

24 February 2026

Australian Energy Regulator

By email: ResetCoord@aer.gov.au

Dear Reset Coordinator,

AEMO submission on APA Rule 80 application for expansion of the South West Pipeline

APA has proposed an expansion of the South West Pipeline (SWP) to support Victoria's energy security. At the request of the Victorian Minister for Energy and Resources under 91C and 91BB of the National Gas Law (NGL), AEMO has undertaken technical and operational analysis of APA's proposal to expand the SWP by constructing two new greenfield compressor stations at Stonehaven and Irrewillipe, and an alternative option to duplicate an 88 km section of the SWP which would provide the same increase in pipeline supply capacity from Port Campbell. This analysis is contained in the attached report, which has been amended to remove protected information to allow for public release.

Whilst AEMO considers that both options would increase peak flow capacity on the SWP, from a technical and operational perspective the option that duplicates a section of the SWP is more likely to:

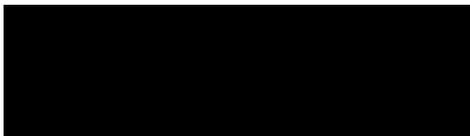
- Meet peak gas demands, particularly during events when GPG is required to operate at high capacity at short notice by increasing linepack, and
- Allows for SWP capacity to be progressively increased through further duplications that increases the ability of the network to support GPG operations at high rates as forecast in the AEMO Gas Statement of Opportunities (GSOO) and Victorian Gas Planning Report (VGPR).

It should be noted that this analysis is technical and operational only and does not constitute an economic or business case evaluation as AEMO is not privy to the most accurate costings of the potential options.

AEMO will continue to work with APA, the Victorian Government, the AER and participants to expand the SWP.

Should you require any further information, please feel free to contact Matthew Clemow, Group Manager, Gas Market and System Operations.

Yours sincerely,



Michael Gatt

Chief Operations Officer

Attachments: South West Pipeline Expansion Options Assessment Report - Public



We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first [Reconciliation Action Plan](#) in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

AEMO prepared this document for the Victorian Minister for Energy and Resources per a request under 91C and 91BB of the National Gas Law (NGL). This version of document has been amended to remove protected information to allow for public release. This information has been prepared by AEMO using information available as at 19 February 2026. Information made available after this date may have been included in this publication where practical.

Disclaimer

AEMO has made reasonable efforts to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness. Any views expressed in this document are those of AEMO unless otherwise stated, and may be based on information given to AEMO by other persons.

Modelling work performed as part of preparing this document inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material.

This document does not include all of the information that an investor, participant or potential participant in the Declared Wholesale Gas Market (DWGM) might require and does not amount to a recommendation of any investment.

Anyone proposing to use the information in this publication (which includes information and forecasts from third parties) should independently verify its accuracy, completeness and suitability for purpose, and obtain independent and specific advice from appropriate experts.

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- are not liable (whether by reason of negligence or otherwise) for any statements or representations in this document, or any omissions from it, or for any use or reliance on the information in it.

Executive summary

Introduction

This South West Pipeline Expansion Options Assessment Report is a technical and operational assessment of APA's preferred option of constructing greenfield compressor stations at Stonehaven and Irrewillipe and reconfiguring the Winchelsea Compressor Station (CS), as well as alternative options such as partial or full looping of the South West Pipeline (SWP), and other viable alternative expansion options. This report is not a business case or an economic evaluation of the expansion options, as AEMO does not have access to the most accurate project costs and timings.

With a committed supply expansion project at Iona Underground Gas Storage (UGS) facility to increase supply capacity from Port Campbell and the potential connection of a liquefied natural gas (LNG) regasification terminal into the East Coast Gas System (either in Victoria or in another jurisdiction), AEMO has undertaken modelling of the Declared Transmission System (DTS) to determine what pipeline supply capacities could be achieved with various expansions and modifications of the SWP and the rest of the DTS.

Modelling estimated a range of pipeline capacity increases from Port Campbell to Melbourne that would be needed to increase the capability to transport gas from an expanded Iona UGS facility, increased Port Campbell production capacity, or a Geelong LNG regasification terminal project.

AEMO modelling for the expansion options and scenarios in this report is conducted in accordance with National Gas Rule (NGR) 328, under which AEMO is required to conduct system capability modelling of the DTS by testing for the maximum capacity that is deliverable across all system injection points and system withdrawal points.

Background

The SWP is a major source of gas supply for Melbourne and the rest of Victoria, particularly during the winter peak demand period. Supply includes production from offshore Otway Basin gas fields and flexible supply from the Iona UGS facility, which is critical for supporting demand during cold weather and periods of high gas-powered generation (GPG) demand. The SWP is capacity constrained, resulting in high prices being paid by market participants to secure access to this pipeline.

As production at the Longford Gas Plant continues to reduce due to depletion of the Gippsland Basin fields, and electrification and coal power station retirements result in increased GPG demands, particularly during winter, there is an increased need for flexible gas supplies. Additional supply capacity is proposed from the Iona UGS facility and from a Geelong LNG regasification terminal, but limited SWP transportation capacity restricts full access to this additional supply. There is also ongoing exploration in the Otway Basin, with two gas discoveries recently announced.

APA, as the asset owner of the Victorian DTS, lodged an application with the Australian Energy Regulator (AER) on 31 October 2025 seeking pre-approved capital expenditure to expand the SWP under rule 80 of the NGR. APA has proposed to expand the SWP by installing two new compressors at new locations and modifying the existing compressor station at Winchelsea.

AEMO is concerned, based on its technical and operational assessment, about expanding the SWP using this approach, and considers that duplicating (looping) sections of the SWP provides more linepack that supports short notice changes in supply and demand including providing more support for GPG, particularly following any further SWP capacity expansions,

and allows for additional looping to be progressively added to further increase SWP capacity as supply capacity in Port Campbell is increased. Under APA's compression option, looping would still be required to further expand the SWP.

On 15 December 2025, the Victorian Minister Energy and Resources formally requested that AEMO provide a comprehensive technical assessment and advice regarding APA's proposed expansion of the SWP, including:

- APA's preferred option – greenfield compressor stations at Stonehaven and Irrewillipe, and reconfiguring the Winchelsea CS,
- APA's alternative options of partial or full looping of the SWP, and
- any modifications or combinations of the above or other viable alternatives for a SWP expansion that AEMO wishes to raise and considers has particular merit, along with the reasons for this.

The Minister's letter also requested the assessment of each option to discuss:

- the extent to which each option provides a reasonable first step in an expansion pathway to allow for the future connection of credible supply sources and to cater for future loads including GPG, where needed to support security and reliability of supply to Victorians, and
- any other information, technical assessments or modelling that AEMO regards as pertinent to its declared system functions and to facilitate decisions for the economically efficient investment in the covered gas industry.

In response to this request, AEMO has undertaken the requested technical and operational analysis – as opposed to an economic analysis – of APA's proposal, and provided it in this report.

Key findings from AEMO's modelling

For the SWP Stage 1 expansion to increase supply from Port Campbell:

- While APA's preferred Stage 1 compression option¹ of constructing of two greenfield compression stations (Stonehaven and Irrewillipe) and modification of existing the Winchelsea CS can deliver an initial SWP capacity uplift from 523 terajoules per day (TJ/d) to 615 TJ/d, it presents operational limitations and does not provide the increased linepack and the same progressive expansion path as the alternative looping options for meeting Victoria's long-term gas supply and reliability needs.
- AEMO's preference, based on its technical and operational assessment, is the alternative option of constructing 88 km of looping and modifying the existing Winchelsea CS, which will also increase SWP capacity to 615 TJ/d. AEMO's understanding is that the SWP easement allows for the installation of a second pipeline.
- This looping option overcomes the operational limitations presented by APA's preferred Stage 1 option, particularly with the addition of a Geelong LNG regasification terminal, however AEMO's assessment is not an economic evaluation. For any further SWP capacity expansion or to facilitate an LNG regasification terminal, looping is the only option for increasing capacity beyond APA's Stage 1 expansion project.
- While these first stage expansion options provide the same capacity increase, the operational outcomes are different for future SWP expansions. While Lochard Energy has committed to expanding the capacity of the Iona UGS

¹ AER, Public Forum, APA VTS – r80 application for the South West Pipeline, page 5, Combined presentation slides, at <https://www.aer.gov.au/system/files/2025-12/AER%20-%20Public%20Forum%20-%20APA%20VTS%20-%20r.80%20application%20for%20the%20South%20West%20Pipeline%20-%20Combined%20presentation%20slides%20-%2011%20December%202025.pdf>.

facility to 615 TJ/d, Lochard Energy has advised that its plan to increase the capacity of the facility by another 70 TJ/d to 685 TJ/d is being held back by insufficient SWP capacity.

- At the AER Public Forum on 11 December 2025, APA advised that both options could be operational by winter 2029, however this timing assumed that the AER would approve the SWP expansion by February 2026. APA have since advised AEMO that the absolute earliest timing that the looping option could be brought online is mid-2030, with significant timeline risks.

For the SWP Stage 2 expansion:

- APA's Stage 2 expansion proposal is to add 55 km of looping in total around the two Stage 1 greenfield compressor stations to increase SWP capacity to 705 TJ/d. AEMO's preferred option, on a technical and operational basis, is to increase looping by 41 km (in addition to the 88 km looping added during Stage 1) to 130 km, which provides a similar SWP capacity increase to 715 TJ/d. The difference is that the looping option supports 289 TJ/d of GPG demand compared to 145 TJ/d for the compression option, an increase of 144 TJ/d (50%).
- If Lochard Energy confirms its commitment to expand the Iona UGS facility to 685 TJ/d, consideration should be given to increasing the proposed looping of the SWP from 88 km to 130 km. AEMO discusses in this report that a similar capacity increase could be achieved through using a shorter length of larger diameter pipeline.

For the SWP Stage 3 expansion through to full looping:

- Adding a final 15 km of looping to fully loop all 144 km of the SWP from Port Campbell to Lara further increases SWP capacity by 58 TJ/d from 715 TJ/d to 773 TJ/d.
- A final expansion step of duplicating the Brooklyn to Lara Pipeline (BLP) (after fully duplicating the pipeline from Port Campbell to Lara) would increase SWP capacity from Port Campbell to 870 TJ/d. Additional compression could also be added at the Winchelsea CS to further increase SWP capacity.
- AEMO's view, on a technical and operational basis, is that this progressive looping of the SWP, like APA's previous 258 km duplication of the Victorian Northern Interconnect (VNI) to increase capacity between Victoria and New South Wales, is most appropriate to increase supply capacity from Port Campbell. While this is not a business case or economic evaluation, this method offers future-proofing benefits over APA's compression option, without introducing the reliability risks and increased emissions associated with large, unspared compressors.

For the integration of a proposed Geelong LNG regasification terminal, AEMO has modelled several options to increase SWP capacity from Geelong to Melbourne to effectively support supply capacity increases from either Port Campbell or a Geelong LNG regasification terminal, or both facilities.

With the connection of a Geelong LNG regasification terminal to the SWP:

- supply capacity with 88 km of SWP looping increases from 615 TJ/d to 840 TJ/d, and
- supply capacity with 123 km of SWP looping increases from 680 TJ/d to 873 TJ/d.

AEMO's modelling shows that these higher SWP capacities are only achieved with reduced supply from Port Campbell.

To reduce the backing out of Port Campbell supply if a Geelong LNG regasification terminal is connected to the SWP, 44 km of pipeline looping needs to be added to the BLP between Lara to Rockbank. This increases SWP capacity for 144 km of looping from Port Campbell to Lara (188 km total to Rockbank) from 755 TJ/d to 1,031 TJ/d.

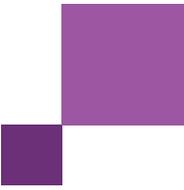
AEMO has also undertaken further engineering modelling of the supply back-off effects between the Port Campbell supply facilities and a Geelong LNG regasification terminal with the proposed conversion of the Western Port – Altona – Geelong (WAG) pipeline to gas service. The result of this modelling was:

- supply capacity with 144 km of SWP looping and utilising the WAG increases capacity to 981 TJ/d with a Geelong LNG regasification terminal, and
- supply capacity with 188 km of SWP and BLP looping and utilising the WAG increases supply capacity to 1,180 TJ/d with a Geelong LNG regasification terminal.

A higher capacity could also be achieved by using larger diameter piping to duplicate the BLP from Lara to Rockbank, however the sizing decision would need to be based on the expected Port Campbell supply capacity and the location of new GPG facilities.

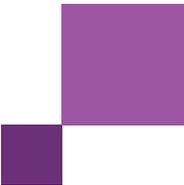
AEMO's key point, on a technical and operational basis, regarding a proposed Geelong LNG regasification terminal is that increased pipeline capacity between the terminal and Melbourne is needed to enable market participants to maximise the utilisation of both the supply capacity available from Port Campbell and the additional capacity provided by a Geelong LNG regasification terminal.

AEMO notes that APA does not have sufficient pipeline easement along some sections of the BLP between Lara and Rockbank to accommodate pipeline looping, and considers it would be prudent for APA to procure these additional sections of easement, noting that this report is not a business case.



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1 Existing infrastructure

1.1 South West Pipeline

The SWP is a 144 km, 500 mm, 10,200 kilopascals (kPa), bi-directional pipeline that runs between Port Campbell and Lara. It was built to supply gas from the Iona UGS facility during winter 1999, with development fast-tracked following the September 1998 fire at the Longford Gas Plant. It has connections to the following pipelines:

- the Western Transmission System (WTS) via the Iona City Gate (CG) that supplies Cobden, Hamilton, Warrnambool and Portland, and
- the Brooklyn to Corio Pipeline (BCP) via the Lara CG that then supplies gas into Geelong, Lara, Avalon, Werribee, Wyndham Vale, Hoppers Crossing and Point Cook, as well as the Laverton North Power Station.

The SWP can be supplied by the Iona UGS facility, the Otway Gas Plant and the Athena Gas Plant, and linepack stored in and supplied from the SEA Gas pipelines including the Mortlake Power Station pipeline. The SWP is typically used to:

- transport gas from these Port Campbell production facilities and Iona UGS towards Melbourne to support DTS demand including GPG, and
- transport gas from eastern Victoria for withdrawal from the SWP for injection into Iona UGS during the shoulder and summer low system demand periods.

The SWP was first expanded from its initial capacity of 240 TJ/d to 365 TJ/d with the commissioning of the BLP in 2008, and expanded again with the commissioning of the Winchelsea CS in January 2015 that took the capacity to 429 TJ/d. The BLP:

- provided a high-pressure connection into the Brooklyn to Ballarat Pipeline (BBP) reducing compressor operation,
- enabled the first stage of Western Outer Ring Main (WORM) pipeline to be constructed to address supply constraints for the rapidly growing suburb of Sunbury via a 500mm extension of the BLP to Plumpton, and
- supported higher capacity refilling of Iona UGS via a new short connection pipeline into the BLP at the Brooklyn CS. This was commissioned in 2018 after AEMO identified a risk of storage not being able to be refilled prior to winter 2019 in the 2016 *Victorian Gas Planning Report* (VGPR) Update. AEMO issued a Notice of a Threat to System Security following the publication of the 2017 VGPR.

The SWP underwent a further major expansion to 523 TJ/d following the commissioning of the WORM pipeline from Plumpton to Wollert as well as a second compressor at the Winchelsea CS (which is operated in series with the original compressor) in February 2024.

This expansion, which AEMO called for in its 2017 submission to APA's 2018-22 Access Arrangement proposal, played a key role in maintaining sufficient gas and electricity supply to Victoria during May and June 2024 due to the unplanned extension of Longford Gas Plant maintenance and an extended period of very low wind generation that resulted in high GPG demand. It was also important for maintaining system security during the major planned Longford outages during December 2025 when plant capacity was reduced to 200 TJ/d. Esso also advised that there was a risk that the Longford Gas Plant could trip and not be able to be restarted due to the very low production rate and limited supply into the plant from the offshore gas fields. This outage would have presented a major system security risk without the WORM.

The SWP injection capacity is the combination of the transportation capacity towards Melbourne via the SWP, which is dependent on system demand, and the WTS demand. SWP transportation capacity is therefore maximised on peak demand days. The demand dependency of SWP capacity was reduced significantly following the commissioning of the WORM.

The Winchelsea CS is typically operated to increase the transportation capacity and shift linepack closer to Melbourne to support high hourly demand, particularly during winter evening peaks. The Gooding CS on the Longford to Melbourne Pipeline (LMP) was operated in a similar mode. Gooding has four compressors, with a maximum of three operated at a time (with the fourth as a spare), however these compressors were not operated at all during winter 2025 due to the continued decline in Longford production capacity.

1.2 Port Campbell gas production and storage development

Prior to the commissioning of the Iona UGS facility in July 1999, there were two small gas production facilities (North Paaratte and Heytesbury) supplying the WTS from small onshore gas fields that are part of the Otway Basin. Following the construction of the SWP and successful offshore Otway Basin exploration, new gas plants were commissioned including the 150 TJ/d Minerva Gas Plant (now called the Athena Gas Plant), and the 205 TJ/d Otway Gas Plant, commissioned in 2005 and 2007 respectively. Processing of gas from the Casino gas field at the Iona UGS facility commenced in 2006 (this gas is now processed at the Athena Gas Plant).

Some of this additional gas was transported to South Australia via the new 320 TJ/d (now reduced to 250 TJ/d) SEA Gas Port Campbell to Adelaide (PCA) Pipeline, however the combined 675 TJ/d of Port Campbell supply capacity often resulted in injection offers into the SWP exceeding the 240 TJ/d capacity. As a result of insufficient SWP capacity being available, VENCORP (now AEMO) needed to develop a new Net Flow Transportation Constraint (NFTC) methodology to manage the impact on Victorian gas market scheduling.

During winter 2007, the combined impact of a severe drought and insufficient SWP capacity resulted in high gas and electricity prices and rapid depletion of the Dandenong LNG storage inventory. Early winter 2008 also saw Dandenong LNG scheduled until the BLP was commissioned.

1.3 Iona UGS capacity increases

With increasing demand for flexible gas supply capacity, including due to the retirement of coal-fired generation in South Australia and the Hazelwood Power Station in Victoria, the capacity of the Iona UGS facility has progressively increased to:

- 320 TJ/d (from its initial capacity of 240 TJ/d) in 2003 as part of an upgrade project to connect to the SEA Gas Pipeline to Adelaide,
- 440 TJ/d in 2010 following the commissioning of the second gas processing train, sized to expand the Iona UGS capacity to at least 570 TJ/d,
- 480 TJ/d in March 2019, 530 TJ/d in May 2021, and 570 TJ/d in June 2023. The capacity of the SWP increased to 523 TJ/d in February 2024 with the commissioning of the WORM pipeline and the second Winchelsea compressor.

In July 2024, Lochard Energy announced that it had made a Final Investment Decision (FID) on a further expansion of the Iona UGS facility from 570 TJ/d to 615 TJ/d. This increased capacity, to support a 25-year storage services agreement with Snowy Hydro commencing from winter 2028, will be provided by Stage 1 of the Heytesbury Underground Gas Storage

(HUGS) Project. Further expansions are proposed using several depleted Heytesbury gas reservoirs that were acquired in 2019.

1.4 APA SWP expansion sizing assumption

APA has stated that its October 2025 Rule 80 application to increase the SWP capacity to 615 TJ/d is based on the committed Iona UGS HUGS Stage 1 expansion to 615 TJ/d. Setting the expanded SWP capacity to be equal to the capacity of the Iona UGS facility assumes that Port Campbell production capacity and linepack stored in the SEA Gas PCA and Mortlake Power Station pipelines is not also used to supply gas into the SWP during winter.

There is currently a circular issue with approving SWP capacity expansions. Lochard Energy has advised that further increases in Iona UGS capacity cannot reach FID if there is not sufficient SWP capacity, as its customers will not contract the capacity. These agreements are usually long-term – the agreement with Snowy Hydro that supports the expansion of the Iona UGS facility to 615 TJ/d is for 25 years². However, APA has stated that its proposed expansion of the SWP is only based on Iona UGS capacity expansions that have reached FID, due to Rule 79 investment prudence requirements.

As noted above, Iona UGS is not the only gas used to supply the DTS via the SWP. During the winter, the utilisation of the SEA Gas PCA pipeline is typically less than 100 TJ/d. Supply to South Australia during winter is mainly via the Moomba to Adelaide Pipeline (MAP), which usually runs at or near its maximum capacity of 240 TJ/d. Given that South Australian gas demand is generally less than 350 TJ/d during winter, this results in PCA flows rarely exceeding 100 TJ/d. The other use of gas from Port Campbell is the Mortlake Power Station, which again does not generally exceed 100 TJ/d.

Current Port Campbell supply capacity is 570 TJ/d from Iona UGS, 180 TJ/d from the Otway Gas Plant, and 20 TJ/d from the Athena Gas Plant (lower than the processing capacity of each plant that is provided above), which is a total of 770 TJ/d. Meanwhile, if the combined flow on the PCA and to Mortlake does not generally exceed 200 TJ/d, this leaves 570 TJ/d currently available to supply the DTS versus a current SWP capacity of only 523 TJ/d. This amount does not include linepack that can be stored in the PCA and Mortlake pipelines. Weather patterns also tend to result in very cold weather, and therefore peak demands, occurring in Victoria a day after South Australia.

This current SWP capacity shortfall is highlighted in the results of AEMO's six-monthly auction of Declared Wholesale Gas Market (DWGM) pipeline capacity certificates. Market Participants continue to place a very high value on SWP entry capacity from Port Campbell to Melbourne, which includes gas from Iona UGS. During the November 2025 auction, Market Participants paid \$7.2 million for SWP entry capacity, which was 88% of the \$8.1 million of AEMO auction revenue. The next highest result was \$700,000 for VNI entry capacity flow from New South Wales via Culcairn.

The SWP is generally the only pipeline that has NFTCs applied to limit scheduled injections into the DTS due to insufficient SWP capacity. By comparison, the VNI has ample capacity, with an NFTC only usually applied for injections into the DTS from Culcairn when either the Springhurst or Euroa compression is unavailable. The maximum transportation capacity from Young CS off the MSP in a southerly direction is 195 TJ/d (from the Gas Bulletin Board). The maximum delivery capacity into the DTS via Culcairn is then the 195 TJ/d minus any New South Wales demand along this lateral and any gas consumed by the Uranquinty Power Station. Supply via Culcairn is usually limited by capacity constraints in APA's New South Wales gas transmission system including high demand at the Uranquinty Power Station or system demand in New South Wales, or an

² See <https://www.afr.com/companies/energy/snowy-hydro-pushes-gas-power-ambitions-with-major-storage-deal-20240713-p5itet>.

outage of the single large compressor at Young that supplies gas from the Moomba to Sydney Pipeline into Victoria via Culcairn.

1.5 Future Port Campbell supply capacity

Lochard Energy has announced that it has future expansion plans for the Iona UGS facility including conducting an Expression of Interest campaign for an additional 70 TJ/d of capacity, which would take Iona capacity to 685 TJ/d³. As noted above, Lochard Energy has advised that this expansion is likely to proceed if the SWP capacity is sufficiently increased. AEMO's 2025 *Gas Statement of Opportunities* (GSOO) reported that Lochard Energy is proposing to expand Iona UGS capacity to up to 765 TJ/d under Stage 2 of the HUGS Project. Capacity from the Iona UGS facility is expected to be available for the long term.

The other source of Port Campbell gas supply is production from the Otway Basin gas fields. As noted above, the nameplate capacity of the Otway Gas Plant is 205 TJ/d. This had reduced to around 80 TJ/d prior to winter 2020 and in late 2021 before development projects increased capacity. The development of the Enterprise gas field and further development of the Thylacine gas field increased capacity back to 205 TJ/d during winter 2025. While production capacity has eased down to 180 TJ/d, Beach Energy (the operator of the Otway Gas Plant) has announced plans to develop further gas fields including Artisan and La Bella.

The Athena Gas Plant is also operating well below its 150 TJ/d nameplate capacity, with production currently limited to around 20 TJ/d from heavily depleted gas fields. Amplitude Energy, the plant operator, will be commencing an offshore exploration drilling program during the first half of 2026⁴, and has publicly expressed a level of confidence of being able to increase Athena production capacity to 90 TJ/d⁵, as well as concerns about being able to market this gas due to the SWP capacity constraint.

The offshore Transocean Equinox drilling rig that will be used by Amplitude Energy has recently completed the drilling of two exploration wells for ConocoPhillips with joint venture partners the Korea Gas Corporation (KOGAS) and 3D-Energi. This program resulted in the significant discovery of two new gas fields, Essington and Charleton, which were estimated prior to drilling to hold approximately 385 petajoules (PJ) of gas. This is comparable to other major gas fields in the offshore Otway Basin like Casino, Minerva, and Geographe, but smaller than Thylacine, so AEMO's view is that the gas is most likely to be used to supply either the Otway or Athena gas plant, which would maintain at least one of these facilities at higher production capacity for several years.

The Otway Basin is prospective and an under-explored gas production area compared to the heavily depleted Gippsland Basin that supplies the Longford Gas Plant. The Commonwealth Government announced the release of five new exploration areas in the Otway Basin on 11 December 2025⁶.

³ Lochard Energy, Expression of Interest – Iona Gas Storage Facility, 4 August 2025, pg. 2, at <https://www.lochardenergy.com.au/wp-content/uploads/2025/07/2025-Lochard-Energy-EOI.pdf>.

⁴ Amplitude Energy ASX report, Q1 FY26 Quarterly Report, at <https://app.sharelinktechnologies.com/announcement-preview/asx/7f00aee36533a23f16244433a46a59f6>.

⁵ Amplitude Energy ASX report, Execution of Otway Basin Joint Venture Agreements, at <https://app.sharelinktechnologies.com/announcement-preview/asx/325783d92514d450e58d4e3b4439baf1>.

⁶ Minister King, Opening new areas for offshore gas exploration, 11 December 2025, at <https://www.minister.industry.gov.au/ministers/king/media-releases/opening-new-areas-offshore-gas-exploration>.

When gas production in the Otway Basin does eventually decline, AEMO's technical assessment is that the Athena Gas Plant could be repurposed as a gas storage facility when connected to an appropriate depleted gas reservoir to provide peak gas supply⁷. The Athena plant has a less complex gas processing train, much like the two processing trains at the Iona UGS facility, compared to the Otway Gas Plant that includes a large carbon dioxide removal plant and gas fractionation towers (to produce liquefied petroleum gas [LPG]). This would enable the continued utilisation of a higher SWP capacity to support peaking GPG demand.

1.6 East Coast Gas Grid Expansion

On 19 February 2026 APA announced that it had reached Final Investment Decision (FID) on Stage 3A of its East Coast Gas Grid (ECGG) Expansion Plan. The project includes the construction of a new compressor on the Young to Culcairn lateral that will increase Culcairn supply capacity into the DTS by 39 TJ/d, which is targeted to be available from winter 2028. This is part of a \$260 million investment to increase gas transportation capacity from northern Australia to the southern states.⁸

⁷ Amplitude Energy 2025 Annual General Meeting addresses and presentation, slide 9, at <https://app.sharelinktechnologies.com/announcement-preview/asx/3dd688c48fcaaae1da8141bc80d24df0>.

⁸ APA to deliver pipeline capacity needed to solve projected east coast gas shortfalls, 19 February 2026, at https://admin.apa.com.au/media/xc3hv0ud/260219_asx_release_apa_to_deliver_pipeline_capacity_needed_to_solve_projected_east_coast_gas_shortfalls.pdf.

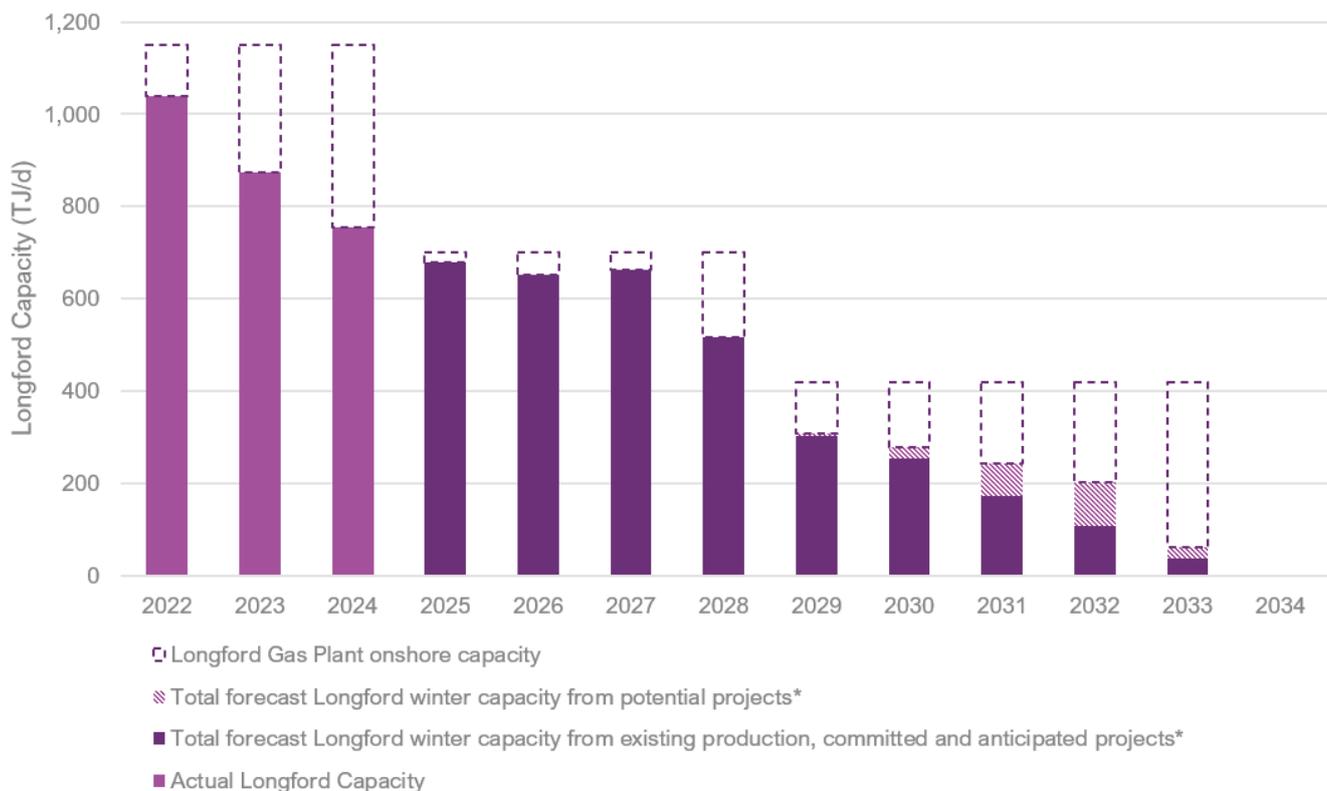
2 Forecast Victorian supply requirements

2.1 Declining Gippsland production

Victorian gas supply and demand is fundamentally changing. The major source of Victorian gas supply for over 50 years, the Longford Gas Plant, is reducing quickly due to the decline of the Gippsland Basin. Longford was able to produce at its 1,150 TJ/d capacity in 2019. At the end of 2024, Gas Plant 1 (one of three gas processing trains) and the Crude Stabilisation Plant were retired, limiting production capacity to 720 TJ/d – this was a 430 TJ/d reduction in supply capacity over five years. Longford production capacity is forecast to decline further ahead of winter 2028 to approximately 500 TJ/d, with a larger reduction for winter 2029 to approximately 300 TJ/d, due to the depletion of major gas fields. Production capacity is forecast to continue declining through to the end of 2033 when Longford is forecast to cease production. The reduction in Longford capacity is shown in **Figure 1** below.

The 2025 VGPR reported that the reduction in 2028 production capacity is forecast to result in peak day gas supply shortfalls to support GPG demand, while a structural gas supply shortfall was forecast for the southern states in AEMO’s 2025 GSOO.

Figure 1 Actual and forecast Longford Gas Plant winter capacity, 2022 to 2034 (TJ/d)



* Aggregates of proven and probable, contingent and prospective resources.

2.2 Gas supply options and the role of gas storage

The 2025 GSOO assessed a range of options to address potential future supply challenges (page 85)⁹:

- increased north to south pipeline capacity to the southern demand centres with improved access to northern gas production,
- increased southern production, noting that projects identified are uncertain contingent resources (not currently economic) that face a unique set of challenges including requirements for additional gas processing capacity and pipeline infrastructure to reach full delivery potential, and
- an LNG regasification terminal, noting that one (Port Kembla) relies on existing pipeline capacity, while others (in Geelong and Adelaide) will rely on new pipeline infrastructure to enable delivery of its injection capacity to domestic consumers.

The 2025 GSOO highlighted (page 86) that storage is an essential component of these possible solutions; that is, increasing north to south transportation capacity including APA's East Coast Gas Grid Expansion (ECGGE) projects or an LNG regasification terminal will not address the forecast supply issues without sufficient gas storage:

- “Gas storage capacity increases operational flexibility by providing load shifting of gas produced during summer to be used in winter when demand is higher. The East Coast Gas Market currently relies on both deep and shallow storages to provide strategic reserves of gas for southern regions.”
- “Gas storage capacity requirements are uncertain in the longer term. Gas demand for residential and commercial customers is more variable daily and more uncertain seasonally while a growing role for GPG to firm the electricity system is forecast to put significant strain on gas demands in winter, as electrification of heating devices in particular puts more electrical load into the winter season. As forecast by the 2024 ISP (*Integrated System Plan*), GPG is expected to have a key role in firming the NEM, which will increase the need for flexible gas supplies.”
- “Pipelines (via linepack) and LNG regasification terminals (via the FSRU [floating regasification storage unit]) provide storage capacity that can improve operational flexibility but do not represent a firm storage solution comparable to dedicated deep or shallow storage solutions (including on-site storage options at gas generators).”

The 2025 GSOO also noted that:

- “The ongoing availability and operation of all deep and shallow gas storages will be critical in minimising the risk of peak day shortfalls and seasonal supply gaps, providing operational flexibility that is important now and into the future to manage gas use variability” (page 3).
- “Storage facilities sited near load centres are important so gas can be supplied promptly during peak demand periods, thus maintaining a reliable and efficient gas system. Pipeline capacity constraints can impact storage operations, affecting the ability to refill storage to full capacity and to deliver gas at maximum withdrawal rates” (page 61).
- “Increased storage to cater for increasing seasonal peaks is necessary to support all developments. The network injection capacity, location and timing of new storages will depend on the volume of new gas supplies that can be sourced locally in, or transported to, southern demand centres. Demand response mechanisms (either gas or electric) or on-site liquid storage for GPG will complement (and may reduce the need for) gas storage investment. Investments

⁹ At <https://www.aemo.com.au/energy-systems/gas/gas-forecasting-and-planning/gas-statement-of-opportunities-gsoo>.

in infrastructure from the mid-2030s will be highly dependent on the volume and rate at which gas is required for GPG, as forecast in Section 2.4” (page 83).

To summarise, firm gas storage capacity will be increasingly important to manage gas supply and demand, and there needs to be sufficient pipeline capacity to enable this flexible gas supply. The Iona UGS facility is currently the only operating deep gas storage facility in the southern states, with the Golden Beach storage project remaining uncertain and not expected to reach FID until at least mid-2026. However, deep storage facilities like Iona UGS need to have sufficient pipeline capacity available to support peak day and flexible GPG demand.

2.3 The importance of DTS linepack

On a peak winters day when usable linepack is typically low, the Victorian DTS has approximately 350 TJ of useable linepack¹⁰, compared to a daily demand that can exceed 1,000 TJ/d. The main gas supply sources – the Longford Gas Plant and the Port Campbell hub – are only approximately 200 km from Melbourne. By comparison, Sydney and Adelaide have peak demands of approximately 500 TJ/d including GPG, but they are both supplied by two long high pressure gas pipelines.

Investments in DTS pipeline capacity over the past 20 years – including the construction of the BLP, VNI and WORM – have increased available linepack, which:

- has reduced DTS operational risk, resulting in fewer threats to system security and increased GPG supportability during winter,
- is important to support the response to major power system incidents, including the 13 February 2024 storm event that resulted in the collapse of several 500 kilovolts (kV) transmission towers near Anakie, north of Geelong (and resulted in a trip of the entire Loy Yang A coal power station, and the immediate unscheduled start-up of several GPG units connected to the DTS), and
- is important for being able to respond to unplanned Longford Gas Plant outages, which are increasingly likely because of reduced resilience and redundancy of the Longford production system due to the depletion of the large legacy gas fields and increased dependence on the Gas Conditioning Plant as reported in the 2025 VGPR¹¹.

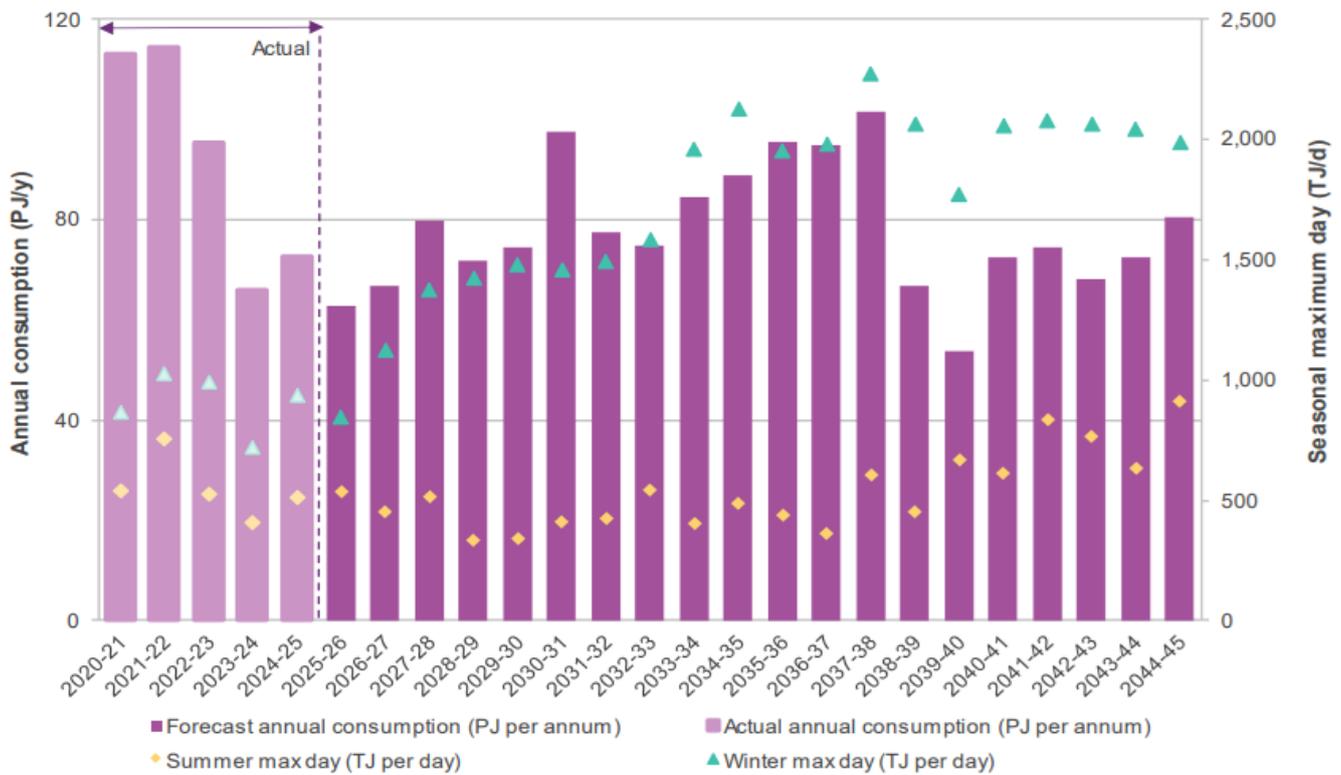
2.4 Forecast increases in GPG peak demand

GPG supportability will be increasingly important as legacy coal generation exits the system. The Draft 2026 *Integrated System Plan* (ISP) published on 10 December 2025 forecast that 4 gigawatts (GW) of new GPG will be required between New South Wales and Victoria from 2030 to 2050 to assist in replacing retiring coal generation, support the electrification of transportation and gas heating, and manage increased electricity demand from data centres, as seen in **Figure 2**. Currently, the National Electricity Market (NEM) has 4 GW of mid-merit and 8 GW of peaking GPG capacity, of which 9 GW is forecast or announced to retire between now and 2050. The 2026 Draft ISP also noted that any existing GPG that retires would need to be replaced on a like-for-like generation capacity basis.

¹⁰ DTS has approximately 870 TJ of total linepack, of which 360 TJ is passive linepack to meet contractual pressures and 510 TJ is active linepack which is any gas in the DTS above connection’s contractual pressures. Of the 510 TJ of active linepack, ~350 TJ is usable linepack and ~160 TJ is not usable due to pipelines pressure gradients between injection and withdrawal points.

¹¹ 2025 VGPR Table 2, at https://www.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2025/2025-victorian-gas-planning-report.pdf.

Figure 2 Actual and forecast NEM GPG annual consumption (PJ/y) and seasonal peak day demand (TJ/d), 2020-21 to 2044-45



Note: This forecast does not include the impact of sub-optimal management of storage technologies on GPG consumption, which is discussed in Appendix A4 (Section A4.5).

Source: Draft 2026 ISP.

For the 2026 VGPR, AEMO intends to produce modelling of new GPG supportability by location and potential heat maps assessing locational supportability for the approximately 2 GW of new Victorian GPG that is forecast to be required. This modelling would be like the analysis undertaken for the New South Wales Gas Infrastructure Review that was published in May 2025¹².

A SWP expansion that can provide additional linepack via pipeline looping, and avoid single points of dependency including unspared compressors, would better support future operation of GPG, especially if new GPG is connected to the SWP.

While system demand for gas is reducing due to cost of living factors, reduced industrial and commercial activity, and the electrification of gas loads, Victorian winter electricity peak demands are increasing faster than previously forecast and is breaking records. The 2023 *Electricity Statement of Opportunities* (ESOO) for the NEM forecast a Victorian 10% probability of exceedance (POE) maximum electricity demand for winter 2024 of 8,074 megawatts (MW). During winter 2024, Victorian winter electricity demand peaked on 15 July at 8,612 MW, which broke the previous winter demand record of 8,351 MW set on 17 July 2007 (which was also a record Victorian gas demand day). This winter electricity demand record was exceeded on 25 June 2025 when Victorian demand peaked at 8,818 MW, compared to the 2024 ESOO 10% POE forecast winter maximum demand for winter 2025 of 7,982 MW.

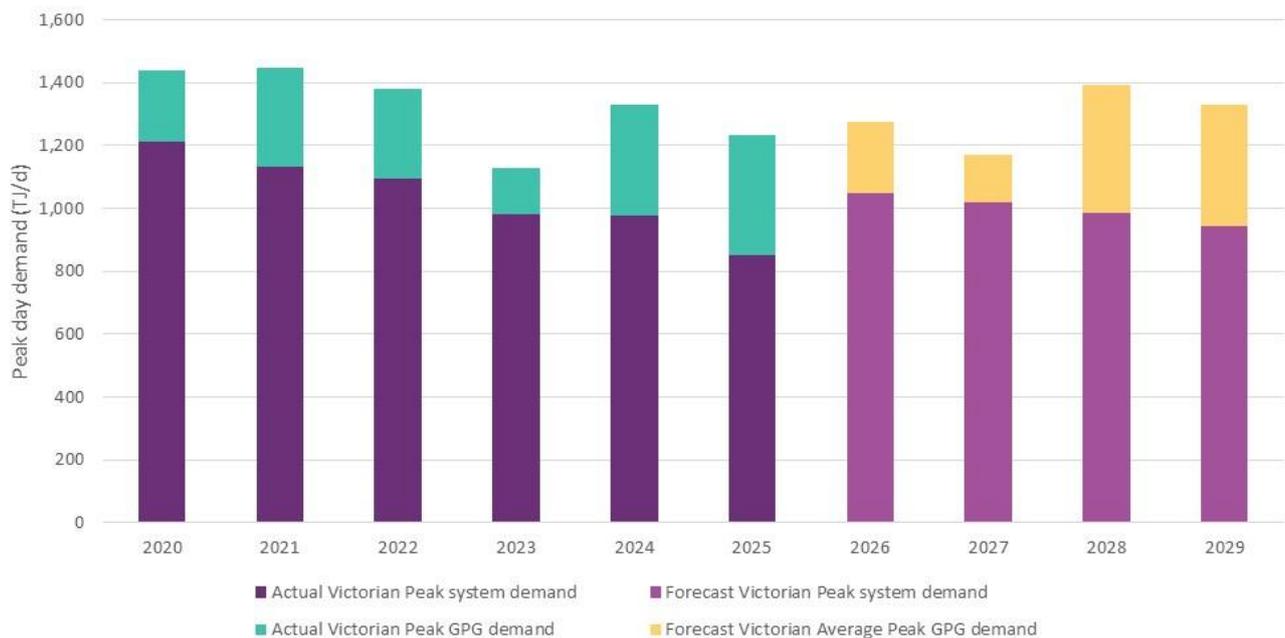
This increased Victorian winter electricity demand is also resulting in higher winter GPG demand when wind and solar generation is low. Record Victorian winter GPG demands occurred during winter 2024 and 2025. During winter 2024, GPG demand was 356 TJ on 13 June, which was the highest Victorian daily GPG demand for any time of the year since 25 January

¹² At <https://www.aemo.com.au/energy-systems/gas/gas-forecasting-and-planning/new-south-wales-gas-infrastructure-review>.

2019 (when GPG demand was 447 TJ, during a period when Victoria was experiencing its hottest weather in five years). GPG demand was then higher at 382 TJ/d on 26 June 2025, and total east coast gas demand for GPG totalled 1,049 TJ on the same day, setting a new winter record and the fourth-highest daily total on record for any time of year.

This trend, shown below in **Figure 3**, is forecast to continue as peak day system demand is forecast to reduce by 12% during the five-year outlook period. The 2025 VGPR forecast that the 1-in-2 year peak day system demand is expected to reduce from 1,047 TJ/d in 2026 to 942 TJ/d in 2029, while the 1-in-20 year peak day system demand is forecast to reduce from 1,130 TJ/d in 2026 to 1,016 TJ/d in 2029.

Figure 3 Victorian historical and forecast peak day demand, 2020 to 2029 (TJ/d)



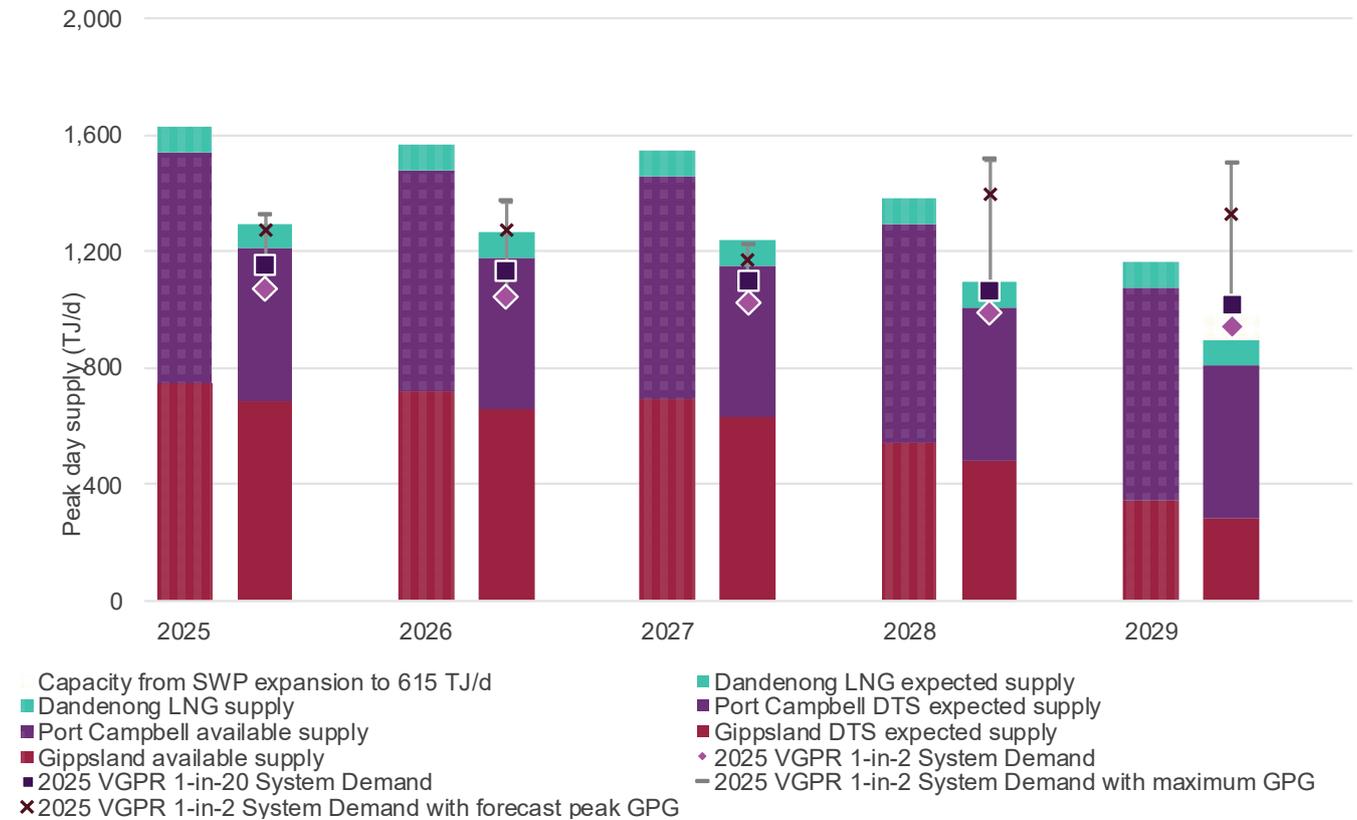
Source: 2025 VGPR, updated with 2025 actual peak day demand.

While peak day system demand is expected to decrease, GPG winter demand is expected to materially increase in 2029 following the planned 1 July 2028 closure of Victoria’s coal-fired Yallourn Power Station, and the April 2029 planned closure of the coal-fired Eraring Power Station in New South Wales. Updated Victorian maximum GPG demand forecasts will be published in the 2026 VGPR Update in March 2026.

2.5 Forecast peak day gas supply shortfalls

Under Rule 323(3), AEMO has assessed the impact of this increased GPG demand on a 1-in-2 peak system demand day. If peak GPG demands coincide with periods of high system demand, total gas demand is forecast to significantly exceed available gas supply capacity from winter 2028, as shown in **Figure 4**. This graph also shows how much gas supply capacity it currently available at Port Campbell compared to the available capacity which includes the impact of the SWP capacity constraint.

Figure 4 Forecast peak day supply and DTS adequacy, 2025 to 2029 (TJ/d) including 2029 SWP expansion



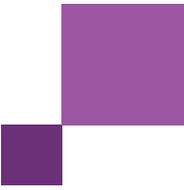
Minimal new committed production or supply projects are in place to offset the ongoing Gippsland production decline, which will increase the reliance on storage. Based on the 2025 GSOO and VGPR supply and demand forecasts, Victoria faces a high likelihood of GPG gas load curtailment from 1 July 2028, following the closure of Yallourn, during the peak winter period unless new production or supply projects are developed, including additional SWP capacity.

New GPG forecasts will be published in the 2026 VGPR Update in March 2026 which will include the impact of delaying the Eraring Power Station closure date until April 2029. This is expected to reduce the peak GPG demand forecast for winter 2028, which may reduce or remove the 2028 forecast peak day shortfall. SWP expansions will help support GPG on typical winter demand days and help meet the 1-in-2 system demand days as Gippsland supply decreases and GPG demand increases as coal generation retires.

2.6 Increased Port Campbell supply

If additional supplies are added to the Port Campbell region – from projects that include the Iona UGS HUGS Stage 2 expansion, connection of new Otway Basin gas fields particularly from projects that increase production from the Athena Gas Plant, or the proposed Adelaide LNG regasification terminal – further expansion of the SWP in addition to what is currently proposed by APA under the Rule 80 application would reduce the forecast gas supply shortfalls.

The connection of an LNG regasification terminal connecting at Geelong would increase capacity of the SWP, however, as discussed in Section 5, this additional capacity is achieved by backing off supply from Port Campbell due to the higher injection pressures at the LNG regasification terminal connection to the SWP. APA’s compression option for expanding the



SWP amplifies the back-off effect issues and provides a narrower envelope of operation compared to the looping option. This occurs when SWP flow is not sufficient to operate the proposed large compressor at Stonehaven.

Augmenting the SWP by looping the BLP up to Rockbank and introducing a flow interchange at Lara would substantially reduce the back-off of Port Campbell supply. Capacities and project interaction are discussed in sections 3 and 4 of this report.

There are two proposed LNG regasification terminal projects in Victoria – the Viva Energy Gas Terminal project in Geelong and the Vopak Victoria Energy Terminal project, which would be piped onshore at Avalon. Both projects are proposing to connect to the DTS at a similar location on the SWP near Lara. For the purposes of this analysis, AEMO will refer to these two projects collectively as a Geelong LNG regasification terminal, as both projects are expected to behave similarly in terms of DTS capacity including backing off Port Campbell supply without changes to the SWP and BLP.

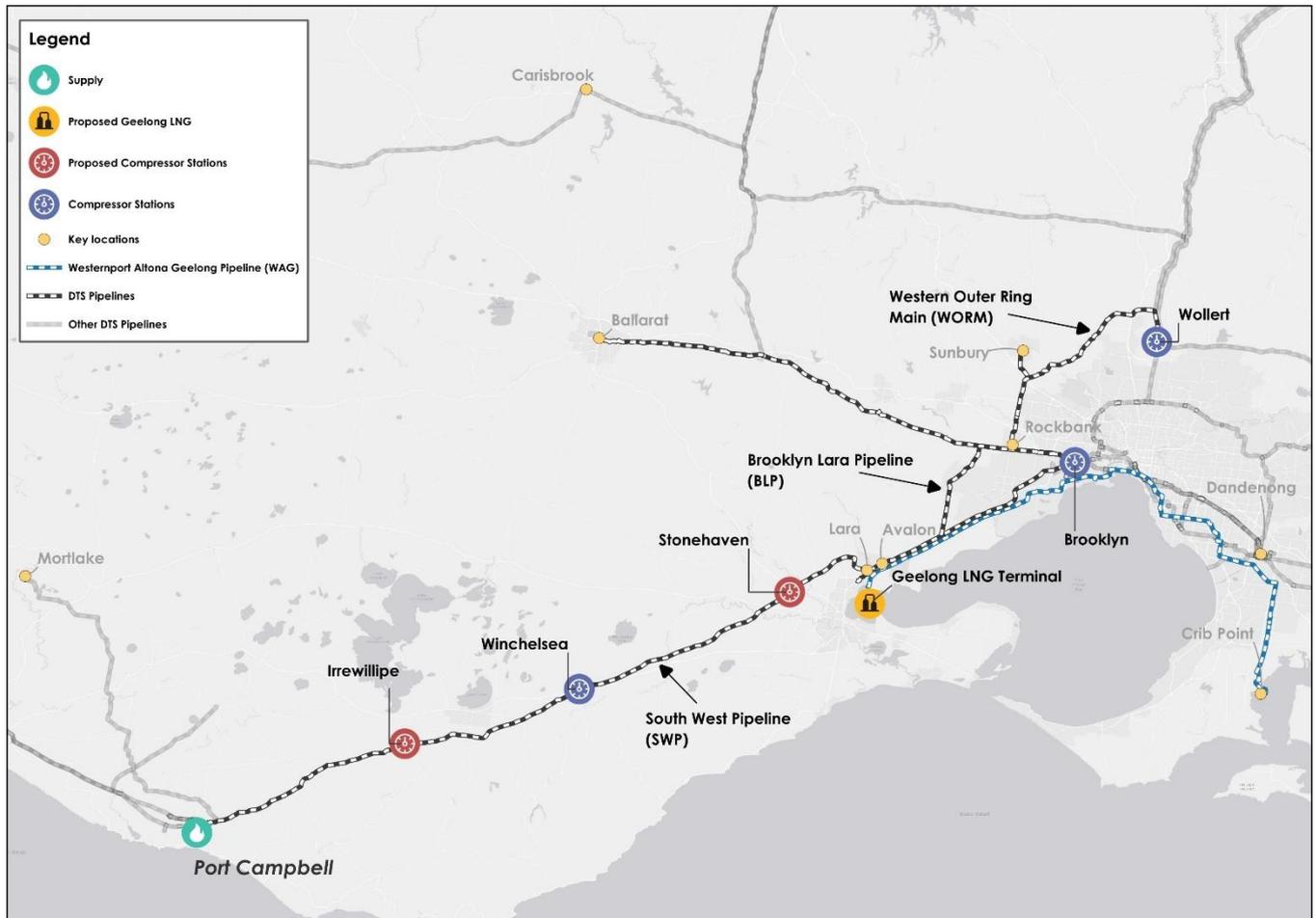
3 Potential SWP expansion options

Increasing SWP transportation capacity would enable more of the existing Port Campbell production and storage capacity to be available to support Victorian DTS demand.

AEMO’s technical and operational assessment of SWP expansion options considered the capacities, operability, GPG supportability, and other project interactions for many possible augmentation options. It is not an analysis of other considerations including project costs and economics, ease of project approvals, and social licence and does not amount to a recommendation or representation regarding any projects or investments.

In response to forecast peak day shortfalls from 2028 and Lochard Energy making FID on the expansion of Iona UGS to 615 TJ/d in July 2024, APA lodged an application with the AER on 31 October 2025 for an advanced determination of capital expenditure for the Victorian Transmission System under Rule 80. APA has proposed a preferred option of expanding the SWP through the installation of two new 10 MW compressors at Stonehaven and Irrewillipe and reconfiguring the Winchelsea CS to enable the two compressors to operate in parallel. **Figure 5** shows a map of the SWP and proposed compressor stations.

Figure 5 South West Pipeline expansion locations



3.1 SWP compression compared to looping

AEMO has undertaken a technical and operational assessment of a range of options involving pipeline looping with various diameters, compression, or a combination of both. A diagram of each expansion option is detailed in **Appendix A1.3**.

AEMO modelling for these expansion options and scenarios was conducted in accordance with Rule 328, which requires AEMO to conduct system capability modelling of the DTS by testing for the maximum capacity that is deliverable across all system injection points and system withdrawal points. This requires gas supply from other injection sources to be reduced while the capacity of the SWP is maximised. For modelling injection capacity of other supply pipelines like the VNI (which supplies gas via Culcairn), the same approach is required – gas supply from other injection sources including the SWP is reduced while the capacity of the VNI is maximised.

Supply into the VNI via Culcairn is currently limited by the 195 TJ/d capacity of the Young to Culcairn lateral in APA’s ECGG, with actual import flows at Culcairn are reduced due to New South Wales demand north of Culcairn. The 39 TJ/d expansion announced on 19 February 2026 increases supply capacity from Young to 234 TJ/d, while supply into the DTS at Culcairn is expected to remain below the VNI peak day capacity of 229 TJ/d.

Further information on the DTS pipeline capacity modelling requirements is provided in section 4.9 of the Wholesale Market Operation Procedures (Victoria).¹³ This is also discussed further in **Appendix A1.2**.

Table 1 shows a summary of compression augmentation options along with the capacity increases. After the installation of two compressors, any additional SWP augmentation to expand the capacity beyond the 615 TJ/d will require looping. Hence if a subsequent proposal is progressed, including the Iona UGS HUGS Stage 2 expansion or exploration discoveries that would increase the capacity of the Athena Gas Plant (as the Otway Gas Plant is already operating at near full capacity), looping of the SWP would be required.

Table 1 SWP compression augmentation options

Option	Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Base	Existing system	523		
1	Stonehaven CS and Irrewillipe CS Winchelsea modification for parallel operation	615	92	62
2	Option 1 plus additional 34 km looping upstream of Lara including around the Stonehaven CS	677	154	116
3	Option 2 plus additional 44 km looping from Lara to Rockbank (total of 78 km)	694	171	289
4	Option 2 plus additional 21 km looping around the Irrewillipe CS (total of 55 km)	705	182	145

An alternative option to compression is looping the existing SWP. Partial looping was also proposed by APA, but not as its preferred option. **Table 2** shows a summary of augmentation options with pipeline looping.

¹³ At <https://www.aemo.com.au/energy-systems/gas/declared-wholesale-gas-market-dwgm/procedures-policies-and-guides>.

Table 2 SWP looping augmentation options

Option		SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Base	Existing system	523		
5	Looping 88 km of existing SWP upstream and downstream of Winchelsea CS Winchelsea modification for parallel operation	615	92	62
6	Option 5 plus additional 35 km of SWP looping, 21 km upstream of Winchelsea CS, and 14 km downstream of Winchelsea CS completing the looping to Lara CG (total of 123 km)	680	157	157
7	Option 5 plus additional 41 km of looping from Port Campbell to the start of the 88 km of looping upstream of Winchelsea CS (total of 130 km)	715	192	289
8	Option 6 plus additional 21 km of SWP looping (or Options 7 plus 15 km) resulting in the full duplication of the 144 km SWP from Port Campbell to Lara CG	773	250	289
9	Option 6 plus additional 44 km looping from Lara to Rockbank (total of 167 km)	755	232	289
10	Option 9 plus additional 21 km looping to extend SWP looping to reach Port Campbell (full 188 km duplication from Port Campbell to Rockbank)	870	347	289

The following is a high level key point summary comparing the augmentation options in **Table 1** and **Table 2**, with further detail in Section 4:

- Options 1 and 5 both increase SWP capacity by 92 TJ/d to 615 TJ/d. The compression option would, however, have increased reliability risks and operability issues associated with the proposed large single unspared compressors, and increased maintenance costs and emissions which now must be considered under the National Energy Objective.
- Options 2 and 6 increase SWP capacity to 677 TJ/d and 680 TJ/d respectively, which is a similar increase. However, GPG supportability for the looping option is 157 TJ/d versus 116 TJ/d, an increase of 41 TJ/d (35%) – which is a significant step up from Option 5 by increasing the looping by 35 km from 88 km to 123 km.
- Option 4 and 7 present potential second stages of expansion if further capacity is required.
 - Option 4 is APA’s proposed sequencing solution presented at the AER Public Forum on 11 December 2025. This option is modelled to increase SWP capacity to 705 TJ/d (from 615 TJ/d) through the addition of a total of 55 km of pipeline looping, starting from the initial compression option outlined in Option 1 near the suction and discharge points of each proposed Irrewillipe and Stonehaven compressor station. However, in the scenario if either Irrewillipe and Stonehaven compressor stations are not operating, the associated enhanced compression and looping benefits are negated, and the resultant SWP capacity improvements would be significantly diminished.
 - In comparison, the SWP looping alternative – Option 7 – involves an additional 41 km of looping (starting at Port Campbell) from the initial Option 5 of 88 km looping, which is modelled to increase SWP capacity to 715 TJ/d (from 615 TJ/d). These results show that a slightly larger increase in SWP capacity can be achieved with less additional pipeline looping. This demonstrates that the 88 km looping only option provides a better starting point for future expansions compared to the compression option. This option also significantly increases GPG supportability. AEMO’s view is that Option 7 would be the preferred option to proceed if Lochard Energy commits to the next stage of Iona UGS expansion from 615 TJ/d to 685 TJ/d (or more likely, commits contingent on a further SWP expansion beyond 615 TJ/d being approved by the AER and APA).

AEMO’s operational assessment is that looping the SWP, starting with Option 5, allows for a phased construction of increased pipeline looping if increased Port Campbell supply capacity is committed and constructed. APA used the same approach when duplicating 258 km of the VNI 10 years ago – sections were added in line with increased capacity requirements.

APA’s view is that Option 1 also represents a staged solution, with looping added in subsequent stages after the two new compressors are installed. However, AEMO’s modelling shows that more looping needs to be added in subsequent stages to provide a similar capacity increase compared to the capacity increase if Option 5 is the first step.

APA’s presentation slides at the AER Public Forum on 11 December 2025 provided wording that was supportive of the looping option, stating:

“While requiring a longer lead time, this option offers greater long-term benefits including:

- *Increased capacity*
- *Increased linepack, and*
- *Support for future gas-powered generation development.”*

At the AER Public Forum, APA advised that both Option 1 and 5 could be operational by winter 2029. APA have since advised AEMO that this timing assumed that the AER made a final determination by February 2026, and now the absolute earliest timing that Option 5 could be brought online is mid-2030, with significant timing risk, which is after the forecast reduction in Longford Gas Plant capacity ahead of winter 2029 to approximately 300 TJ/d forecast provided in the 2025 VGPR (and compared to the current Longford capacity of 720 TJ/d).

Table 2 also shows that with Option 10, the SWP can achieve a capacity up to 870 TJ/d with looping of the entire SWP (144 km) in addition to looping the BLP from Lara up to Rockbank (44 km). This capacity is similar to options 13 and 14 shown below in **Table 4**, which involves construction of an LNG regasification terminal at Geelong.

3.2 Impact of looping pipeline diameter

For all the looping options in **Table 1** and **Table 2**, AEMO assumed that the pipeline will loop like-for-like with DN500 pipe, however AEMO also looked at varying pipe sizes to reduce the length of looping required to achieve the same capacity.

Table 3 summarises the modelling results.

Table 3 SWP looping augmentation options by varying diameter

Pipe size	Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Base	Existing system	523		
DN500	<ul style="list-style-type: none"> • Looping 88 km of existing SWP from Iona UGS to Lara • Winchelsea modification for parallel operation 	615	92	62
DN600	<ul style="list-style-type: none"> • Looping 76 km of existing SWP from Iona UGS to Lara • Winchelsea modification for parallel operation 	615	92	62
DN750	<ul style="list-style-type: none"> • Looping 69 km of existing SWP from Iona UGS to Lara • Winchelsea modification for parallel operation 	615	92	62

As demonstrated above, increasing the size of the pipe may reduce the required length of looping to achieve the same pipeline capacity. The reduced pipeline length may reduce the risk of project delay, however gains in productivity from the reduction of pipeline looping length may be offset by the increased time required for trenching and welding of larger diameter steel pipe.

3.3 LNG regasification terminal impact

AEMO has also assessed the technical and operational impact of APA’s proposed augmentation if an LNG regasification terminal at Geelong proceeds. A potential LNG regasification terminal project connecting to the SWP near Geelong in combination with SWP expansion will increase DTS supply capacity. However, this additional capacity is only achieved when the LNG regasification terminal is injecting at near the maximum operating pressure of the SWP. This limits the simultaneous supply from facilities in Port Campbell as they are backed out of the SWP by the higher supply pressure of an LNG regasification terminal connected to the SWP closer to Melbourne.

A summary of augmentation options involving an LNG regasification terminal is shown in **Table 4**, continuing the options listed above in **Table 1** and **Table 2**.

Table 4 SWP Port Campbell and Geelong LNG regasification terminal combined capacity options

Option	Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Base	Existing system	523		
11	Option 1 (two compressors) plus LNG regasification terminal	836	313	240
12	Option 5 (88 km SWP looping) plus LNG regasification terminal	840	317	240
13	Option 2 (two compressors and 35 km looping at Lara) plus LNG regasification terminal	871	348	240
14	Option 6 (123 km SWP looping) plus LNG regasification terminal	873	350	240
15	Option 3 (two compressors and 35 km looping at Lara, plus 44 km looping between Lara and Rockbank), which provides flow segregation from the LNG regasification terminal supply at Lara, plus LNG regasification terminal	967	444	240
16	Option 8 (144 km SWP looping plus 44 km looping between Lara and Rockbank), which provides flow segregation from the LNG regasification terminal supply at Lara, plus LNG regasification	1,031	508	240

The engineering modelling results above are the combined SWP capacity with both Port Campbell facilities and the Geelong LNG regasification terminal injecting. Interaction between Port Campbell and LNG Injections is discussed in Section 5, however options 15 and 16 show that SWP capacity is significantly increased when flow segregation between gas supply from Port Campbell and supply from the LNG regasification terminal are segregated by duplicating the BLP. This modelling used 500 mm diameter pipeline to for the BLP looping – increased capacity could be achieved if larger diameter piping was used.

In addition to an LNG regasification terminal, an approximately 130 km crude oil pipeline, the WAG Pipeline, is currently under consideration for potential conversion into a natural gas transmission pipeline to further increase supply capacity into the DTS. The WAG Joint Venture (Viva Energy/ExxonMobil) is investigating the conversion of the WAG pipeline to gas service throughout 2026, with initial pipeline testing activities already underway. **Table 5** shows a summary of expansion options with WAG.

Table 5 SWP capacity options with the WAG

Option	Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Base	Existing system	523		
17	Option 8 plus WAG	845	322	289
18	Option 8 plus LNG regasification terminal plus WAG	981	458	289
19	Option 15 plus WAG	1,115	592	289
20	Option 16 plus WAG	1,180	657	289

As the above table shows, modelling the addition of the WAG in combination with a Geelong LNG regasification terminal and the 144 km of pipeline looping of the SWP from Port Campbell to Lara, and 44 km of pipeline looping of the BLP from Lara to Rockbank, provides for a potential SWP capacity increase from 523 TJ/d up to 1,180 TJ/d, which could enable high modelled simultaneous injection capacity at both Port Campbell hub and the LNG regasification terminal to a maximum of 550 TJ/d and 630 TJ/d, respectively.

Further modelling involving a larger diameter BLP looping option of 600 mm (from 500 mm modelled above) shows a capacity increase of up to 1,230 TJ/d (an increase of 50 TJ/d) to the total SWP capacity with the addition of the WAG. The results of this modelling demonstrate the potential SWP capacity enhancement that can be achieved by evaluating looping options with larger diameters and the importance of BLP looping to support high simultaneous flows from Port Campbell and a Geelong LNG regasification terminal.

In addition to potential options involving larger diameter looping, further modelling of SWP capacity increases can be explored through the WAG expansion options outlined below:

- Extension of approximately 5 km of the WAG and connect at Dandenong City Gate (DCG)** – a connection onto the LMP from WAG would enable demand located in the East of the DTS to also be supplied by the WAG and DCG to operate at a lower outlet pressure, which could enable more SWP gas to flow through Brooklyn City Gate. However, the proximity of densely developed industrial and residential areas presents significant obstacles to any proposed extension.
- Increase WAG diameter by relaying existing 400 mm with higher pressure 500 mm pipeline WAG section from Geelong to Point Cook** – relaying approximately 40 km of pipeline between Geelong and Point Cook with increased higher maximum operating pressure of 10,200 kPa would enable for increased maximum injection rates at Port Campbell and a Geelong LNG regasification terminal. AEMO has reviewed the alignment of the current WAG pipeline and found that relaying the segment from Geelong to Point Cook offers the greatest potential for increasing capacity. Relaying approximately 40 km of pipeline between Geelong and Point Cook would enable maximum injection rates at Port Campbell and a Geelong LNG regasification terminal. Higher capacities could be possible if the WAG pipeline is relayed further to Altona; however, due to the presence of residential properties near the WAG pipeline in the Point Cook area, relaying within the residential zone would likely present as a significant challenge.

4 Looping versus compression

4.1 Service Envelope Agreement requirements

The Service Envelope Agreement (SEA) between APA and AEMO, which is a requirement of the NGL, governs AEMO's operation of the DTS and APA's obligations to provide the DTS gas transportation services in accordance with the requirements of Good Practice (and Good Design Practice). Under the SEA, "Good Practice (and Good Design Practice)" is defined as supporting a safe, secure, and reliable operation and comprises the provision of redundancy and spare capacity equivalent to the largest duty unit at each compressor station. This is to ensure high compressor availability and supply reliability by enabling continued compressor station operation at required capacity agreed in the SEA during planned maintenance or unplanned outages.

Where a site does not meet "Good Design Practice" and a capacity reduction occurs which restricts injections, the DTS Service Provider (SP) may be liable for DTS SP Uplift to reflect the increased cost of gas from other injection sources, including the Dandenong LNG storage facility, that are scheduled in response to the pipeline capacity reduction that occurs due to APA not providing the required pipeline capacity. The gas price that APA is exposed to is currently capped at \$20/GJ under the SEA and the amount of DTS SP Uplift payable by APA is also subject to an annual liability cap, specified in the SEA, which is approximately \$1.3 million.

Where a site meets Good Practice with spare compression capacity available (for example, Gooding CS), the additional compression unit may be operated in place of an operating unit provided within the design capability of each station, when that operating unit fails to perform to the required capability.

4.2 Compression operability and supply risks

AEMO's technical and operational assessment of APA's proposed compression option of the SWP (Option 1) is that it presents the following reliability risks:

- The Stonehaven and Irrewillipe compressors would not be installed with spared capacity, which presents large single points of failure that could create further gas supply resilience and reliability risks.
- If an LNG regasification terminal connects to the SWP near Lara, the operating envelope with the two compressors is problematic, because these large compressors require a minimum flowrate to operate. If the flows from Port Campbell are low due to high LNG regasification flows, the overall SWP supply capacity is reduced to the same amount as if the compressors are not there, as the Port Campbell flows will continue to be backed out with the proposed Stonehaven CS being unable to operate.
- While the Australian Standards do not contemplate an appropriate distance between compressor stations, in the United States of America the minimum distance between compressor stations is generally regarded as being 40 miles¹⁴

¹⁴ Pipeline basics & specifics about natural gas pipelines, pg.3, at <https://pstrust.org/wp-content/uploads/2019/03/2019-PST-Briefing-Paper-02-NatGasBasics.pdf>, https://www.corridoreis.anl.gov/documents/docs/technical/apt_61034_evs_tm_08_5.pdf Natural Gas Pipeline Technology Overview, pg. 14, at https://www.corridoreis.anl.gov/documents/docs/technical/apt_61034_evs_tm_08_5.pdf, and Natural Gas Compressor Stations on the Interstate Pipeline Network, at <https://www.eia.gov/naturalgas/archive/ngcompressor.pdf>.

(65 km). APA’s proposal for two new compressor stations, one each at Stonehaven and Irrewillipe, would result in three compressor stations operating in series that are only 35-40 km apart.

- AEMO’s view is that
 - this presents an operational and gas supply risk. If one compressor in the chain trips, it could create a cascading trip of the other compressors if they cannot ramp down fast enough to adjust to the change in pressure associated with the other unit trip.
 - there is also the risk of tripping the Iona UGS facility, resulting in a possible gas supply disruption, particularly for any gas generation connected to the SWP and BLP.
 - when compressor stations are too close together, the equipment may run inefficiently, or be frequently cycled on and off, leading to wear and tear further reducing reliability and increasing maintenance costs.
- APA has advised that the proposed compressor spacing is not unique globally and they are well versed in compression operations, and their view is that this does not inherently create more risk.

Compressor trips and outages are not infrequent, particularly for compressors in the DTS with frequent stop start operations due to changes in gas demand including GPG. In 2019 during the development of the WORM pipeline, APA designed the Wollert CS outlet header as a common header connected to both the VNI and the WORM with the intent of reducing the number of compressor starts and stops.

The Winchelsea compressors had three in service trips during the peak demand period of winter 2025, and one Winchelsea compressor has been unavailable since 25 November 2025 due to unplanned maintenance. The proposed new large compressors at Irrewillipe and Stonehaven are expected to require frequent starts and stops due to their size and the typically variable nature of scheduled SWP flows, which would cause increased maintenance requirements and reduced supply availability. Capacity impacting compressor trips that impact supply capacity on peak days increases the risk of higher priced supply from APA’s Dandenong LNG storage facility being required or gas load curtailment (typically GPG demand).

AEMO modelled four of the options from **Table 1** and **Table 2**, to demonstrate the capacity impact should any of the compressors trip while in operation.

The modelling results in **Table 6** show that with the compression options from **Table 1**, there are scenarios for Option 4 where the capacity reduces by over 100 TJ/d for a single large compressor outage (Irrewillipe or Stonehaven), which would significantly increase the risk of gas load curtailment.

The results in **Table 7**, showing Winchelsea compressor trips for looping only, instead of additional compression at Irrewillipe and Stonehaven, show a much lower capacity impact from compressor trips for Option 7, with a capacity reduction of only 28 TJ/d.

Table 6 SWP capacity dependency for compression options with unit unavailability

Configuration	Irrewillipe	Winchelsea	Stonehaven	Option 1 (two compressors)	Option 4 (Option 1 and 55 km of looping)
1-2-1	Online	Online (2 units)	Online	615 TJ/d	705 TJ/d
0-2-1	Offline	Online (2 units)	Online	550 TJ/d	600 TJ/d
1-1-1	Online	Online (1 unit)	Online	570 TJ/d	650 TJ/d
1-2-0	Online	Online (2 units)	Offline	515 TJ/d	592 TJ/d

Table 7 SWP capacity dependency for looping options with unit unavailability

Configuration	Irrewillipe	Winchelsea	Stonehaven	Option 5 (88 km of looping)	Option 7 (Option 5 and 41 km of looping)
0-2-0	-	Online (2 units)	-	615 TJ/d	715 TJ/d
0-1-0	-	Online (1 unit)	-	550 TJ/d	687 TJ/d

APA’s view is that the cost to the market from capacity impacting compressor trips would be less than the cost difference between the compression and looping options, and if compressor trips occur then the Dandenong LNG storage facility is available to be called upon under this scenario. AEMO has assessed the possible impacts of a compressor outage:

- If the DTS is supply constrained and the Dandenong LNG storage facility is already scheduled to support supply adequacy on a peak demand day (which is currently forecast to be required from winter 2028) and the Stonehaven compressor trips, then the 100 TJ/d reduction in SWP capacity is expected to result in the curtailment of gas customers, which is typically GPG demand, with potential impacts on NEM operations and prices.
- If the DTS is not supply constrained and the Stonehaven compressors trips, the SWP capacity is reduced by 100 TJ/d. As a demonstration of the potential market impact, if an outage lasted for two scheduling intervals and the DWGM was in an administered price cap state, this would result in \$932,400¹⁵ of uplift. If the DWGM price reached VoLL then it would result in \$26.2 million¹⁶ of uplift.

4.3 Pipeline looping

In comparison, AEMO’s technical and operational assessment is that the looping option (without the compressors at Stonehaven and Irrewillipe) delivers more flexible and reliable operations approach, because:

- it provides similar or greater supply capacities depending on the size and length of pipeline – larger diameter pipe would reduce looping length required,
- it does not have the same flow dependency limitations as the compression option and can be operated over broad combinations of injection flow ranges,
- the extra linepack from pipeline looping would better support future operation of GPG, especially if new GPG is connected to the SWP – full looping of the SWP would further increase GPG supportability, and
- additional capacity can be added progressively if additional supply capacity is added in Port Campbell.

AEMO’s understanding is that the SWP easement was sized to accommodate two pipelines. However, new easement acquisitions will be required for the BLP looping options. Additional BLP easement acquisition is understood to be required for the following sections:

- 15 km section from Lara City Gate to T112-LV03 (Little River), and
- 2 km section within the T112-LV02 (Wyndham Vale) to T112-LV01 (Rockbank) section of the BLP.

AEMO considers that it would be prudent, noting that this is not a business case, for APA to procure these sections of BLP easement to allow for future duplication of the BLP – either to enable full pipeline duplication from Port Campbell to

¹⁵ Uplift price of \$28/GJ as the difference between a typical \$12/GJ market price and the \$40/GJ price cap for the 33.3 TJ quantity over two horizons

¹⁶ Uplift price of \$788/GJ as the difference between a typical \$12/GJ market price and the \$800/GJ market price cap (VoLL) for the 33.3 TJ over two horizons

Rockbank, or to enable duplication of the pipeline from Lara to Rockbank to support a proposed future LNG regasification terminal at Geelong.

AEMO has only considered BLP looping from Lara up to Rockbank for these augmentation scenarios, due to the density of development in the areas between Rockbank and Brooklyn.

4.4 Emissions

There are two mandatory climate policy driven emissions reporting requirements that apply to the operation of the DTS/VTS:

- The **Australian National Greenhouse and Energy Reporting Scheme** (NGERS) is a mandatory framework for corporations to report their greenhouse gas (GHG) emissions, energy production, and energy consumption annually to the Clean Energy Regulator. Data is submitted via the online Emissions and Energy Reporting System (EERS) by 31 October each year.
- The **Australian Sustainability Reporting Standards** (ASRS) requires large entities to report on sustainability risks based on Australian Accounting Standards Board (AASB S2) *Climate related Disclosures*. AASB S2 requires an entity to disclose its absolute GHG emissions, disaggregated into Scope 1, Scope 2 and Scope 3, expressed as metric tonnes of carbon dioxide equivalent. An entity is also required to disclose emissions targets it has set, or targets it is required to meet by law or regulation, to mitigate or adapt to climate-related risks or take advantage of climate-related opportunities, including metrics used to measure progress towards these targets.

The two compressors at Winchelsea CS have a combined equivalent power output (and therefore emissions) to each of the two proposed new compressors. During the 2025 calendar year Winchelsea CS emitted approximately 4,400 tonnes of carbon dioxide equivalent (tCO₂e) when operating to transport gas from Port Campbell towards Melbourne.

The proposed Stonehaven CS and Irrewillipe CS, if they each ran for a similar amount of time as Winchelsea CS, could add up to 8,800 tCO₂e to the DTS emissions profile. APA has advised that SWP compression is likely to operate for 10-30% of a year.

The DTS emissions are currently below the safeguard mechanism threshold under NGERS, and with the addition of the two new compressor stations the DTS would not be expected to reach this threshold (so NGERS reporting for the SWP compression expansion option is not impacted).

However, ASRS reporting requires both APA and AEMO to separately publish a strategy to demonstrate how the relevant emissions are going to decrease over time towards regulated emissions targets. While the energy transition has an inherent conflict with regard to ASRS due to the expectation that increasing natural gas consumption for GPG will be required to enable the energy sector transition from coal to renewables, adding additional compression to achieve increased SWP capacity when a lower emission alternative exists seems inconsistent with the requirement to document targets and strategies under AASB S2.

In terms of investment decisions, the NGO also requires two concepts which potentially conflict to be considered. The long-term interests of consumers where some of this infrastructure may not be required by 2050 under net zero targets, the requirement for energy security over the next decade as legacy fields decline and investments are required, and emissions resulting from those investments, which all further complicates investment decisions.

The two options for expanding the SWP should also be assessed against how they support the National Gas Objective (NGO). The NGO, as stated in the NGL¹⁷, is:

“to promote efficient investment in, and efficient operation and use of, covered gas services for the long term interests of consumers of covered gas with respect to:

- a. price, quality, safety, reliability and security of supply of covered gas; and*
- b. the achievement of targets set by a participating jurisdiction—*
 - i. for reducing Australia's greenhouse gas emissions; or*
 - ii. that are likely to contribute to reducing Australia's greenhouse gas emissions.”*

While both options increase SWP capacity, when assessing these options against the NGO:

- Compression has higher emissions and potential reliability and security of supply issues, but APA has advised that this option has a lower capital cost.
- Pipeline looping has lower emissions and improves security of supply, but APA has advised that this option has a higher capital cost.

4.5 Gas supply reliability

The *Victorian Gas Safety Act 1997* requires a Gas Company to manage and operate facilities to minimise risks as far as practicable including the hazards and risks to the safety of the public and customers arising from interruptions to the conveyance or supply of gas to customers. This does not mean that the likelihood of curtailment or the risks to the transport of gas must be zero, but the risks of curtailment occurring should be minimised, or the risks associated with implementing curtailment should be minimised.

The development of gas production facilities in Port Campbell, expansions of the Iona UGS facility and increased SWP capacity since the mid-2000s resulted in additional supply capacity for the DTS. With the decline in Longford production capacity since 2019, DTS supply capacity has tightened despite SWP capacity expansions. The increased risk of Longford supply disruptions also led to AEMO contracting uncontracted Dandenong LNG storage capacity following a rule change initiated by the Victorian Government. This rule is intended to ensure that Dandenong LNG inventory is maximised to reduce the risk of prolonged gas customer outages following a supply disruption or system incident.

With Longford production capacity forecast to continue to decline, investment in replacement gas supply capacity is needed to reduce the risk of gas customer curtailment during peak demand periods or following gas supply disruptions.

4.6 Project timing and costs

APA initially proposed the compression option as being the only option for expanding the SWP that could be available prior to winter 2028. During the AER public forum on 11 December 2025, APA advised that the compression option would not be available until winter 2029, which is the same timing advised for looping an 88 km section of the SWP (with both options increasing SWP capacity to 615 TJ/d). As noted earlier in this report, APA has since advised that the looping option could not be brought online until mid-2030, at the earliest, in the absence of an AER final determination by February 2026.

¹⁷ At [https://www.legislation.sa.gov.au/LZ/C/A/NATIONAL%20GAS%20\(SOUTH%20AUSTRALIA\)%20ACT%202008.aspx](https://www.legislation.sa.gov.au/LZ/C/A/NATIONAL%20GAS%20(SOUTH%20AUSTRALIA)%20ACT%202008.aspx).

AEMO is concerned about the risk of planning and regulatory approvals being required for the 20 MW of gas-fired compression facilities on greenfield sites, considering the planning delays that occurred for Esso's 40 MW Hastings Generation Project at an existing industrial gas fractionation and treatment facility (Long Island Point).¹⁸ The site of the proposed Stonehaven CS has several houses nearby, which could result in approval delays due to noise concerns. These houses appear closer than the two houses near the Winchelsea CS, which are also located close to the dual carriage Princes Highway.

With respect to future renewable gas and hydrogen compatibility, pipeline looping and compression present materially different abilities to support potential hydrogen or hydrogen blended gas transport. A pipeline looping option can be designed and constructed to be compatible with a future hydrogen service, which was the approach used for the construction of the WORM. While there remains significant uncertainty regarding the timing and scale of hydrogen adoption, this compatibility reduces the risk of asset stranding if a hydrogen energy transition occurs. Lochard Energy is currently progressing an underground hydrogen storage trial. In contrast, the compression option has limited capability to be adapted for hydrogen service and therefore presents a higher risk of obsolescence under a hydrogen transition scenario.

¹⁸ Southern Peninsula News, pg. 1, 29 June 2022 at https://issuu.com/southernpeninsulanews/docs/spn_29th_june_2022

5 Project interactions

As identified in the 2025 GSOO, the East Coast Gas Market requires new supply solutions to address the supply gaps and peak day supply shortfalls that are identified in the coming years. In Section 5 of the 2025 GSOO, a range of supply options were assessed to resolve the shortfall. This assessment did not represent a ‘best’ or ‘most economic’ assessment of the options and did not consider all factors such as cost, regulatory approvals, land use, social license, safety, or operational challenges of each option, and did not amount to a recommendation or representation regarding any investment. Each project was presented individually and may rely upon associated downstream pipeline augmentations to increase effectiveness. These augmentations were classified as uncertain developments at the time and were not limited to integrated options from a single developer or gas market participant. The analysis did not examine customer pricing impacts of any particular solution.

For Victoria there are three zones that these potential projects could provide additional supply into to meet the shortfall – Gippsland via the Longford to Melbourne Pipeline (LMP), Culcairn via the VNI, and western Victoria via the SWP.

Table 8 Potential projects injecting into DTS zones

Zone	Project	Dependencies	DTS zone adequacy
LMP	• Port Kembla Energy Terminal (PKET) via EGP reversal and a VicHub expansion	PKET: Sufficient contracted capacity to justify relocating a floating regasification storage unit (FSRU).	Adequate with no DTS augmentations required
	• Golden Beach Energy Storage Project	Golden Beach: Sufficient contracting to make FID	
VNI	• ECGGE Stage 3 (Bulloo Interlink)	GSOO notes that additional supplies are required in the Northern states Sufficient customer commitment levels, clarity on Gas Market Review outcomes and AER decision to make FID	Will require DTS augmentation for stage 5 due to the VNI being capacity limited to 229 TJ/d
	• ECGGE Stage 5 (MSP and VNI expansion)		
SWP	• HUGS Stage 1 and 2	HUGS Stage 1 is approved and is under construction	Will require DTS augmentation due to the SWP being capacity limited to 523 TJ/d
	• Geelong LNG regasification terminal	Potential expansion of the SWP holding up FID on projects	
	• WAG Pipeline conversion project	Pipeline integrity assessment and licensing changes to operate as a natural gas pipeline	Will improve SWP capacity

The 2025 GSOO modelled several potential end-states that contained a combination of solutions including Port Kembla Energy Terminal (PKET), Golden Beach, additional supplies from northern Australia via an expanded East Coast Gas Grid (ECGG), Geelong LNG regasification terminal, and an Adelaide LNG regasification terminal. AEMO has examined each of those potential end states to determine which initial first step of a SWP expansion could be a common first step that does not preclude other supply options or system augmentations into the future.

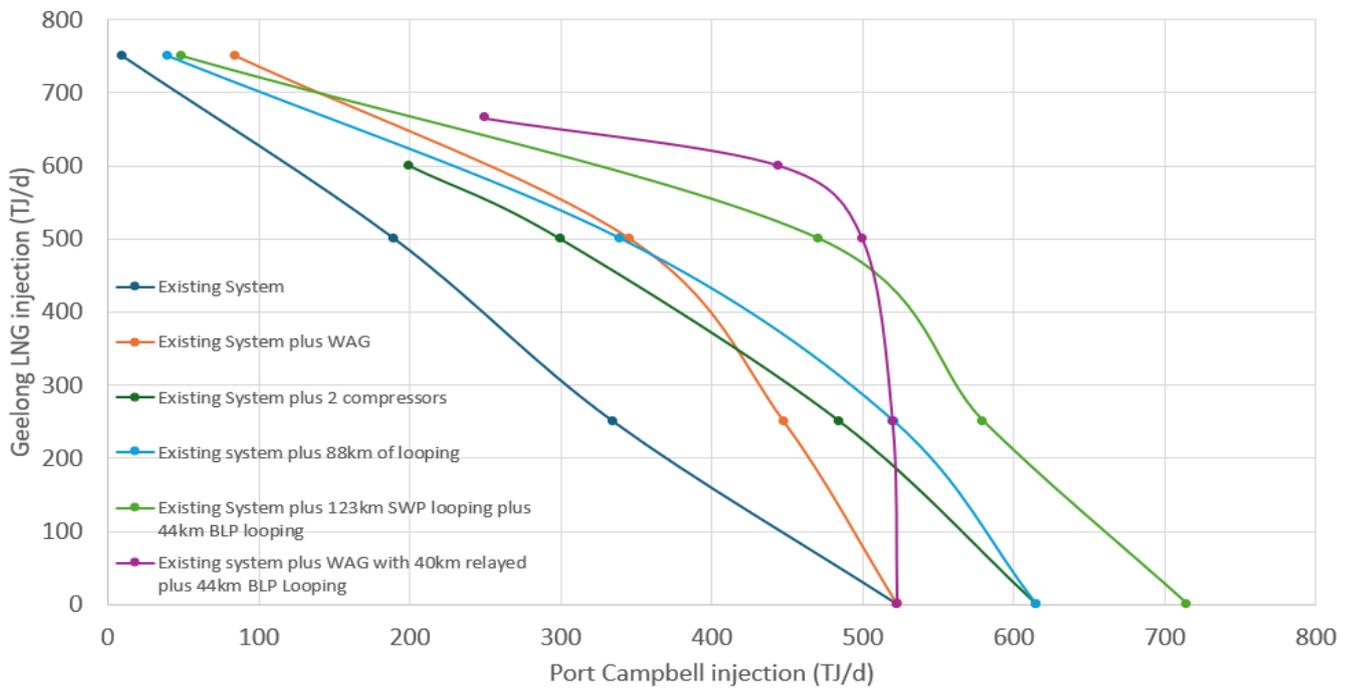
The connection of a Geelong LNG regasification terminal would increase pipeline capacity at the expense of backing off Port Campbell injections. AEMO has modelled interaction between APA’s proposed SWP augmentation and potential connection of an LNG regasification terminal at Geelong. The different options of SWP augmentation would mitigate the back-off effect to different extents. A summary of back-off effect modelling completed by AEMO is shown in **Figure 6**.

APA’s proposed installation of two new large, approximately 10 MW compressors at Stonehaven and Irrewillipe would increase total SWP capacity, however due to the minimum flow requirements that enable the large compressors at both the Stonehaven CS and Irrewillipe CS to operate, AEMO’s assessment is that there are significant operational gaps where the combined Port Campbell and LNG supply capacity is decreased. If the LNG regasification terminal flows are maximised at

750 TJ/d, then the original capacity of 770 TJ/d is maintained, as the large compressors do not have sufficient throughput flows to operate. The large compressors proposed by APA are each almost twice the size of the two approximately 5.8 MW compressors currently installed at Winchelsea CS, which are already the largest compressors installed on the DTS.

The option of partially duplicating the SWP between Port Campbell to Lara provides a similar capacity increase to the compression option. The pipeline looping options, however, do not have the same flow dependency limitations as the compression option and can be operated over broad combinations of injection flow ranges.

Figure 6 Port Campbell hub and Geelong LNG regasification terminal interaction



A further reduction of the back-off effect impacting Port Campbell supply due to the introduction of a Geelong LNG regasification terminal can be achieved with additional pipeline looping between Lara and Rockbank, downstream of where the LNG regasification terminal may connect to the SWP. The modelling results presented above in **Figure 6** illustrate a further reduction in back-off effect, achieved through the implementation of 44 km of BLP looping from Lara to Rockbank alongside 123 km of SWP looping from Port Campbell to Lara. This modelling option could facilitate high concurrent modelled supply capacities at both Port Campbell and the LNG regasification terminal, with capacities of 555 TJ/d and 500 TJ/d, respectively. Additional overall capacity can also be enhanced from this option with the addition of the WAG Pipeline increasing total capacity up to 1,230 TJ/d of with 615 TJ/d from LNG receiving and 615 TJ/d from Port Campbell.

As highlighted in the 2025 VGPR, there is a back-off effect between injections on the SWP at Port Campbell and injections at Culcairn into the VNI, as both injection sources will converge at Wollert when both are injecting. This results in a lower combined DTS supply quantity than the sum of the individual supply source capacities for the system operating conditions. AEMO anticipates that potential supply expansions proposed at Port Campbell and Culcairn would increase the back-off effect for both supply sources during periods of high simultaneous injection. AEMO has not been able to complete modelling of all the potential interactions between a Geelong LNG regasification terminal and the VNI expansions required to support the APA ECGG Stage 5 expansion for this study. The impact of Port Campbell and Culcairn injections would also be influenced by the location of future GPG facilities.

Glossary and abbreviations

Term	Definition
AER	Australian Energy Regulator
BCP	Brooklyn to Corio Pipeline
BLP	Brooklyn to Lara Pipeline
CG	City Gate
CS	Compressor station
DTS	Declared Transmission System
DTS SP	Declared Transmission System Service Provider
DWGM	Declared Wholesale Gas Market
ECGG	East Coast Gas Grid
ECGG	East Coast Gas Grid Expansion
EES	Environmental Effect Statement
EGP	Eastern Gas Pipeline
ESOO	Electricity Statement of Opportunities
FSRU	Floating Storage Regasification Unit
GPG	Gas-powered generation
GSOO	Gas Statement of Opportunities
HUGS	Heytesbury Underground Storage
ISP	Integrated System Plan
LMP	Longford to Melbourne Pipeline
LNG	Liquefied natural gas
NEM	National Electricity Market
RSP	Riverina Storage Pipeline
SWP	South West Pipeline
VGPR	Victorian Gas Planning Report
VNI	Victorian Northern Interconnect
VoLL	Value of Lost Load (DWGM maximum price cap)
WAG	Western Port – Altona – Geelong
WTS	Western Transmission System
WORM	Western Outer Ring Main
UGS	Underground Gas Storage

A1. Modelling assumptions

A1.1 Preliminary capacity modelling results

The following tables summarise the variations of model presented in the report completed by AEMO for this assessment.

A1.1.1 With Geelong LNG regasification terminal

BLP looping

Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Existing system	523		
BLP Looping from Lara to Rockbank 44 km	910	387	240
<ul style="list-style-type: none"> BLP Looping from Lara to Rockbank 44 km Wyndham Vale CS 	942	419	240
<ul style="list-style-type: none"> BLP Looping from Lara to Rockbank 44 km WAG Pipeline 	969	446	240
<ul style="list-style-type: none"> BLP Looping from Lara to Rockbank 44 km WAG Pipeline Upgraded (Geelong – Point Cook) 	1,000	477	240

WAG augmentation

Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Existing system	523		
<ul style="list-style-type: none"> WAG WORM PRS Upgrade 	870	347	240
<ul style="list-style-type: none"> WAG WORM PRS Upgrade Midline CS on WAG 	879	356	240
<ul style="list-style-type: none"> WAG WORM PRS Upgrade WAG Pipeline Upgraded (Geelong – Altona) 	930	407	240
<ul style="list-style-type: none"> WAG WORM PRS Upgrade WAG Pipeline Upgraded (Geelong – Altona) High pressure connection at Dandenong 	1,000	477	240
<ul style="list-style-type: none"> WAG WORM PRS Upgrade WAG Pipeline Upgraded (Geelong – Altona) High pressure connection at Dandenong Flow Interchange at Lara 	1,175	652	240
<ul style="list-style-type: none"> WAG WORM PRS Upgrade WAG Pipeline Upgraded (Geelong – Altona) Flow Interchange at Lara Upgraded Newport Regulator 	1,084	561	240

SWP upgrade

Augmentation description	SWP capacity (TJ/d)	SWP capacity increase from existing (TJ/d)	GPG demand (TJ/d)
Existing system	523		
<ul style="list-style-type: none"> • Looping 123 km of the existing SWP from Iona UGS to Lara • Winchelsea modification for parallel operation • GPG sensitivity at Moorabool 	692	169	121
<ul style="list-style-type: none"> • Stonehaven CS and Irrewillipe CS • Winchelsea modification for parallel operation • 34 km of Pipeline looping at Lara • GPG sensitivity at Moorabool 	677	154	179
<ul style="list-style-type: none"> • Looping 123 km of the existing SWP from Iona UGS to Lara • Looping 44 km from Lara to Rockbank • Winchelsea modification for parallel operation • GPG sensitivity at Moorabool • Flow Interchange at Lara 	1,055	532	289
<ul style="list-style-type: none"> • Looping 123 km of the existing SWP from Iona UGS to Lara (DN600) • Looping 44 km from Lara to Rockbank (DN600) • Winchelsea modification for parallel operation • Flow Interchange at Lara 	1,073	550	289
<ul style="list-style-type: none"> • Looping 123 km of the existing SWP from Iona UGS to Lara • Winchelsea modification for parallel operation • WAG 	935	412	240
<ul style="list-style-type: none"> • Stonehaven CS and Irrewillipe CS • Winchelsea modification for parallel operation • 35 km of Pipeline looping at Lara • WAG 	926	403	240
<ul style="list-style-type: none"> • Stonehaven CS and Irrewillipe CS • Looping 35 km of the existing SWP at Lara • Looping 44 km from Lara to Rockbank (DN500) • Winchelsea modification for parallel operation • Flow Interchange at Lara • WAG 	1,050	527	240
<ul style="list-style-type: none"> • Looping 144 km of the existing SWP from Iona UGS to Lara • Looping 44 km from Lara to Rockbank (DN500) • Winchelsea modification for parallel operation • Flow Interchange at Lara • WAG 	1,121	598	240
<ul style="list-style-type: none"> • Looping 123 km of the existing SWP from Iona UGS to Lara • Looping 44 km from Lara to Rockbank (DN600) • Winchelsea modification for parallel operation • Flow Interchange at Lara • WAG 	1,230	707	289

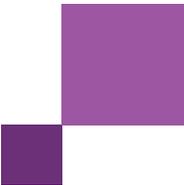
A1.2 Modelling assumptions

AEMO modelling for all augmentation options and scenarios is conducted in accordance with Rule 328 under which AEMO is required to maximise the pipeline capacity (and capacity certificate quantity) while meeting deliverables across all system withdrawal points.

This means that the SWP capacity is maximised up to what is feasible while pressures are maintained throughout the network with the balance of supply coming from the Culcairn and Longford supply nodes. When VNI capacity modelling is conducted, the Culcairn injections are maximised with the balance of supply coming from the Longford and SWP supply hubs. If all delivery point pressures cannot be maintained, then the supply from that maximised point is reduced to allow a higher balance of supply to be injected from other locations until the system can be operated to maintain all delivery point pressures.

For the purpose of the preliminary analysis, AEMO:

- did not consider the cost of constructing the LNG regasification facility itself, including the floating storage regasification unit (FRSU), wharf upgrades, gas treatment facility or the pipeline required to transport supply to the DTS – these assets were assumed to be complete in all cases with the LNG regasification facility,
- modelled all scenarios using the 2025 VGPR 2029 1-in-20 peak day forecast – lower system demands have not been considered,
- modelled scenarios with historical coincidental peak hourly GPG profiles which amount to total of 240 TJ/d unless otherwise specified, and
- maximised the possible SWP injection capacity without analysing the interaction between supply sources on the SWP.



A1.3 Augmentation option line diagram

The list of diagrams below outlines the high-level scope of SWP expansion options modelled in this report. Note that the diagrams are for illustrative purpose only and not to scale.

Figure 7 Current system – Existing SWP



Figure 8 Option 1 – Stonehaven CS and Irrewillipe CS and Winchelsea modification for parallel operation

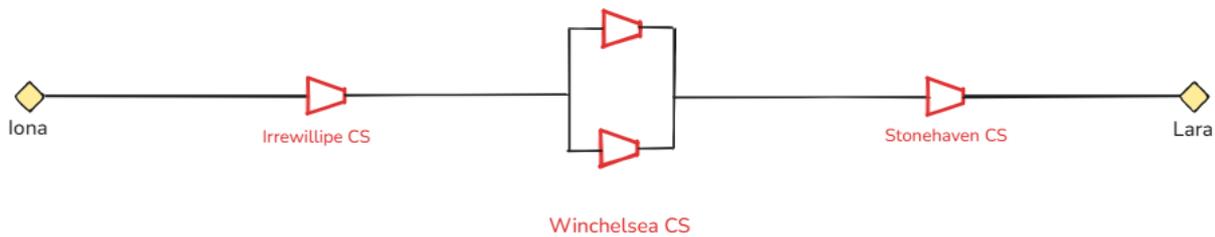


Figure 9 Option 2 – Option 1 plus additional 34 km looping upstream of Lara

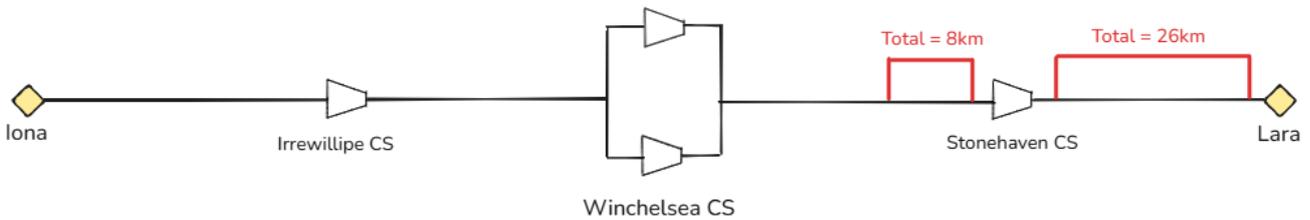


Figure 10 Option 3 – Option 2 plus additional 44 km looping from Lara to Rockbank (total of 78 km)

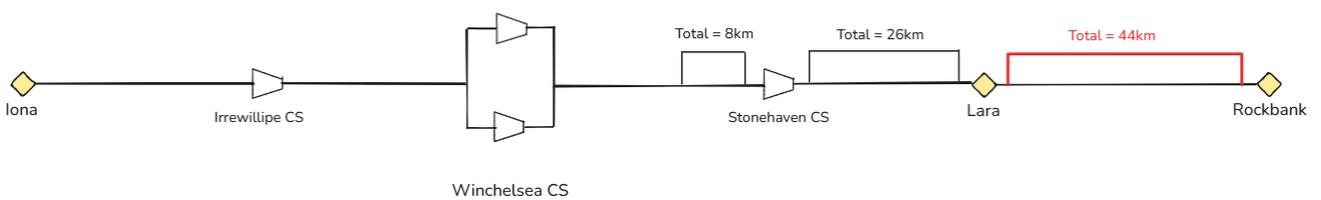
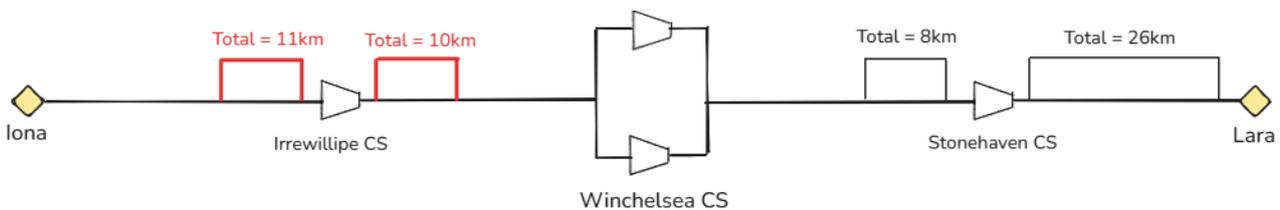


Figure 11 Option 4 – Option 2 plus additional 21 km near Irrewillipe CS (total of 55 km)



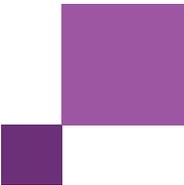


Figure 12 Option 5 – Looping 88 km of existing SWP upstream and downstream of Winchelsea CS

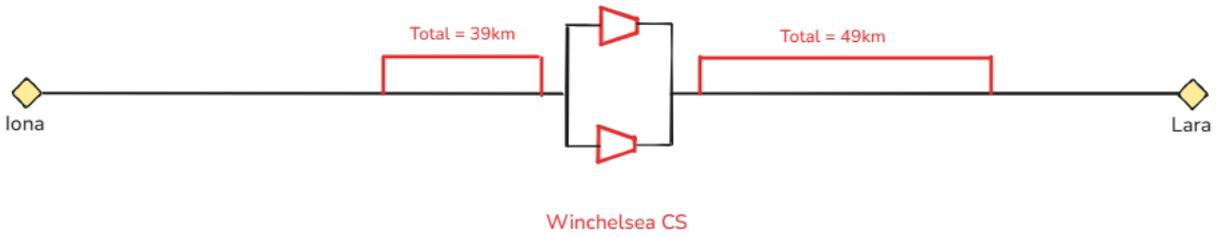


Figure 13 Option 6 – Option 5 plus additional 35 km of SWP looping, with an additional 21 km upstream of Winchelsea CS, and 14 km to fully loop the SWP from Winchelsea CS to Lara (total of 123 km)

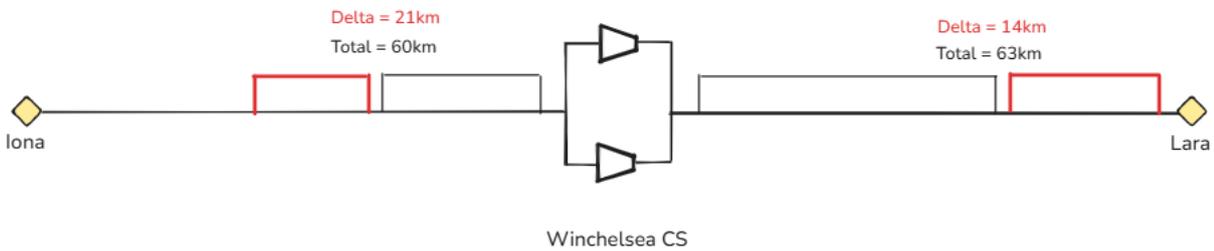


Figure 14 Option 7 - Option 5 plus additional 41 km of looping to extend SWP looping to reach Port Campbell (total of 130 km)

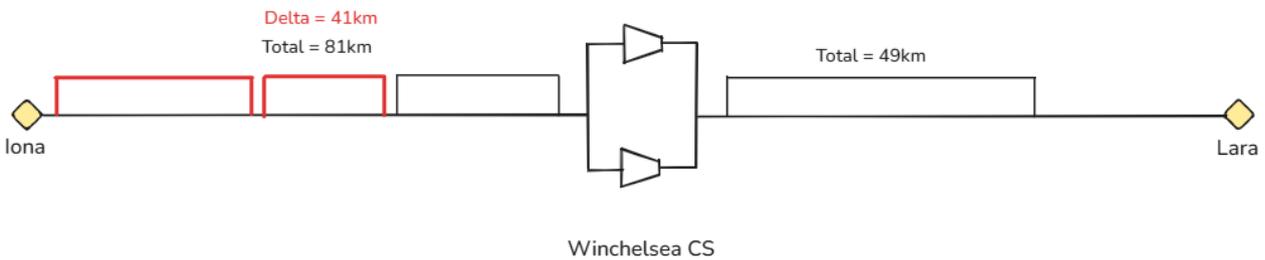


Figure 15 Option 8 – Option 6 plus additional 21 km of SWP looping from Port Campbell resulting in full duplication of the 144 km SWP

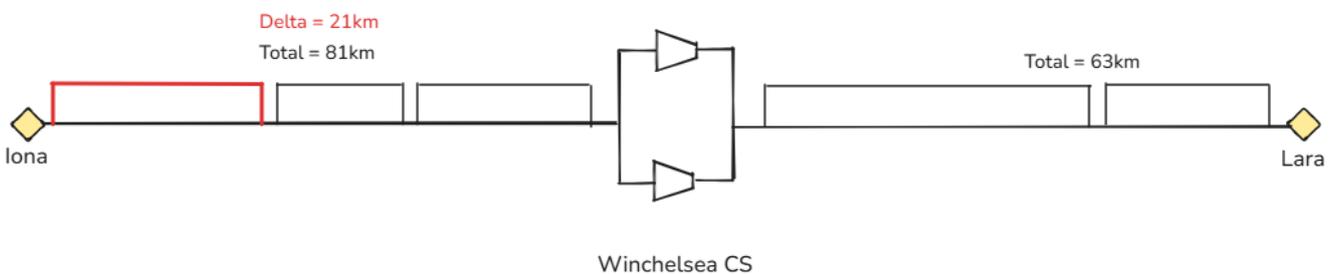


Figure 16 Option 9 – Option 6 plus additional 44 km looping from Lara to Rockbank (with only 123 km of SWP looping)



Figure 17 Option 10 – Option 9 plus additional 21 km looping from Lara to Rockbank (full 188 km duplication from Port Campbell to Rockbank)

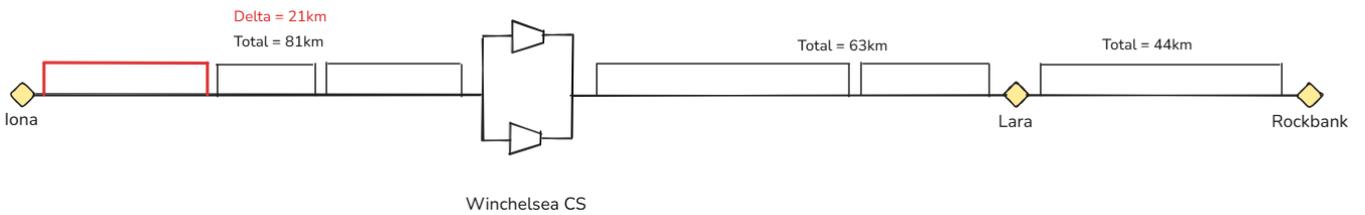


Figure 18 Option 11 – Option 1 (two compressors) plus LNG regasification terminal

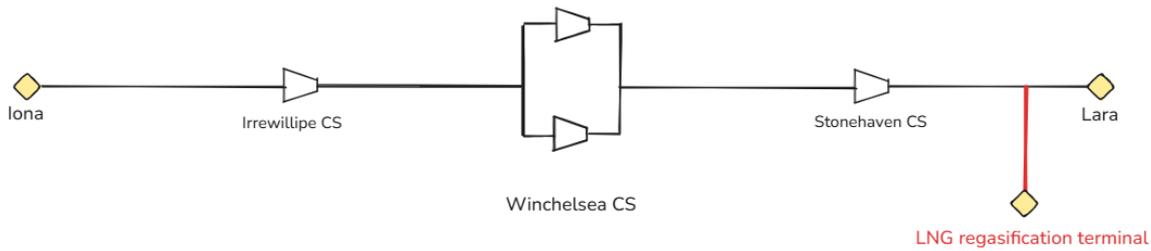


Figure 19 Option 12 – Option 54 (88 km SWP looping) plus LNG regasification terminal

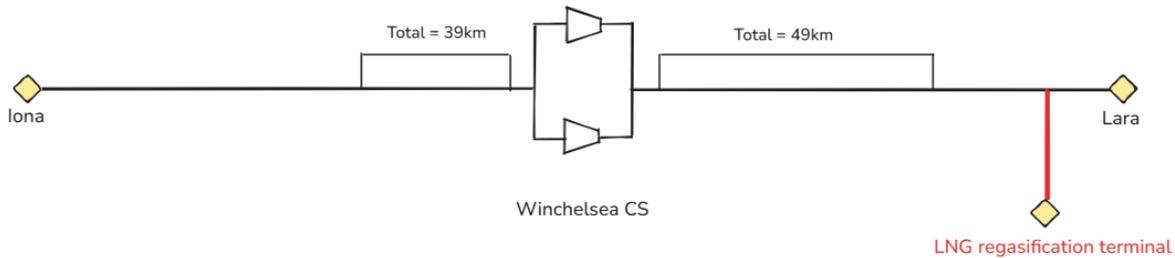


Figure 20 Option 13 – Option 2 (two compressors and 35 km looping at Lara) plus LNG regasification terminal

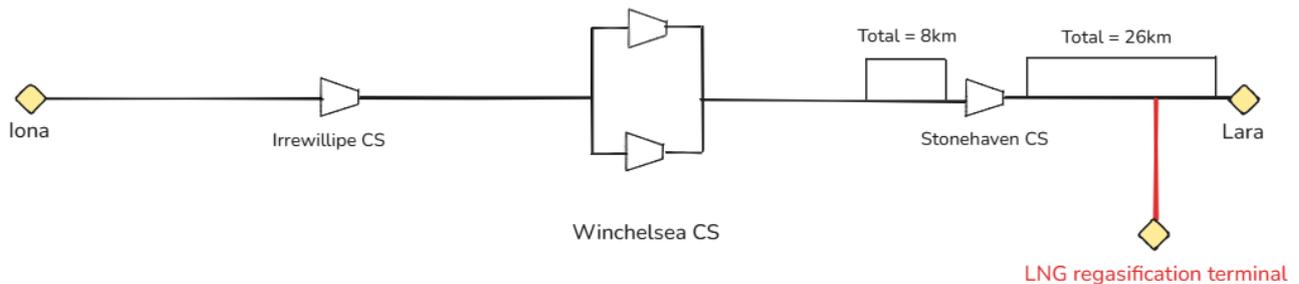


Figure 21 Option 14 – Option 6 (123 km SWP looping) plus LNG regasification terminal

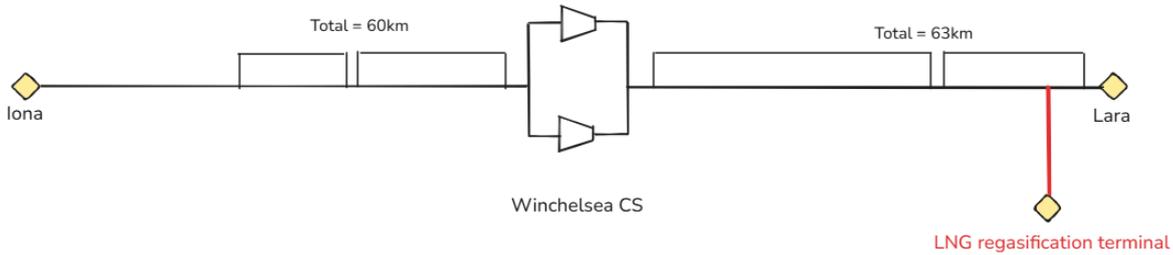


Figure 22 Option 15 – Option 3 (two compressors and 35 km looping at Lara, plus 44 km looping between Lara and Rockbank), which provides flow segregation from the LNG regasification terminal supply at Lara, plus LNG regasification terminal

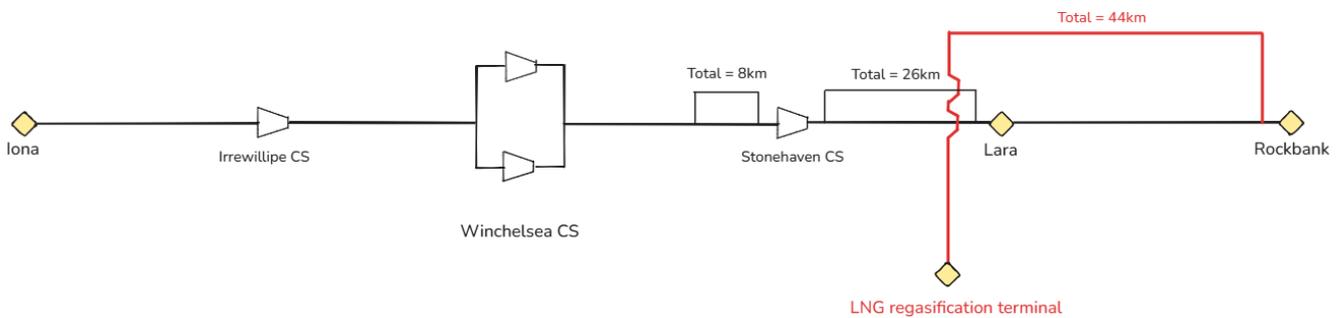


Figure 23 Option 16 – Option 8 (144 SWP looping plus 44 km looping between Lara and Rockbank), which provides flow segregation from the LNG regasification terminal supply at Lara, plus LNG regasification

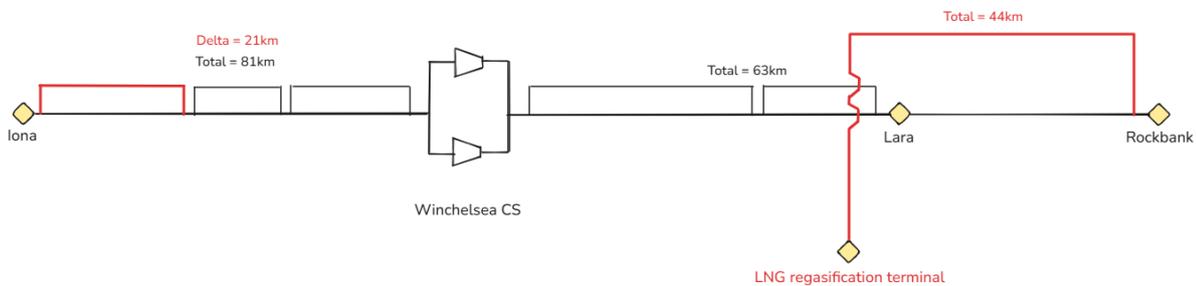


Figure 24 Option 17 – Option 8 plus WAG

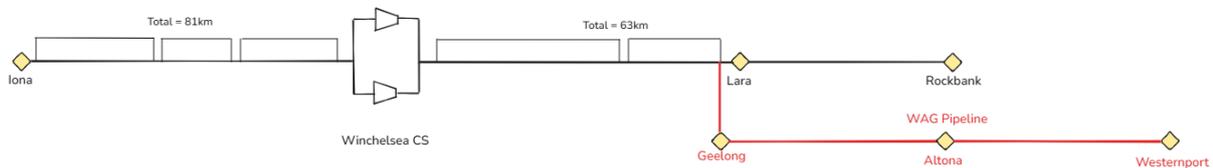


Figure 25 Option 18 – Option 8 plus LNG regasification terminal plus WAG

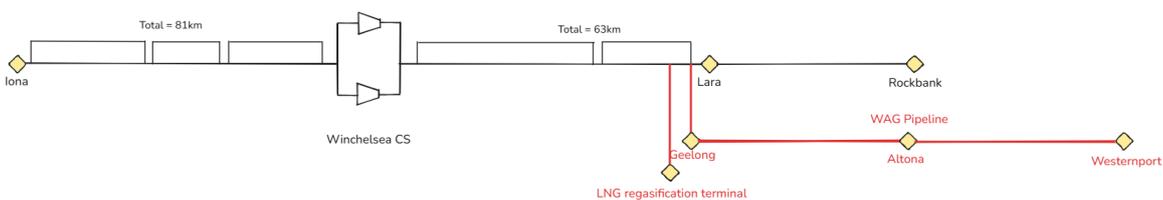


Figure 26 Option 19 – Option 15 plus WAG

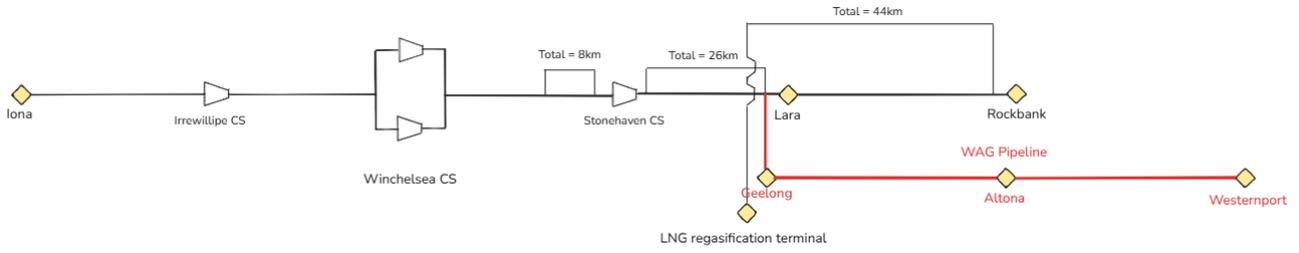


Figure 27 Option 20 – Option 16 plus WAG

