access Arrangement Proposal.

Jemena owns and operates the Northern Gas Pipeline (**NGP**), which connects the AGP to APA's Carpentaria Gas Pipeline (**CGP**) and the broader east coast gas market. Jemena also owns and operates the Phillip Creek Compressor Station (**PCCS**), which receipts gas from the AGP and primarily removes excess nitrogen from the gas to meet the gas specification used on the CGP and the broader east coast gas market before injecting the gas into the NGP. We therefore have a strong interest in the outcomes of the AGP 2026-31 Access Arrangement Review.

Proposed gas specification change

A key concern for Jemena is APA's proposal to amend the gas specification for the AGP which increases the Higher Heating Value (**HHV**) and Wobbe Index, without adjusting for the allowable concentration of inert gases, including nitrogen and carbon dioxide. The HHV and Wobbe Index measure the total energy content and density of gas. APA has stated that the objective of this change in AGP's gas specification is to improve shippers' opportunity to transport gas to the east coast market and reduce the need for the nitrogen removal service currently undertaken at PCCS, by aligning some of the AGP gas specification qualities with the Australian Standard AS 4564, which defines the gas specification qualities required in the east coast market.

Jemena supports the objectives of enabling Northern Territory (**NT**) gas to play a larger role in meeting the east coast market's supply needs by reducing barriers associated with the current misalignment in gas specifications between the NT and east coast market. However, APA's proposed change is unlikely to achieve this objective because it fails to account for the increase in HHV and Wobbe Index (i.e., the change in energy content and density of gas) in the processed gas after the removal of nitrogen by the PCCS, which is a necessary process for NT gas to comply with the inert gas concentration limits specified under AS 4564.

Changing the HHV and Wobbe Index in isolation of the inert gas concentration for the AGP's gas specifications will not remove the need for nitrogen removal service at PCCS, but rather, hinder the delivery of NT gas into the east coast market. As a result of the change to the HHV and Wobbe Index in the gas injected at the inlet of PCCS,

there is a risk that the HHV and Wobbe Index of the processed gas may exceed the limits specified under AS 4564 due to nitrogen removal undertaken to meet the concentration limit. The gas may become 'off-spec' and may be rejected at the NGP's east coast delivery point, namely the CGP. This would result in increased risk of disruption to flows to the east coast market and potentially disincentivise efficient investment in new gas supply in the NT to supply gas into the east coast market via the AGP and NGP. We believe these outcomes would be inconsistent with the long-term interests of gas consumers as outlined in the National Gas Objective. Therefore, Jemena does not support the proposed amendment as outlined in APA's 2026-31 Access Arrangement Proposal.

APA has forecast 86.8 TJ/day of gas flowing from the AGP to the NGP over the next Access Arrangement period. However, with the proposed changes in the AGP's gas specification, Jemena is doubtful that such gas volume could be accommodated on the NGP given the technical constraint outlined above.

Gas specification changes for the AGP must be evaluated in a holistic manner and should only be approved if the issue raised above is properly addressed. Detailed explanation of the dependencies between the HHV, Wobbe Index and inert gas concentrations, and the ramifications of the proposed change, are set out in Jemena's submission on APA's AGP draft plan, attached for the AER's reference (**Attachment A**).

As at the date of this submission, we understand that APA is still considering the issue raised by Jemena, however has not yet provided the further technical information requested by Jemena to clarify the drivers behind the proposed change. Jemena welcomes continued engagement with APA on this matter.

Nameplate rating

With the addition of the Sturt Plateau Pipeline (**SPP**) receipt point, Jemena queries why the nameplate rating of the AGP has not changed given the close proximity of the SPP receipt point to the NGP delivery point. To the extent new firm capacity is created on the AGP due to the SPP interconnection, this should be reflected in the nameplate rating.

As outlined in the Access Arrangement proposal, there is customer interest in expanding capacity on the AGP primarily for transportation to the NGP. This suggest that provided with more capacity on the AGP, customers would have a greater opportunity to move gas to the east coast market via the NGP. The NGP has material spare capacity for customers to contract on a firm basis. The nameplate rating of the AGP will influence customers' decision to contract capacity on the NGP.

Should you have any questions about this submission, please contact Andrew Zancanaro, Business Development Manager, at [redacted].

Yours sincerely,

[redacted]

Nerise Cook
General Manager Pipelines

ATTACHMENT A

10 June 2025

Justine Langdon
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Dear Ms. Langdon,

Stakeholder consultation on draft Amadeus Gas Pipeline 2026-31 Access Arrangement

Jemena welcomes the opportunity to provide comments to APA's draft Amadeus Gas Pipeline (**AGP**) 2026-31 Access Arrangement. Jemena owns and operates the Northern Gas Pipeline (**NGP**), which connects the AGP to APA's Carpentaria Gas Pipeline (**CGP**) and the broader east coast gas market, and the Phillip Creek Compressor Station (**PCCS**), which receipts gas from the AGP and primarily removes excess nitrogen to enable AGP-specification gas to meet the gas specification used on the CGP and throughout the east coast gas market. As such, Jemena has a strong interest in the outcomes of the AGP 2026-31 Access Arrangement Review.

Jemena supports the objectives of enabling NT gas to play a larger role in meeting the east coast market's supply needs by reducing barriers associated with the current misalignment between the NT and east coast gas specifications, and in incentivising efficient investment in new supply by NT gas producers. However, Jemena is concerned about APA's proposed amendment to the gas specification for the AGP (**the proposed amendment**), which would increase the Higher Heating Value (**HHV**) and Wobbe Index to 42.3 MJ/Sm3 and 52 MJ/Sm3 respectively, without altering the allowable concentration of inert gases, including nitrogen (N_2) and carbon dioxide (CO_2). The proposed amendment is unlikely to achieve the stated objective of allowing increased flows from the AGP to the east coast gas market, and may actually have the unintended consequence of reducing flows from the AGP to the east coast gas market—thereby reducing throughput on the AGP and potentially deterring efficient investment in new gas supply.

The stated objective of the proposed amendment, as outlined by APA, is to align some of the AGP gas specification qualities with the Australian Standard AS 4564, which is the gas specification used by pipelines and end users throughout the east coast market. APA states that this would improve shippers' opportunity to transport gas to the east coast market and reduce the need for nitrogen removal service currently undertaken at PCCS. However, the proposed amendment is unlikely to achieve this objective because it fails to account for the calorific value of the processed gas after the removal of nitrogen by the PCCS, which is a necessary process for NT gas to comply with AS 4564.

Gas specification changes for the AGP must therefore be evaluated in a whole-of-system context, particularly when a downstream facility like the PCCS is involved in conditioning gas to meet market standards. The design of PCCS was based on the existing AGP specification as reflected in Nitrogen Removal Service Agreements with customers of the NGP.

The HHV of gas is significantly influenced by its composition, particularly the types and proportions of hydrocarbons and inert gases present. Hydrocarbons are the primary energy carriers in natural gas. Methane (CH_4) has the lowest HHV among common hydrocarbons. Ethane (C_2H_6), propane (C_3H_8), butanes (C_4H_{10}), etc., have progressively higher HHVs, so heavier hydrocarbons in the mix raises the HHV. Inert gases do not combust, so they dilute the energy content of the gas as they occupy volume without contributing to combustion energy.

The AS 4564 specifies that the maximum allowable concentration of total inert gases (which includes nitrogen and carbon dioxide) is less than 7% combined. The proposed amendment by APA has not accounted for this limit, as it maintains an allowable concentration of 11% for nitrogen, 5% for carbon dioxide and 12% for total inert gases on the AGP.

The removal of nitrogen at PCCS for transportation to the east coast market is primarily necessitated due to the current AGP specification allowing total inert gases to exceed 7%—this processing is not performed for the purpose of increasing the HHV.

The east coast gas specifications (AS 4564) impose strict limits on HHV and Wobbe Index, as well as the total inert gas concentration, to ensure safe and consistent combustion. By increasing the HHV and Wobbe Index of the AGP gas delivered into PCCS without reducing the allowable total inerts— which is possible when there are higher concentrations of heavy hydrocarbons in the gas—the proposed amendment would narrow the operational window for nitrogen removal at PCCS.

This would create a technical constraint whereby the PCCS's nitrogen removal process may result in an export gas stream that exceeds the HHV or Wobbe Index limits of the east coast gas specifications. This may potentially lead to:

- Rejection of gas at the NGP's east coast delivery point (i.e. the CGP)
- Operational disruptions to customers of the PCCS and the AGP.

These outcomes would be directly contradictory to the objective of enabling greater flows of gas from the AGP to the east coast market. The increased risk of disruption to flows to the east coast market also risks disincentivising efficient investment in new gas supply for injection into the AGP by NT producers. We believe these outcomes would be inconsistent with the long-term interests of gas consumers as outlined in the National Gas Objective. Therefore, Jemena does not support the proposed amendment as outlined in the draft 2026-31 Access Arrangement.

Users of the PCCS are contractually bound to provide gas within specific gas quality parameters such that PCCS can export, and the NGP can transport, gas that is compliant with AS 4564 for delivery into the CGP and the broader east coast market. The potential ramifications of the proposed amendment should be subject to further consideration by APA and discussion with customers that currently use (or may use in the future) the services of both the AGP and the PCCS/NGP.

To achieve the objective of facilitating greater flows from the AGP to the east coast market, Jemena suggests APA explore with current and prospective AGP users the potential to change the AGP gas specification to one which complies with all qualities specified in AS 4564 in a holistic manner, including the inert gas concentration limits. In the absence of an ability to achieve full alignment of the AGP gas specification with AS 4564, the proposed amendment to the gas specification is unlikely to be in the long term interests of gas consumers.

For example, APA, as owner of the CGP, could consider updating the pipeline's gas specification. A broader review across connected assets may safely expand the operating range, benefiting both gas producers and consumers. This would support APA's goal of improving shipper access to the east coast market. In particular, allowing gas with higher total inerts into the CGP—especially as new NT sources come online—could be viable, given similar equipment in Mt Isa. This added supply is critical to easing affordability pressures for Mt Isa customers, some of whom have publicly warned of potential shutdowns due to high gas prices.

Jemena would be happy to discuss this matter further, and to participate in any further customer engagement activities relating to this matter. Should you have any questions about this letter, please contact Andrew Zancanaro, Business Development Manager on [redacted].

Yours sincerely,

[redacted]

Nerise Cook
General Manager Pipelines