APA submission

Draft Future Gas Strategy for Tasmania

12 January 2023

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Anton Voss
Chief Executive Officer
Renewables, Climate and Future Industries Tasmania

Lodged via email: gas.strategy@recfit.tas.gov.au

12 January 2023

RE: APA Submission to the Draft Future Gas Strategy

Dear Mr Voss,

Thank you for the opportunity to comment on Tasmania's draft Future Gas Strategy. We appreciate the Tasmanian Government's consultative approach to develop the Future Gas Strategy.

APA is an ASX listed owner, operator, and developer of energy infrastructure assets across Australia. As well as an extensive network of natural gas pipelines, we own or have interests in gas storage and generation facilities, electricity transmission networks, and over 359MW of renewable generation infrastructure, with a further 88MW under construction.

We support the development of the Draft Future Gas Strategy and the decarbonisation pathway to net zero. We agree that gas has a critical role to play in supporting the Tasmanian economy, until the point at which renewable energy alternatives become commercially viable and widely available.

As the Draft Future Gas Strategy acknowledges, enabling growth in the hydrogen industry is a key component in achieving the renewable energy transition in Australia. Lessons learnt from recent domestic studies and hydrogen industries in overseas jurisdictions can help inform the development of the Australian hydrogen industry and promote customers' long-term interests.

If you wish to discuss our submission in further detail, please contact our Policy Manager, John Skinner, on 02 9693 0009 or john.skinner2@apa.com.au.

Regards

Ed Stephan
General Manager
Economic Regulation & Policy

1 Executive Summary

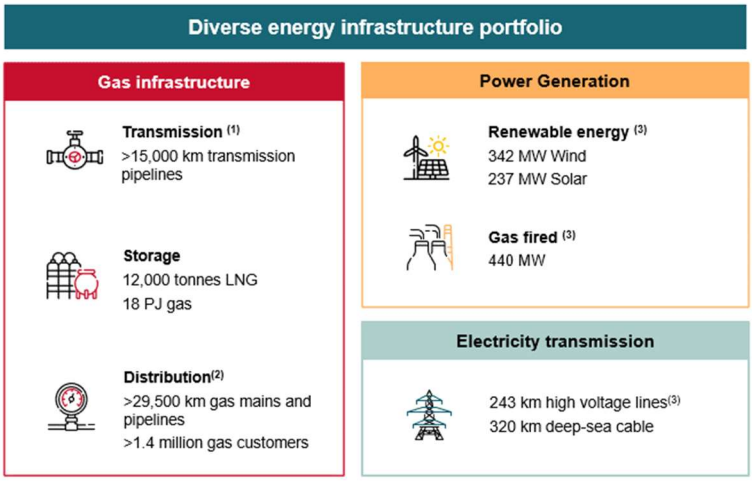
Key points

- APA supports the decarbonisation pathway to net zero as well as the development of the Future Gas Strategy.
- Gas infrastructure has an essential role to play in helping meet net zero targets. As recent experience has shown, gas infrastructure plays a critical role in helping maintain system security and will help unlock low-cost renewable generation capacity.
- We support repurposing existing gas infrastructure for renewable gases.
- APA fully supports the establishment of commercial hydrogen and renewable gas industries in Tasmania, as well as the establishment of the Tasmanian Green Hydrogen Hub at Bell Bay.

APA is a leading Australian Securities Exchange (ASX) listed energy infrastructure business. Consistent with our purpose to strengthen communities through responsible energy, our diverse portfolio of energy infrastructure delivers energy to customers in every state and territory on mainland Australia.

Our 15,000 kilometres of natural gas pipelines connect sources of supply and markets across mainland Australia. We operate and maintain networks connecting 1.4 million Australian homes and businesses to the benefits of natural gas. And we own or have interests in gas storage facilities, gas-fired power stations.

Figure 1



APA actively supports the transition to a lower carbon future. In August 2022, we published our inaugural Climate Transition Plan which outlines our commitments to support Australia's energy transition and pathway to achieve net zero operations emissions by 2050.

We operate 359 MW of renewable generation infrastructure with a further 88 MW under construction, while our high voltage electricity transmission connects Victoria with South Australia and New South Wales with Queensland.

Most recently, we have completed the acquisition of Basslink Pty Ltd, which owns and operates the 370km high voltage direct current electricity interconnector between Victoria and Tasmania. The acquisition adds a third electricity interconnector to APA's energy infrastructure portfolio and is consistent with our strategy to play a leading role in the energy transition.

Gas is an important contributor to the Tasmanian economy. Three quarters of the gas consumed in Tasmania is done so by 16 large industrial users, who contribute significantly to employment and Tasmania's Gross State Product. There is a material risk to the continued

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operation of these businesses if gas becomes unaffordable or unavailable, which will in turn impact employment.

Recent price increases in various jurisdictions around the world demonstrate the importance of an orderly energy transition that balances security, reliability and affordability. As highlighted in the Gas Strategy, the timing of transitioning to renewable fuels is important for an orderly transition:

> *Acting to transition away from gas before suitable alternative fuels become widely available would therefore have an adverse impact on Tasmania's economy and employment, while doing little to reduce greenhouse gas emissions.*

Additionally, industrial users reliant on coal, in their plans to decarbonise, may take their first steps by transitioning to gas, which has a significantly lower emissions profile. Due to these factors, APA supports the Tasmanian government's development of the strategy and agrees with its objectives.

Gas infrastructure has an essential role to play in helping Australia meet its net zero targets. The fundamental transition Australia faces in displacing aging thermal generation, mostly coal power stations, with large volumes of renewable energy is not without its challenges. Recent experience has demonstrated the critical role that gas plays in supporting renewables and providing a critical backup when large renewable generation is not available.

APA supports the establishment of commercial hydrogen and renewable gas industries in Tasmania. The Future Gas Strategy acknowledges the value in this and proposes utilising Tasmania's competitive advantages to export green hydrogen by 2025-2027.

Repurposing gas pipelines, or developing new pipelines, to transport hydrogen as energy has proven to be more cost-efficient in comparison to developing the necessary transmission infrastructure.[1] Hydrogen is likely to play an important role in the decarbonisation of Australia, and Tasmania, with its natural advantages, is well positioned to develop a flourishing domestic hydrogen industry.

Our submission has been developed in line with issues raised in the Draft Future Gas Strategy:

- Transitioning gas out of the energy mix too early may have an adverse impact on employment and result in increased emissions
- Gas provides critical backup and in supporting the transition to renewables
- The opportunity in repurposing of gas infrastructure for renewable gas providers
- Supporting growth of the hydrogen industry, including export market growth.

[1] Australian Pipelines & Gas Association, *Pipelines vs Powerlines: A Technoeconomic Analysis in the Australian Context* (Final Report, 24 August 2021); Amber Grid et al, *European Hydrogen Backbone* (Report, April 2022).

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2 Submission

2.1 APA supports the decarbonisation pathway to net zero

APA supports the development of the Future Gas Strategy. The Future Gas Strategy will support informed investment decisions during the Tasmanian economy's transition to net zero.

Governments across Australia have set net zero targets and gas infrastructure will play a key role in the decarbonisation of the economy. Businesses like APA wish to invest in energy projects that support this transition to net zero and our target is to achieve net zero operations emissions by 2050. Through our Pathfinder Program, we are investigating how hydrogen and other technologies such as batteries and microgrids, can support a lower carbon future.

APA has recently acquired Basslink and considers it to have an important role in helping Tasmania meet its Renewable Energy Target, which aims to increase the state's renewable energy output by 200% by 2040.

In collaboration with the Tasmanian government and other bodies, APA aims to invest in infrastructure projects that support renewable energy generation. This could include Battery of the Nation and potential offshore wind farms. Further, APA supports the recent announcement by the Minister for Energy and Renewables stating that the North-West of Tasmania would be the first region explored as a potential Renewable Energy Zone[2].

2.2 Gas is essential for energy security during the energy market transition

The NEM is going through a period of fundamental change. In navigating this period of transition, gas infrastructure has an essential role to play in helping Australia meet its net zero ambition targets. The transition Australia faces in displacing aging thermal generation with large volumes of renewable energy, is not without its challenges.

Recent experience has demonstrated the role that gas plays in supporting renewables and providing a critical backup when large renewable generation is not available. As the penetration of renewable energy sources increases, and aging coal power stations retire, Gas Powered Generation (GPG) will be critical in meeting electricity demand and maintaining the security of the system.

GPG has the advantage that it can be located close to major demand centres. This reduces exposure to transmission capacity constraints often experienced by the overconcentration of renewable generation in common areas of the grid. This advantage may become critical if there are delays in building the necessary transmission investment which supports renewable energy projects.

It is also essential that we continue to invest in, and maintain, our gas infrastructure. This will ensure that consumers continue to receive both reliable gas and electricity as the energy market transitions.

[2] Minister for Energy and Renewables, *Big step towards Tasmania's first Renewable Energy Zone*, (Media Release, 21 Dec 2022).

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Events in Queensland and Victoria in mid-2021 have demonstrated the flexibility and security offered by gas pipelines:

- On 25 May 2021 a failure of one of the generation units at Callide Power Station in Queensland caused 477,000 customers to lose power.
- In mid-June 2021, Yallourn Power Station in Victoria reduced electricity generation to approximately 20% capacity due to the threat of floodwater from the Morwell River. This was the second time Yallourn experienced a significant flooding event, with the Power Station shutting in 2012 when floodwaters entered the adjoining mine.

Following both these events, GPG stepped up to help provide crucial electricity generation in both Queensland and Victoria. GPG doubled its output while not increasing overall emissions. The ability of gas turbines to quickly ramp up and provide long term dispatchable generation shows they will be a critical part of the energy system for many years to come.

2.3 APA supports the repurposing of existing gas infrastructure

Gas infrastructure has an essential role to play in helping Australia achieve least cost gas decarbonisation. Repurposing natural gas pipelines to transport hydrogen as energy is considered to have significant advantages:

- Converting existing gas networks is more cost-efficient in comparison to constructing new, dedicated hydrogen pipelines.[3]
- Gas pipeline networks are already available and socially accepted (routes, including rights of way and use). [4]
- Technologies for converting the natural gas infrastructure to hydrogen operation are already being developed.

Regardless of which renewable gas proves most effective renewable gas providers can utilise pre-existing gas infrastructure like distribution networks, pipelines, metering equipment, and human expertise. This is acknowledged in the strategy:

> 'While it is uncertain which renewable gas, or mix of gases, will prove most effective in Tasmania, it is likely that renewable gas providers will be able to utilise much of the pre-existing gas infrastructure like distribution networks, pipelines, metering equipment, and even human expertise.*[5]

[3] Ibid, Amber Grid et al, *European Hydrogen Backbone* (Report, April 2022).
[4] European Union Agency for the Cooperation of Energy Regulators, *Transporting Pure Hydrogen by Repurposing Existing Gas Infrastructure: Overview of existing studies and reflections on the conditions for repurposing* (16 July 2021) p.6.
[5] Department of State Growth, *Draft Tasmanian Future Gas Strategy* (October 2022) p.15.

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The Oakley Greenwood report[6] commissioned by the government in the development of their strategy supports this, stating :

> *"The macro-factors appear supportive of re-purposing the existing gas distribution (and potentially gas transmission) networks in Tasmania to facilitate the distribution of renewable gases – over time."*

Frontier Economics has also investigated the potential for gas infrastructure to decarbonise the economy. In its September 2020 report, Frontier concluded that making continued use of existing gas assets wherever possible, including for the transport of hydrogen or biogas, can help avoid the material costs of investing in new assets to deliver energy.[7]

The main reason Frontier came to this conclusion was due to the significant cost of the electrification pathway, particularly for industrial energy load. Frontier also recognised that gaseous fuels are essential as industrial feedstock, and if gaseous fuels are not available, the industries that rely on this feedstock will not be viable.

As part of APA's Parmelia Gas Pipeline (PGP) Conversion Project in WA, 43km of the gas transmission pipeline was assessed as suitable for 100 per cent hydrogen service without any requirement to reduce operating pressure of the pipeline. Preliminary findings of Phase 2 are positive and validate Phase 1 results.

While Australia has only recently begun the journey of decarbonising its gas infrastructure, other countries around the world, particularly in Europe, are further ahead. An increasing number of projects around the world are demonstrating the potential for re-use of gas infrastructure to transport renewable gases.

For example, studies carried out as part of the European Hydrogen Backbone initiative found that repurposing gas pipelines for hydrogen would equate to ~10-15 per cent of the costs involved for constructing new hydrogen pipelines (including decommissioning natural gas operation, water pressure tests, dismantling of connections etc.). The capital cost per km of repurposed hydrogen pipelines is still substantially lower, at ~33 per cent of the cost of building new hydrogen pipelines.[8]

In the Netherlands, the Gasunie hydrogen pipeline has been transporting hydrogen along a modified natural gas pipeline since 2018. In June 2021 Gasunie announced a significant expansion of the Dutch hydrogen transmission network, with 85% of the new network reusing existing natural gas pipelines (see case study below).

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[6]Oakley Greenwood, *Tasmanian Gas Strategy: Background research, analysis and suggest next steps* (Report, October 2021) p.16.

[7] Frontier Economics, *The Benefits of Gas Infrastructure to Decarbonise Australia,* (Report, 17 September 2020) p.9.

[8] Amber Grid et al, *European Hydrogen Backbone* (Report, April 2022) 17-8.

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Case study: Gasunie repurposing transmission pipelines in the Netherlands

In November 2018, Gasunie, the Netherlands' gas transmission operator, started transporting hydrogen along a 12km long stretch of repurposed natural gas pipeline. The pipeline will transport more than 4,000 tons of hydrogen per year for industrial purposes, saving over 10,000 tons of carbon emissions each year.[9]

Figure 8: Gasunie's hydrogen transmission pipeline

On 30 June 2021 the Netherlands Ministry of Economic Affairs and Climate Policy announced that it will commission Gasunie to develop the national infrastructure for the transport of hydrogen.[10] The project, with an estimated investment of €1.5 billion, is scheduled for completion in 2027. Most importantly, the new national hydrogen network will consist of 85% reused natural gas pipelines, resulting in costs four times lower than if entirely new pipelines were laid.

2.4 APA supports fostering growth and investing in the hydrogen industry

APA supports the establishment of a Tasmanian green hydrogen industry and the government's role in this. The strategy considers opportunities for exporting green hydrogen by 2025-2027.

We support the development of the Tasmanian Green Hydrogen Hub at Bell Bay to facilitate large-scale hydrogen production and the role of the Bell Bay Advanced Manufacturing Zone. As part of the energy transition, extensive assessment may be required for infrastructure that will be producing, transporting and receiving green energy. For hydrogen, this includes gas turbines, fuel cells, pipelines and end-users' infrastructure (e.g. industrial equipment, at-home appliances).

Aside from technical barriers, there are also commercial factors which will likely impact the feasibility and timeline in which infrastructure for hydrogen is delivered.

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9 https://www.gasunie.nl/en/news/gasunie-hydrogen-pipeline-from-dow-to-yara-brought-into-operation, accessed 11 August 2021

10 https://www.gasunie.nl/en/news/dutch-german-cooperation-secures-european-future-of-hydrogen, accessed 11 August 2021

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2.4.1 *APA's growing footprint in renewable hydrogen generation*

Through our Pathfinder Program, we are investigating how hydrogen, future fuels and other emerging technologies can support a lower carbon future.

APA is actively engaged in projects which support Australia's growing hydrogen economy. Our first Pathfinder project is seeking to enable the conversion of around 43-kilometres of the PGP in WA into Australia's first 100 per cent hydrogen-ready transmission pipeline – the 'PGP Conversion Project'.[11] Also in May 2022, APA and Wesfarmers Chemicals, Energy and Fertilisers (WesCEF) (part of Wesfarmers Ltd) executed a Memorandum of Understanding (MoU) to undertake a pre-feasibility study to assess the viability to produce and transport renewables-based hydrogen using this section of APA's PGP.[12]

In Phase One of the PGP Conversion Project, the pipeline was assessed as suitable for 100 per cent hydrogen service without any requirement to reduce operating pressure of the pipeline. Phase Two testing, supported by a $300,000 grant under the Renewable Hydrogen Fund (WA), is underway and involves testing the pipeline material in a gaseous hydrogen environment. Preliminary findings are positive and validate Phase 1 results.

In Queensland, APA has also joined a consortium of Australian and Japanese energy players to establish the State's largest green hydrogen project.[13] The consortium is finalising a detailed feasibility study, which commenced in September 2021, into the development of a large-scale green hydrogen project in Central Queensland. The project proposes to export green hydrogen to Japan and supply large industrial customers in the Central Queensland region to support emissions reduction for the domestic industry. When built, the proposed green hydrogen project will be the largest in Queensland. Commencing production in the mid-2020s, the project will scale up to over 3,000 MW of electrolysis capacity by the early 2030s.

In NSW, APA has recently signed a MoU with other consortium partners to carry out an expanded green hydrogen feasibility study in the Hunter Valley region.[14] The study will map key operational and commercial plans for the project which involves exploring the development of a renewables-based hydrogen production facility. The facility forms part of a proposed 'Hunter Energy Hub' development, which would combine grid-scale batteries, solar thermal storage, wind and pumped hydrogen.

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[11] APA, *APA set to unlock Australia's first hydrogen-ready transmission pipeline* (Media Release, 23 February 2021).
[12] APA, *Australia's first potential conversion of a gas transmission pipeline to pure hydrogen a step closer* (Media Release, 6 May 2022).
[13] APA, *APA Group joins international hydrogen consortium* (Media Release, 15 September 2021).
[14] AGL, *AGL and Fortescue Future Industries' green hydrogen feasibility study underway in the Hunter* (Media Release, 9 August 2022).


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