

Jemena Limited

Jemena submission to specification of service points, zones and pipeline segments for capacity trading platform and auction

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Contact Person

Andrew Zancanaro
Southern Pipelines Commercial Manager
Ph: 03 9173-7000
Andrew.Zancanaro@jemena.com.au

Jemena Limited

ABN 95 052 167 405
Level 16, 567 Collins Street
Melbourne VIC 3000

Postal Address

PO Box 16182
Melbourne VIC 3000
Ph: (03) 9713 7000
Fax: (03) 9173 7516

1. OVERVIEW

Jemena owns and operates a diverse portfolio of energy and water transportation assets across the East Coast of Australia. With more than \$10.5 billion worth of major utility infrastructure, Jemena supplies millions of households and businesses with essential services every day.

Jemena continues to be committed to proactively implementing the key pipeline recommendations from the Gas Market Reform package, and is supportive of the establishment of a liquid gas market on the east coast of Australia that contributes to better achieving the National Gas Objective (**NGO**).

Jemena welcomes the opportunity to provide the Australian Energy Market Operator (**AEMO**) with feedback on the receipt and delivery point zones to be used for the Capacity Trading and Auction Reform Package. Jemena has and remains committed to working constructively with AEMO in developing a package of reforms that will benefit all gas users, despite our concerns of reduced security of supply, increasing complexity, and impediments to investment in new pipeline infrastructure.

Beyond this submission, Jemena will continue to engage and work constructively with AEMO to ensure that the definition of the zones reflect both the services offered to existing shippers and the physical constraints on each of its pipelines, such that the Capacity Trading and Auction Reform Package is afforded every opportunity to succeed. That is, existing primary shippers are able to easily trade contracted capacity at zones that correspond to their primary services, and secondary buyers have the confidence that the reliability of the services purchased on the platform and auction reflect the expectation of the buyers when considering the priority of service.

In responding to the paper, and in light of the principles outlined in the agreed legal and regulatory framework, Jemena has reviewed each of its pipelines expected to be subject to the capacity trading reform package, including the Northern Gas Pipeline. In doing so, Jemena assessed the technical viability of grouping either receipt points and delivery points together to form zones and pipeline segments (pipeline lengths between zones). Specifically, Jemena has tested the proposals outlined by AEMO against a number of actual gas days to ascertain the ability to physically adopt and work with the zones as proposed.

This detailed assessment has identified a number of previously unidentified issues with AEMO's zone framework. The zone concept is a significant deviation from how services are typically offered on Jemena's pipelines and Jemena has reservations as to how the market will react to the complexity that has been proposed. Detail of Jemena's concerns is provided below.

Should you have any question relating to Jemena's submission please feel free to contact Jan Peric, General Manager Pipelines Markets, Jan.Peric@jemena.com.au.

2. EASTERN GAS PIPELINE (EGP)

After attempting to replicate the Zones and Segments as proposed by AEMO, a number of inconsistencies with the physical infrastructure, operational and commercial nature of the asset have been identified. The following provides details of the proposed changes to improve the functionality of the zone design, including explanations around why the physical infrastructure would result in more accurate and operable Day Ahead Auction products.

2.1 JEMENA'S PROPOSED REDESIGN OF ZONES AND SEGMENTS

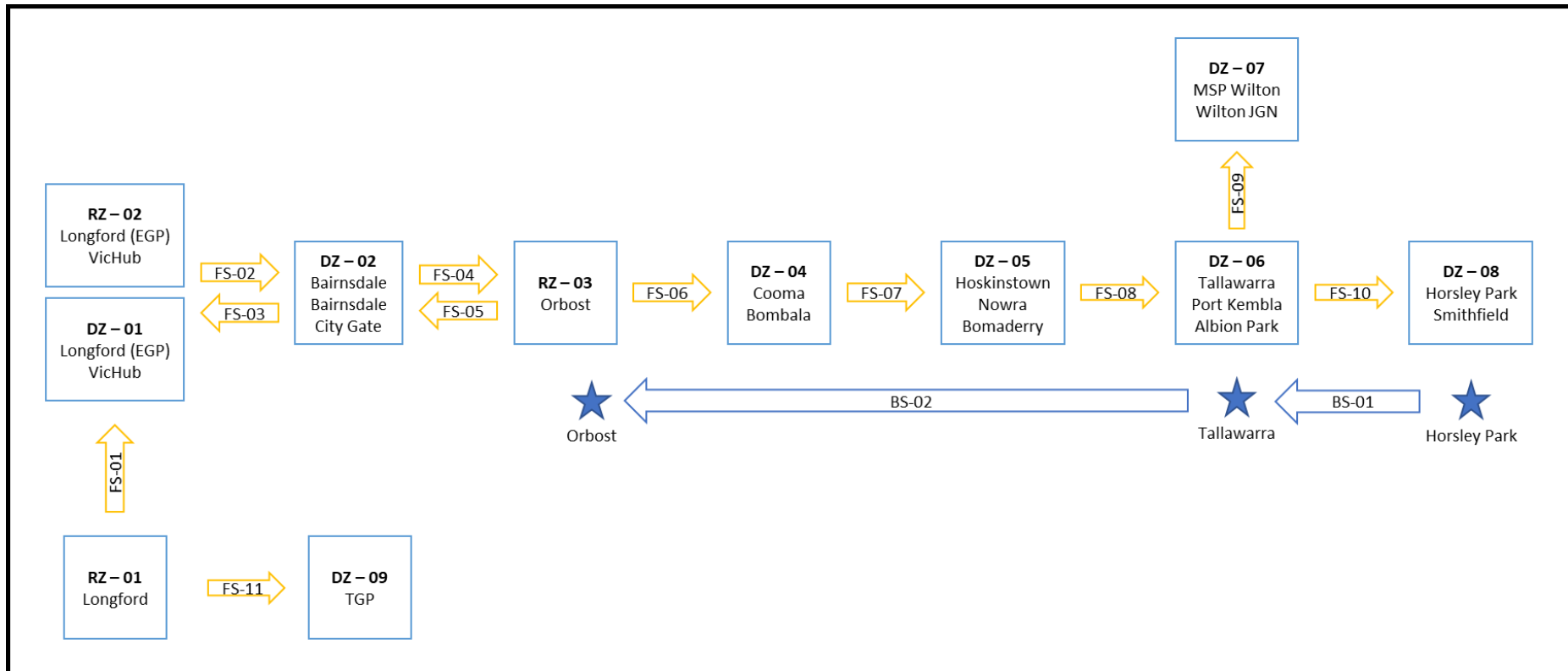


Figure 1 - Suggest Zones for Eastern Gas Pipeline

2.2 SUMMARY OF CHANGES TO FORWARD HAUL SEGMENTS AND ZONES

The following are justifications for the modifications proposed for specific sections of the Eastern Gas Pipeline.

2.2.1 LONGFORD AREA

The changes between AEMO's and Jemena's proposed Longford area configuration are displayed below:

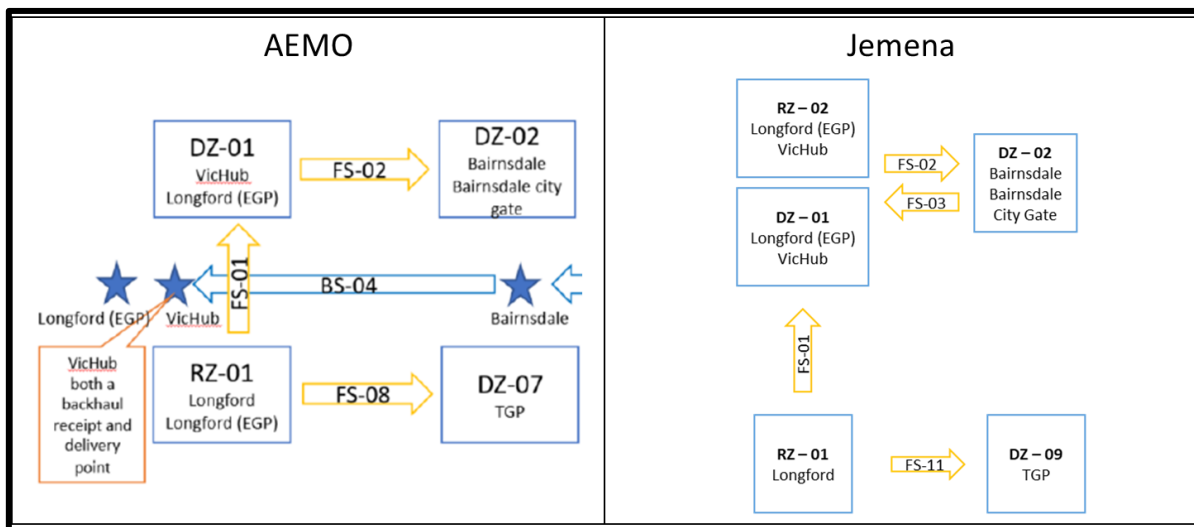


Figure 2 - Longford Zone

The proposed alteration by Jemena includes a new Receipt Zone between FS-01 and FS-02 to account for the ability for gas to be received from Park services, as well as from VicHub. The Jemena proposed RZ-01 also identifies that Park Services do not originate from upstream of FS-01, but rather downstream of this pipeline section. This concept is consistent to the service point method applied on other pipeline assets with similar park services to those offered by Jemena and with AEMO's own view of service points for park services (page 22 of the consultation paper).

To proceed without either of these modifications can lead to unnecessary scheduled quantities across FS-01, as well as less MDQ made available to FS-02. Both of these outcomes could lead to the undermining of the Day Ahead Auction concept, with either services won through auction routinely being de-scheduled, or asset capacity misaligned with Eastern Gas Pipeline uncontracted capacity disclosures.

Proposed changes to Backhaul and Southern Haul Sections are discussed below.

2.2.2 ORBOST AREA

The changes between AEMO's and Jemena's proposed Orbost area configuration are displayed below:

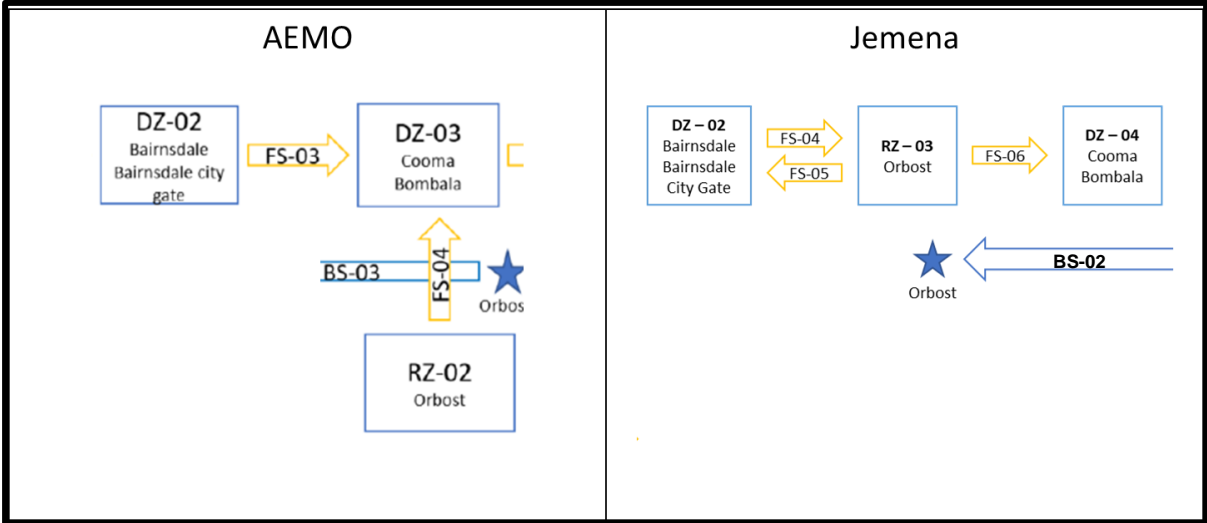


Figure 3 - Orbst Zones

This proposed alteration accounts for the fact that there is no Pipeline Segment between Orbst and the Eastern Gas Pipeline mainline, nor does Orbst feed into the Delivery Zone containing Cooma and Bombala.

Orbst Meter Station ties into the upstream side of the East Gippsland Compressor, and as indicated in Figure 4 below, is in fact closer in proximity to the EGP mainline than the compression facility itself. Including a Pipeline Segment here would be a misrepresentation of the physical infrastructure, and if it was included it would be assigned the exact same Capacity, MDQ and Scheduled data as the Orbst Receipt Point.

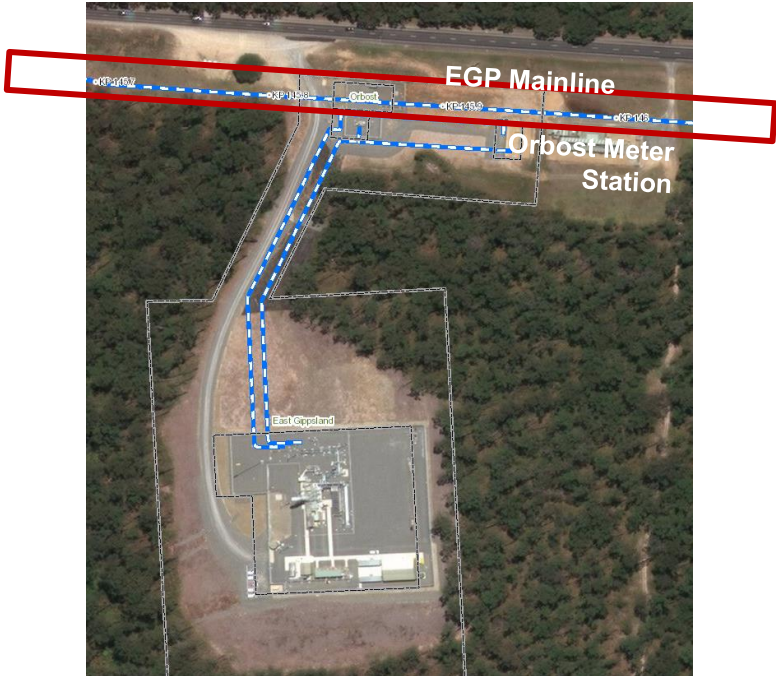


Figure 4 - Orbst Connection

Simply removing AEMO's FS-04 however isn't an accurate representation of the asset either as this would place the Receipt Zone containing Orbst adjacent to the Cooma Bombala Delivery Zone. This is the principle underpinning Jemena's proposed FS-06.

The map in Figure 6 below shows that gas from Orbost (Highlight 1) is received onto the EGP mainline upstream of the East Gippsland Compressor Station (Highlight 2), and that Cooma (Highlight 3) and Bombala (Highlight 4) are Delivered off of the EGP mainline downstream of the Mila Compressor Station (Highlight 5). This shows that there is a definitive Pipeline Segment between Orbost and both Cooma and Bombala.

Jemena’s proposed FS-06 is not solely a stretch of pipeline, but a stretch of pipeline including two compressor stations. Each of the compressors and the pipeline itself directly impact EGP capacity. To ignore these capacity constraining elements by suggesting that Orbost is received adjacent to Cooma and Bombala could lead to the undermining of the Day Ahead Auction concept, with services won through auction being routinely de-scheduled

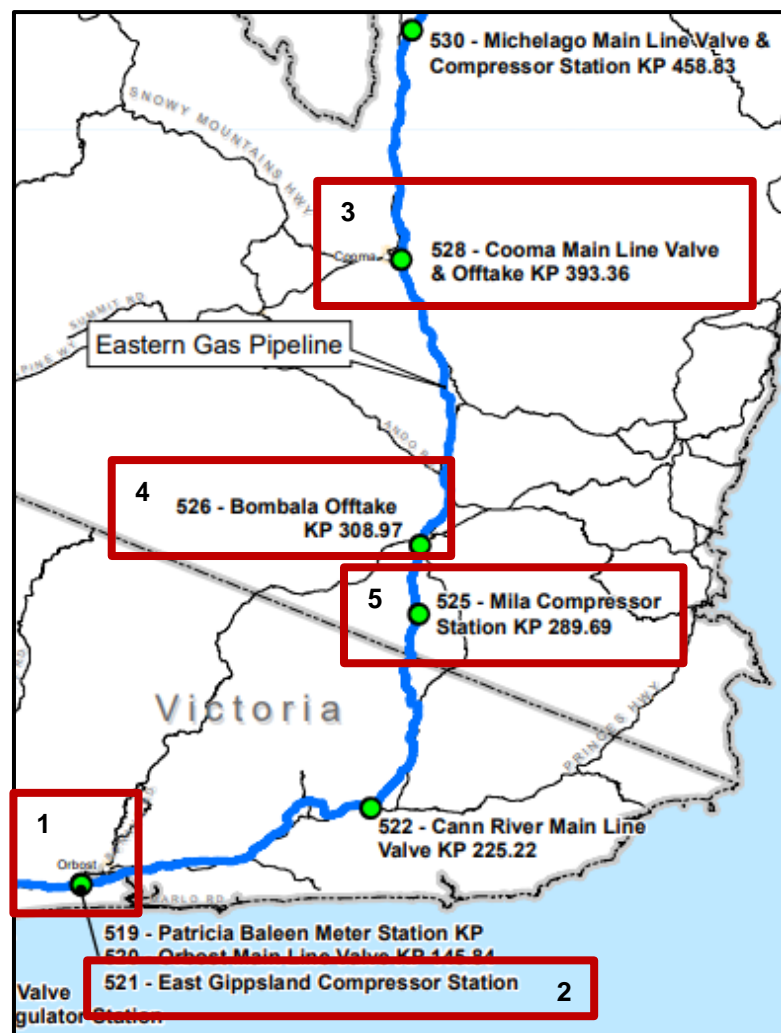


Figure 5 - Eastern Gas Pipeline - South

2.2.3 HORSLEY PARK AREA

The changes between AEMO’s and Jemena’s Horsley Park area configuration are displayed below:

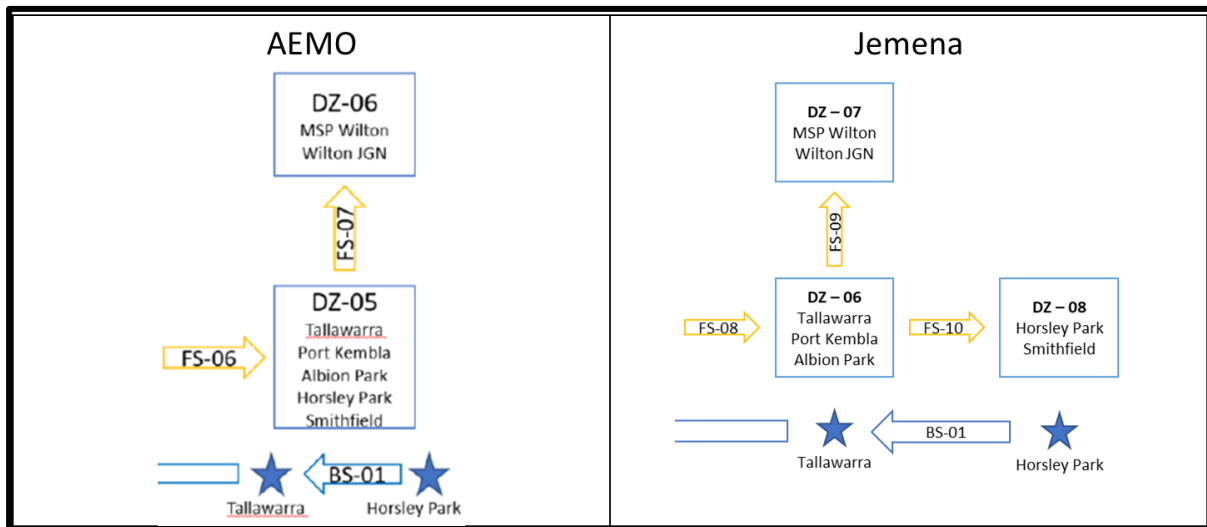


Figure 6 - Horsley Park Area

This proposed alteration removes Horsley Park and Smithfield from AEMO DZ-05, creating the Jemena proposed DZ-08 and FS-10. This configuration accounts for the capacity constraining element which exists at Horsley Park, being the Horsley Park Water Bath Heaters. Both Horsley Park deliveries and gas flowing onto the Smithfield Lateral pass through these Water Bath Heaters, resulting in a combined capacity constraint which Jemena proposes be addressed through the inclusion of FS-10. The capacity constraint associated with the Smithfield Lateral itself can be included in the Smithfield Delivery Point Capacity.

Failing to account for this capacity constraint between Jemena proposed DZ-06 and DZ-08 could result in Contracted But Unnominated Capacity being purchased at auction originating at Tallawarra, Port Kembla, or Albion Park, with the intent to use this at either Horsley Park or Smithfield, despite the fact that both of these Delivery points are constrained by the Horsley Park Water Bath Heaters. This scenario, which Jemena's data identifies as being a frequent occurrence if unaddressed (due to the high utilisation of Horsley Park) could lead to the undermining of the Day Ahead Auction concept, with services won through auction being routinely de-scheduled.

2.2.4 SUMMARY OF CHANGES TO BI DIRECTIONAL SEGMENTS

The changes between AEMO's and Jemena's proposed Orbost to Longford Forward Haul Section configuration are displayed below:

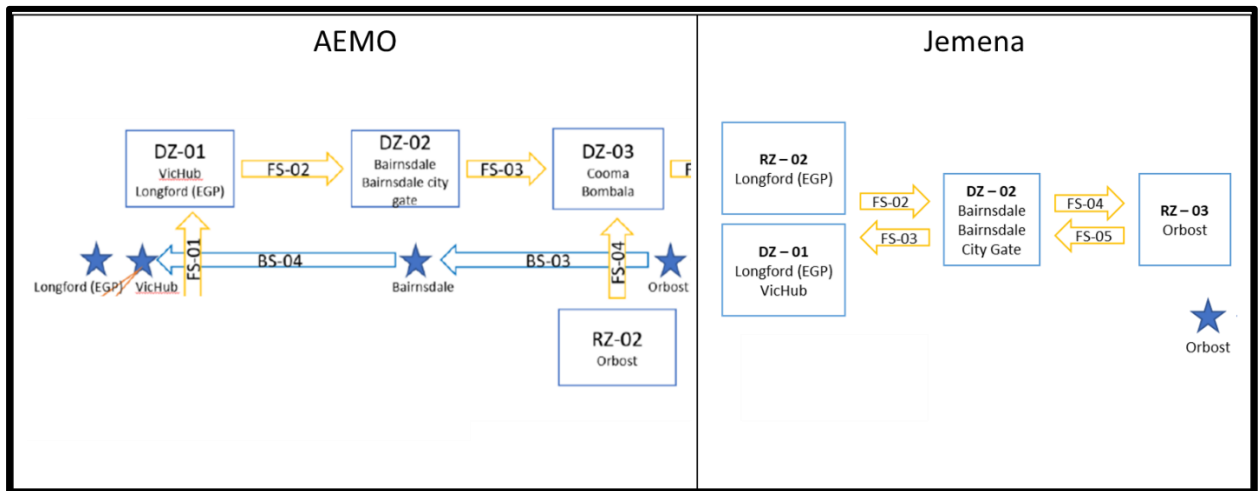


Figure 7 - Eastern Gas Pipeline Bidirectional Zone

While AEMO has proposed backhaul segments from Orbost, via Bairnsdale, and through to VicHub and Longford, it is physically possible to forward haul gas from Orbost to Bairnsdale, Longford and VicHub. With physical capability and a Firm Forward Haul service on offer being the two requirements for Bidirectionality on a pipeline, Jemena identifies both the physical capability and the intent to have a Firm Forward Haul service on offer for Orbost to Longford before the 1 March 2019 commencement date of the Day Ahead Auction. This is to coincide with the commencement of flow from the Orbost Plant.

As such, Jemena proposes that AEMO proposed BS-04 and BS-03, as well as Backhaul Delivery and Receipt locations for Bairnsdale, Longford (EGP) and VicHub be removed and replaced with Jemena proposed FS-03 and FS-05.

3. QUEENSLAND GAS PIPELINE (QGP)

After attempting to replicate the Zones and Segments as proposed by AEMO, a number of inconsistencies with the physical infrastructure and operational nature of the asset have been identified. The following provides details of the proposed changes to improve the functionality of the zone design, including explanations around why the physical infrastructure would result in more accurate and operable Day Ahead Auction products.

There was a suggestion in the consultation questionnaire to further group receipt points on the QGP. This is not recommended due to the high utilisation experienced on the QGP. It routinely operates very close to capacity which has been defined on a point to point basis. Any shift in delivery and receipt points from the original contracted position undermines the operability and reliability of the pipeline. Jemena would have material concerns with any additional grouping of points other than those already proposed.

3.1 PROPOSED REDESIGN OF ZONES AND SEGMENTS

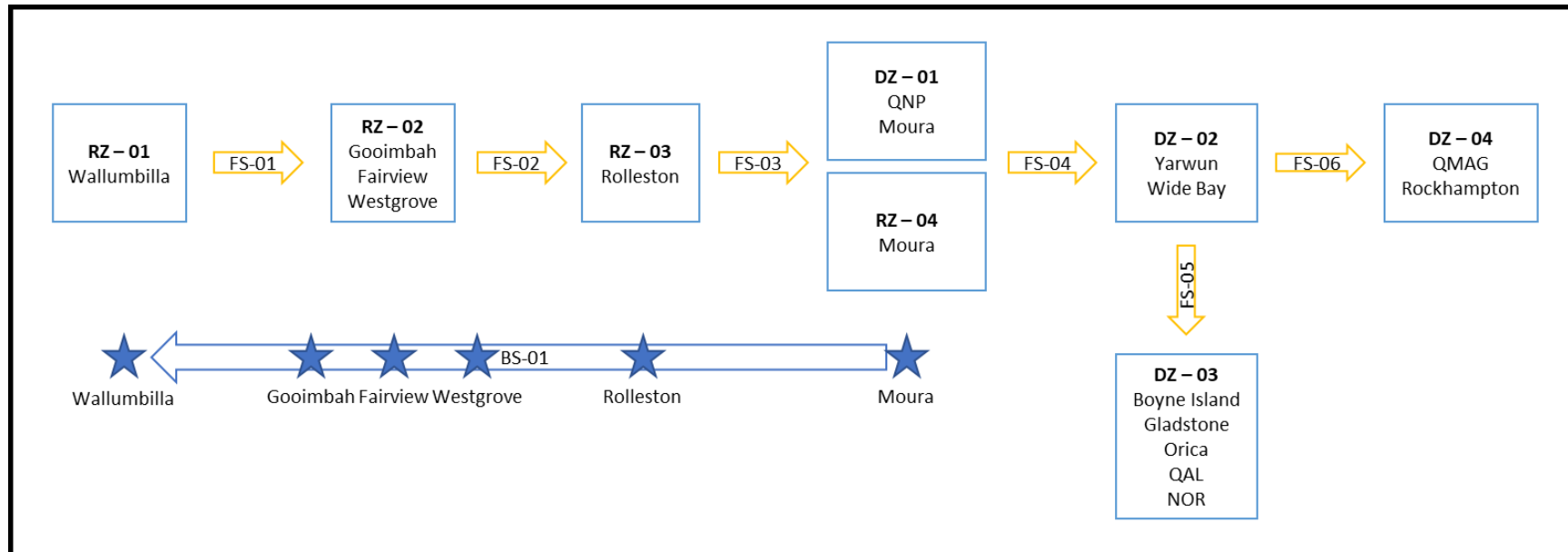


Figure 8 - Suggested Zones for Queensland Gas Pipeline

3.2 SUMMARY OF CHANGES TO FORWARD HAUL SEGMENTS AND ZONES

The following are justifications for the modifications proposed for specific sections of the Eastern Gas Pipeline.

3.2.1 GLADSTONE AREA

The changes between AEMO's and Jemena's proposed Gladstone area configuration are displayed below:

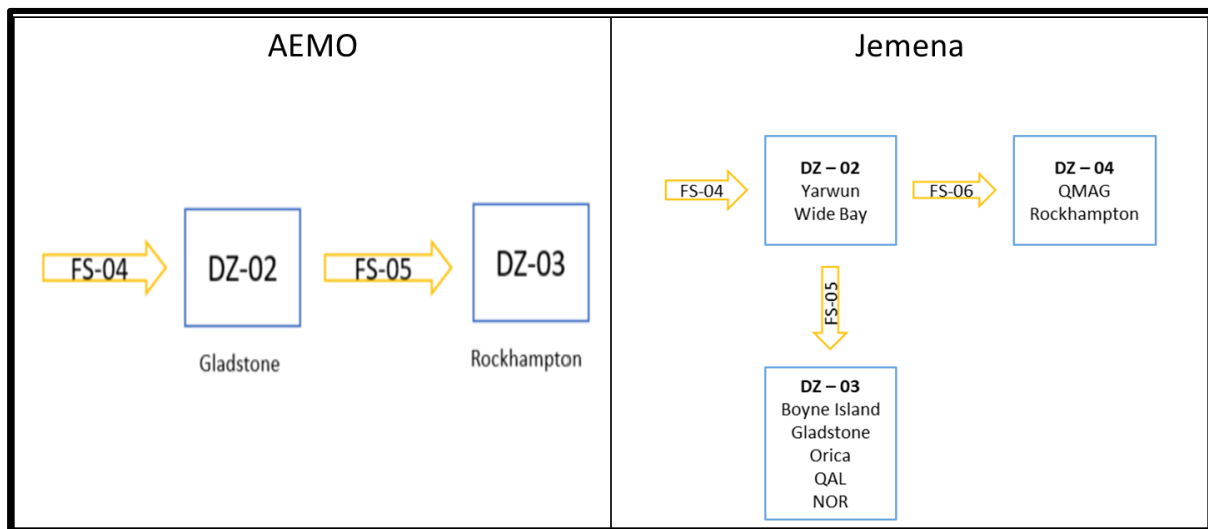


Figure 9 - Gladstone Area

While AEMO proposes DZ-02 contains all Delivery Points within the Gladstone region, Jemena proposes that these be separated per Jemena's proposed DZ-02 and DZ-03 indicated above. This is due to the existence of a Regulation Station existing between these groups of Delivery Points, which behaves as a capacity constraining element.

Failing to account for this capacity constraint between Jemena proposed DZ-02 and DZ-03 could result in Contracted But Unnominated Capacity being purchased at auction originating at Yarwun with the intent to use this at either Boyne, Gladstone, Orica, QAL or NOR, despite the fact that these Delivery points are constrained by the Regulation Station. This scenario has the potential to undermine of the Day Ahead Auction concept, with services won through auction being routinely de-scheduled.

3.3 SUMMARY OF CHANGES TO BI DIRECTIONAL SEGMENTS

While AEMO has proposed backhaul segments from Moura, via Rolleston, Westgrove, Gooimbah and Fairview, to Wallumbilla, the order of two of these sites are incorrect, with Gooimbah being physically closer to Wallumbilla than Fairview. Furthermore, whilst at the time of the 1 March 2019 commencement of the Day Ahead Auction the QGP may not be a bidirectional pipeline, there are intentions to develop bidirectionality across sections of this pipeline in the short-medium term.

4. DARLING DOWNS PIPELINE AND SPRING GULLY PIPELINE (DDP)

After attempting to replicate the Zones and Segments as proposed by AEMO, a number of inconsistencies with the physical infrastructure and operational nature of the asset have been identified. The following provides details of the proposed changes to improve the functionality of the zone design, including explanations around why the physical infrastructure would result in more accurate and operable Day Ahead Auction products.

Furthermore, as previously advised to AEMO, the existing GasBB representation of the Darling Downs Pipeline and Spring Gully Pipeline needs to be updated to better reflect the operational realities of operating the integrated Darling Downs Pipeline network, which should be characterised as a single integrated pipeline. Jemena will work with AEMO to update the GasBB so that the updates are complete prior to the commencement of the Day Ahead Auction on 1 March 2019.

4.1 PROPOSED REDESIGN OF ZONES AND SEGMENTS

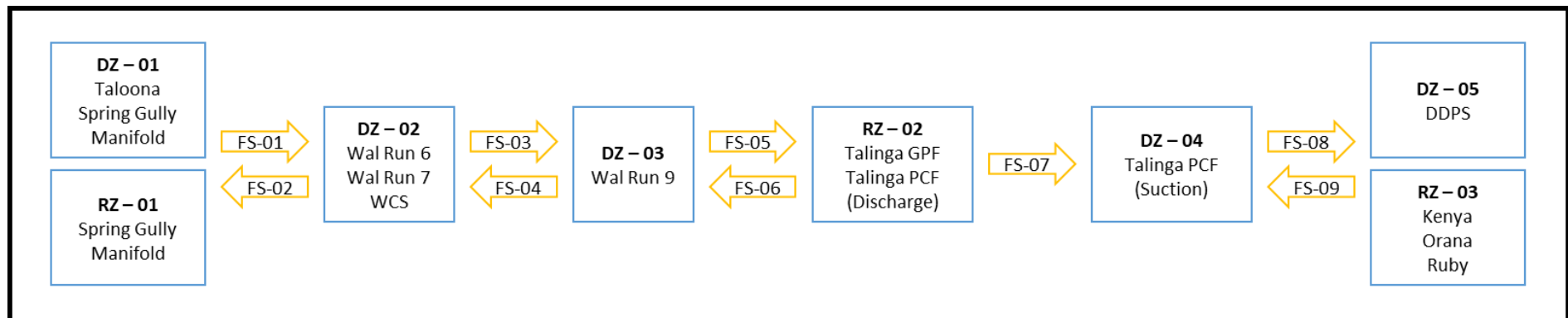


Figure 10 - Suggest Zones for Darling Downs Pipeline

4.2 SUMMARY OF CHANGES TO FORWARD HAUL SEGMENTS AND ZONES

The following are justifications for the modifications proposed for specific sections of the Darling Downs Pipeline.

4.2.1 TALINGA AREA

The changes between AEMO's and Jemena's proposed Talinga area configuration are displayed below:

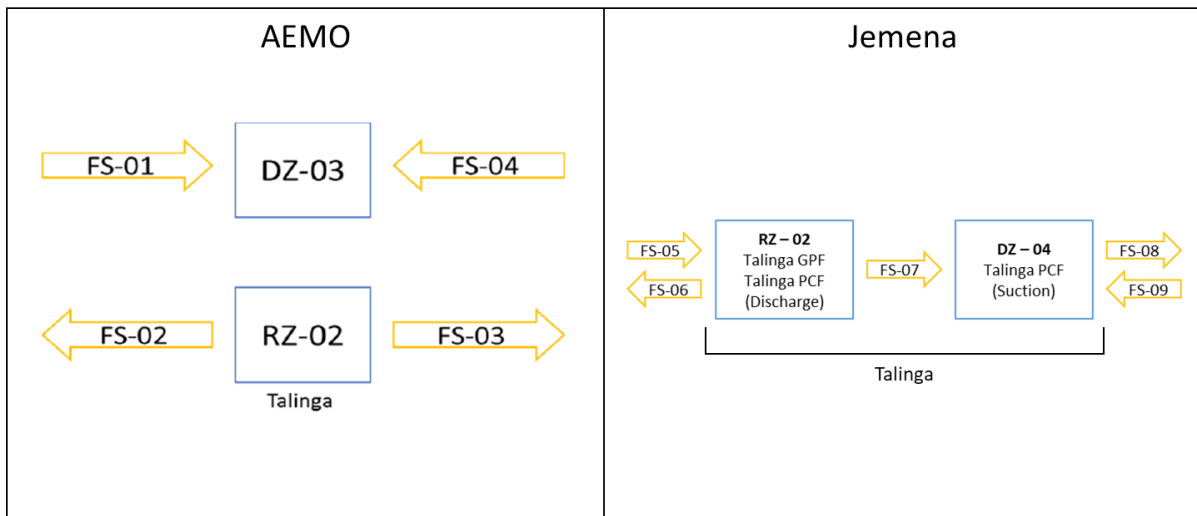


Figure 11 – Talinga Area Zones

AEMO's proposed DZ-03 (Talinga Compression & DDP to APLNG) and RZ-02 (Talinga Compression & APLNG to DDP) are depicted as adjacent Zones with bidirectional pipelines flowing east and west of these Zones. This is inaccurate both from a pipeline segment and zone content point of view.

Firstly, regarding physical asset configuration, please consider the following correction to AEMO's current perspective of the configuration of Talinga area.

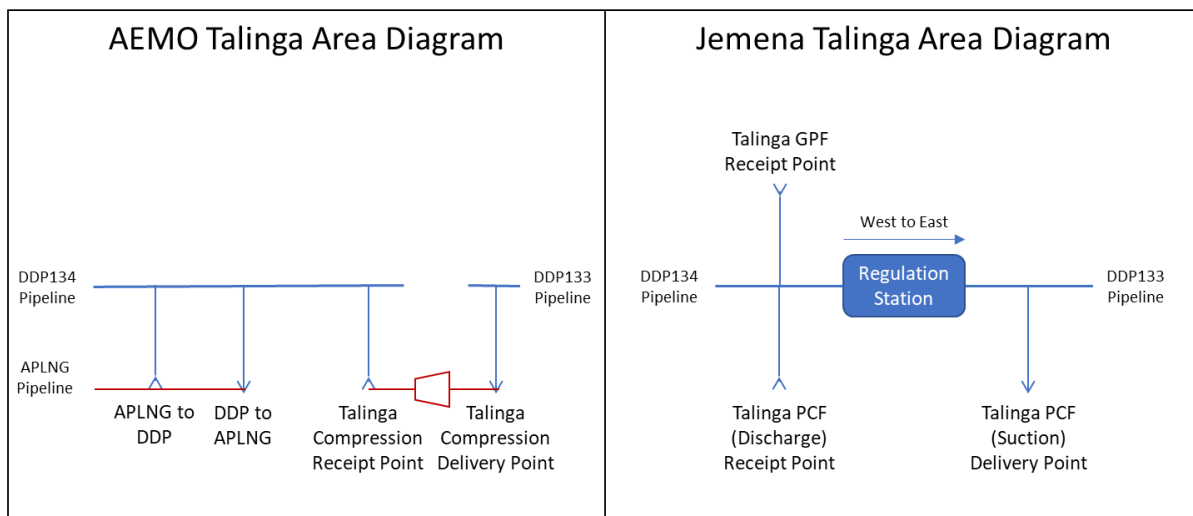


Figure 12 - Talinga Area

AEMO and Jemena have had a number of discussions regarding the complexity of the DDP network. The configuration indicated in Figure 12 is an attempt to strike a balance between providing a workable representation of the operational configuration, without adding unnecessary complexity and detail. Hence Jemena’s proposal is for three connection points. These differences will be reflected in changes which Jemena intends on introducing to the GasBB prior 1 March 2019.

4.2.2 WALLUMBILLA AREA AND DDP90

As suggested above, Jemena intend on moving forward on the basis that the single DDP network contains three pipeline segments, called DDP134, DDP133 and DDP90. Between this and a number of facility corrections, the Jemena’s proposed configuration of the Wallumbilla Area and DDP90 is identified in Figure 13 below.

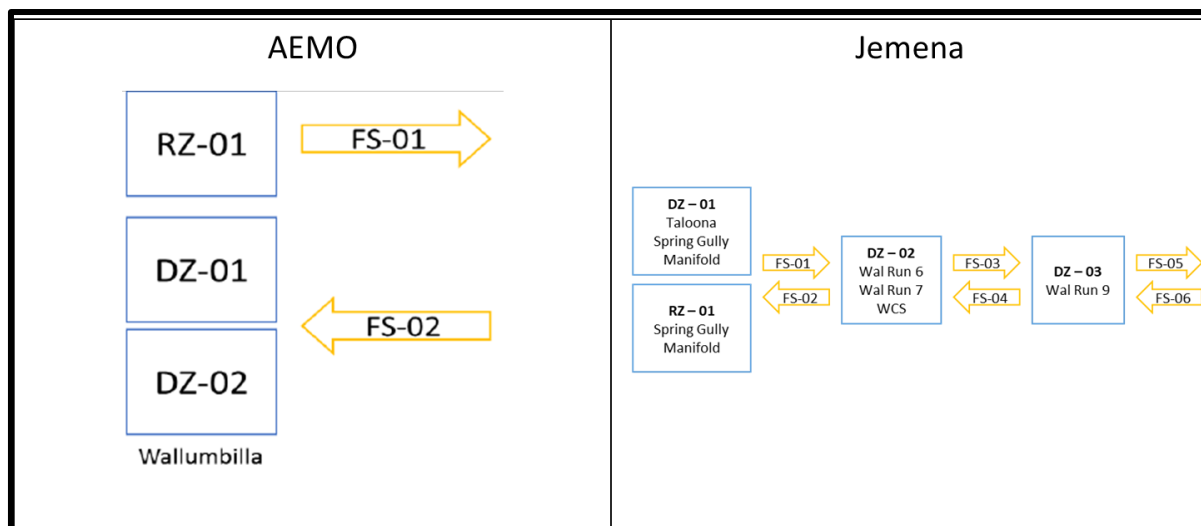


Figure 13 - Wallumbilla Area and PPL90

Starting from the left, the locations which AEMO have identified in SGP RZ-01 and DZ-02 at the northern extremity of the SGP have been modified since originally set up in GasBB. These are now referred to as the Spring Gully Manifold, upstream of which there is a network of receipt and delivery points owned and

operated by a third party. As such, these points have been renamed to better reflect the current design of the asset.

In joining the SGP to the DDP, Receipt Zone 1 on the SGP and Delivery Zone 2 no longer exist, however two new pipeline segments, FS-03 and FS-04 are proposed to reflect the capacity constraining element which exists between the Delivery Points within Jemena's proposed DZ-02 and Jemena's proposed DZ-03.

From Jemena proposed DZ-03, Jemena proposed FS-05 and FS-06 combine the capacity constraining elements of both the DDP134 pipeline segment, and the facility known as SGW, which is in and of itself a capacity constraining element. Jemena proposed FS-05 and FS-06 ultimately flow onto the Talinga area, completing the physical interconnectivity of the asset.

Jemena has proposed that DZ-02 and DZ-03 are separated by FS-03 and FS-04 to address the possibility of capacity being won on the Day Ahead Auction which has originated at Wallumbilla Run 9, with the intent to use this capacity at either Wallumbilla Run 6, Wallumbilla Run 7 or WCS. This scenario has the potential to undermine the Day Ahead Auction concept, with services won through auction being routinely de-scheduled.

5. NORTHERN GAS PIPELINE (NGP)

No Comments

6. VICHUB

Whilst at the time writing VicHub is not a bidirectional pipeline, there is a project to introduce bidirectionality. It is possible that this project may be complete ahead of the 1 March 2019 implementation date. Should this occur Jemena will inform AEMO.