Attachment 6.4

Energy Transition

July 2025

PUBLIC

Australian Gas Networks

Executive Summary

At AGN, our Vision is to deliver infrastructure essential to a sustainable energy future. Through our Net Zero Ambition, we are committed to matching South Australia's goal of net zero emissions by 2050 while continuing to deliver reliable and affordable energy through our networks—now and into the future.

Role of Gas in South Australia

Natural gas currently supplies around 25% of South Australia's energy needs and is critical to the functioning of households, businesses, and industry. About half of the gas supplied supports direct end use in homes and businesses, with the other half playing a key role in firming electricity supply.

Gas use in South Australia has shifted over the past 15 years from baseload generation to providing reliability, firming, and energy security. This continues a long history of evolution—from the transition to natural gas in the 1960s and '70s to today's shift toward renewable and carbon-neutral gases that support emissions goals while maintaining energy access and system resilience.

Through this transition, the South Australian Government maintains a technology-neutral approach to energy policy—prioritising reliability and affordability while actively supporting the development of renewable gases such as hydrogen and biomethane. AGN's networks are well-positioned to adapt to these developments and deliver renewable and carbon neutral gases to customers.

Role of Gas Networks in South Australia

AGN serves around 485,000 customers through 8,500 kilometres of gas distribution pipelines in South Australia. These customers are diverse in geography, scale, and energy needs:

- Residential customers make up most connections accessing gas for cooking, hot water, and heating; with preferences and usage patterns are shaped by a combination of appliance choices, housing types, energy costs, and comfort expectations—factors that vary significantly across regions and socioeconomic groups.
- Commercial customers include a diverse set of more than 40 different user types, businesses such as restaurants, medical services, defence, laundromats, and greenhouses that rely on gas to contribute to societal needs. These users often prioritise reliability, cost-effectiveness, and service quality in energy selection, and many operate within regulatory environments that value continuity of service.
- Industrial customers account for the largest share of gas consumption comprising 27 different user-types who typically depend on gas for high-temperature processes, steam generation, and around-the-clock operations. These include sectors like food and beverage manufacturing, chemicals, and materials processing, where electrification is often not technically viable or is cost-prohibitive due to energy density, process integration, or operational requirements.

Given this diversity, there are multiple plausible transition pathways for each individual customer on our network to achieve net zero including biomethane, hydrogen, electrification, and the continued use of natural gas with offsets. Our scenario planning reflects this, with network futures shaped by local resources and demand. Throughout the transition, our infrastructure will support choice, security, and affordability for all customers.

Our Net Zero Ambition

AGN is committed to achieving net zero emissions from our operations and supporting our customers to do the same. Our Net Zero Ambition is underpinned by three targets with respect to our customer's emissions:

- **Today**: Continue replacing distribution mains and enabling third-party introduction of renewable gases to our networks. This includes leadership in interconnection policy and new project development.
- **2030**: Achieve a 10% share of renewable and carbon-neutral gas (by volume) in our South Australian networks. We are progressing toward this goal through several targeted actions including achieving Australia's first 10% volume blend and enabling third-party biomethane injection through the Delorean project.
- **2050**: Transition to 100% renewable and carbon-neutral gas. We envision this being delivered through a mix of commercial-scale third-party renewable and carbon neutral gas supply, backed by a mature certification and regulatory framework.

Looking Ahead

Our South Australian gas network is continuing its ongoing evolution to deliver for customers. It could be framed as similar to that seen in electricity where coal and gas once dominated, electricity grids now manage variable inputs from solar, wind, and storage. Likewise, our gas networks are evolving from single-fuel systems to platforms that can deliver multiple renewable gases.

We are preparing for a range of customer and market-driven scenarios to ensure the long-term viability of our networks and services. Through collaboration, innovation, and investment, we are building a net zero gas future that keeps choice, reliability, and affordability at the centre of South Australia's energy transition.

1. The Role of Gas in South Australia

1.1. Role of gas today

1 Natural gas supplies approximately 25% of South Australia's energy needs, supporting residential, commercial and industrial users. Around half of South Australia's natural gas is used directly by homes and businesses, with the remainder playing a critical role in maintaining electricity system reliability.

2 Australian and South Australian Government strategies affirm that gas will be needed through to 2050 and beyond under all credible net zero scenarios. Gas infrastructure will remain essential as gas use evolves—providing reliability, firming and energy security throughout the transition.

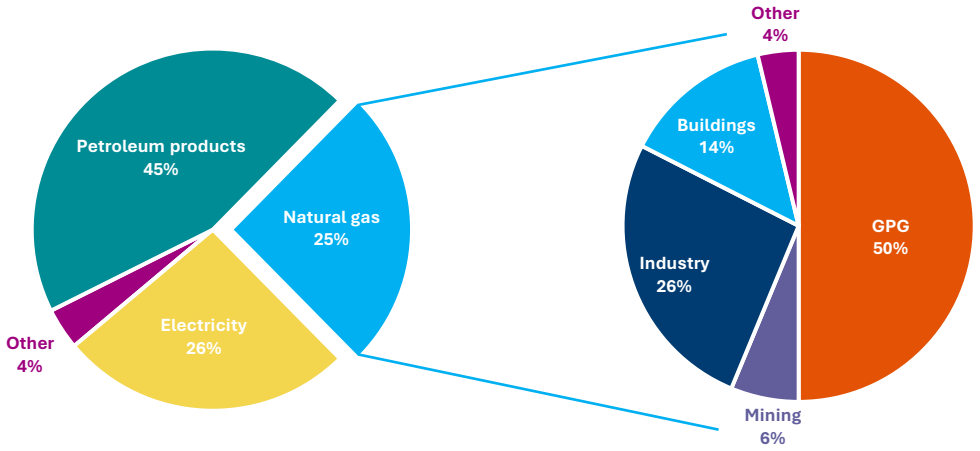
3 South Australia maintains a technology-neutral energy policy, prioritising reliability and affordability over household fuel-switching mandates while actively supporting renewable gas and the green industrial transition as part of its broader set of energy and climate policies.

Natural gas supplies a quarter (25%) of the State's energy needs alongside petroleum products (45%), electricity including solar hot water and thermal electricity (26%), and 'others' including biofuels and wood (4%) (refer Figure 1).

Around half of South Australia's natural gas is used directly by homes, businesses and industry, with the remaining 50% used to generate electricity by gas-powered generation (GPG) (refer Figure 2).

Figure 1: Percentage of primary energy consumption in South Australia by fuel type (2022-23)[1]

Figure 2: Percentage of natural gas consumption in South Australia (2021–22)[2]



AGN supplies the majority direct gas used in South Australia to around 485,000 connections through our networks. Patterns of use are relatively predictable year-round, with commercial and industrial customers anchoring demand with some seasonal fluctuations driven by weather. Section 2 provides detailed discussion of AGN's network and customer diversity trends.

GPG, which is primarily connected to transmission pipelines as opposed to our distribution network, accounts for the remaining half of natural gas demand in South Australia, providing long duration firm capacity for the

[1] Department of Climate Change, Energy, the Environment and Water (DCCEEW). 2024. *Australian Energy Statistics: Table D*.
[2] Department of Industry, Science and Resources (DISR). 2024. *Future Gas Strategy:* Adapted from Figure 1.

electricity grid as South Australia targets net 100% renewable electricity generation by 2027. In 2023-24, renewable sources supplied 74.2% of South Australia's electricity, while GPG contributed 23.6%[3].

1.2. Role of gas in the future

Discussion around the future role of gas has seemingly taken on a higher profile in recent years, but in practice, South Australia's oil and gas industry has adapted and evolved in line with customers' needs for generations[4]. This includes the transition from manufactured 'town gas' to cleaner, more reliable natural gas from the 1960's.

The storability, reliability, and flexibility of gas means that it is viewed as increasingly critical in the transition to a system led by variable renewable electricity. The Australian Government's recent Future Gas Strategy establishes that *"under all credible net zero scenarios, natural gas is needed through to 2050 and beyond, though its production and use will change over this period"*.

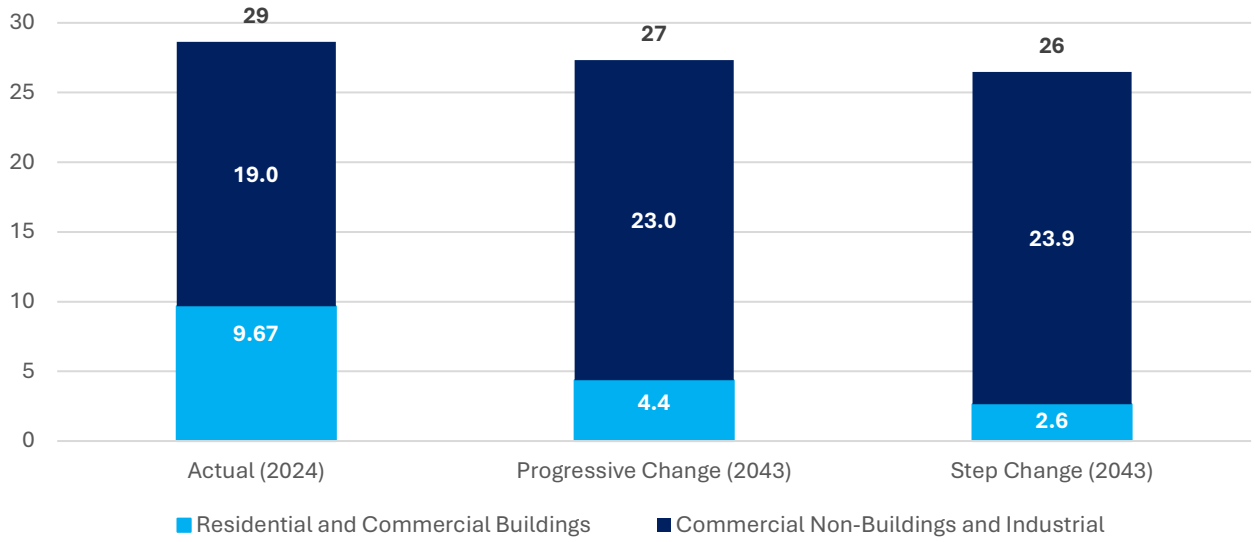
The Future Gas Strategy is underpinned by six guiding principles, which include maintaining affordability, ensuring fit-for-purpose energy systems, and supporting a shift in supply toward higher-value and non-substitutable uses. Importantly, it reaffirms as part of Principle 4 that *"households will continue to have a choice over how they meet their energy needs"*.

Together with AEMO's 2025 Gas Statement of Opportunities (GSOO), which affirms an enduring role for natural gas across net zero scenarios, these national outlooks confirm that gas will remain a key—though increasingly adaptive—part of Australia's future energy system. The following sections examine this outlook in more detail, focusing on supply, demand, and the expanding role of renewable gas.

1.2.1. Natural Gas Demand

AEMO's annual GSOO provides long-term demand outlooks for the East-coast gas market and the Northern Territory under scenarios, reflecting different assumptions about renewable gas and electrification as influenced by technology adoption, economic growth and policy settings (refer Figure 3).

Figure 3: South Australia's Forecast Annual Natural Gas Consumption, 2044[5]



[3] AEMO. 2024. *South Australian Electricity Report (SAER).*
[4] South Australian Government Department for Energy and Mining. 2023. *Energy Green Paper*. Page 53.
[5] AEMO Gas Forecasting Data Portal, accessed June 2025. Data includes South Australian residential, commercial, industrial, and GPG gas demand forecasts under various 2025 GSOO scenarios.

Key observations include[6]:

- Residential and Commercial Building demand reduces from 9.6 PJ to 2.5–4.4 PJ (~50%-75%) as appliance electrification, efficiency gains and warmer winters reduce heating loads.
- Commercial Non-Building and Industrial customers remain the backbone of network utilisation, with consumption increasing by 20–25%.

Overall gas demand declines by ~7%–10% from 29 PJ in 2024 to 26–27 PJ by 2043, suggesting an ongoing role for distribution networks albeit with a changing customer mix. Section 2.3 illustrates how AEMO's GSOO scenarios could impact the AGN South Australian network.

1.2.2. Natural Gas Supply

Proved-and-probable natural gas reserves are sufficient to meet around 70 years of Australian consumption at existing levels of demand[7]. Concerns over gas shortages have emerged in recent years, not because Australia lacks gas but because investment has been impacted by a range of factors including successive policy and price interventions.

AEMO's 2025 GSOO highlights potential gas supply shortfalls in eastern and southern Australia from 2028 due to declining production and increased GPG demand. It is important to place these projections in context noting AEMO has signalled potential gas shortages each year since the 2017 GSOO, and electricity shortages have commonly been forecast for more than two decades in the equivalent Electricity Statement of Opportunities.

Encouragingly, the 2025 GSOO shows a materially stronger near-term outlook than previous years. This is reflective of an industry response to streamlined approvals for critical energy projects with key infrastructure capacity additions such as APA's East-Coast Grid Expansion, the Moomba–Sydney compression upgrade and Lochard Energy's extra 0.4 PJ of Iona storage. In South Australia, options for bi-directional pipeline upgrades and LNG-import capacity are actively being considered to ensure security of supply.

Where renewable gas is unavailable or limited, natural gas could play a role provided its emissions are offset to support net zero. The continued use of small volumes of natural gas helps maintain optionality and reduces transition costs by enabling a more gradual, flexible shift.

[6] Note AEMO defines user groups as 'Residential and Commercial Buildings', 'Commercial Non-Buildings and Industrial', and 'GPG'. AGN uses a different approach, classifying customers as residential, commercial (<10 TJ/year), and industrial (>10 TJ/year).
[7] Geoscience Australia (2024). Australia's Energy Commodity Resources: Gas. Retrieved from https://www.ga.gov.au/aecr2024/gas estimates 2P gas reserves at 108,920 PJ compared with an existing annual natural gas usage of 1,500 PJ.

1.2.3. Renewable Gas Supply

Australia's potential renewable gas supply—including biomethane and hydrogen—is now well recognised across multiple government and industry reports. Table 1 summarises recent Government-led or commissioned reports that estimate the scale of opportunities nationally.

Table 1: Noteworthy Government Renewable Gas Supply Estimates

Source	Purpose	Estimated Supply
Gas, liquid fuel, coal and renewable gas projections (ACIL Allen for AEMO, 2025)	Hydrogen and biomethane forecast	Between 40 - 220 PJ of hydrogen and 250 - 270 PJ of biomethane could be available by 2030, increasing to 200 - 3,200 PJ and 480 - 500 PJ by 2050.
Australian Government National Hydrogen Strategy (DCCEEW, 2024)	Hydrogen target	At least 15 million tonnes of hydrogen per year by 2050 (2,130 PJ), with 0.5 million tonnes by 2030 (71 PJ).
2024 Integrated System Plan (AEMO, 2024)	Hydrogen forecast	Hydrogen could make up 27% of Australia's energy use by 2050 under a 'Hydrogen Superpower' scenario.
2023 Gas Statement of Opportunities (AEMO, 2023)	Biomethane forecast	~75 PJ of biomethane could be produced nationally by 2030, including 20-25 PJ in South Australia (Figure 31).
Australia's Bioenergy Roadmap (Australian Renewable Energy Agency, 2021)	Biomethane forecast	39 PJ could be available to 'pipeline gas' by 2030 under a 'business as usual' scenario, 50 and 105 PJ available under stronger scenarios. Australia's bioenergy resource potential to be over 2,600 PJ per year.

AGN has further conducted dedicated studies to understand the potential for renewable gas in its key markets, including South Australia:

- **Biomethane Potential in AGIG's Network Catchment and Associated Co-benefits (July 2024)** provides a granular assessment of how South Australia's biomethane potential could translate to supply into AGN's networks. Blunomy identified 16.2 PJ of recoverable biomethane in South Australia, equivalent to 62% of AGN's South Australian gas use in 2024. These estimates could grow to 33.7PJ in South Australia (equivalent to 129% of demand) under the right settings.
- **Australian Hydrogen Centre (August 2023)** explored the technical and economic feasibility of 10% and 100% hydrogen supply to SA and Victorian gas networks. The AHC's work demonstrated that it is technically and economically feasible to continue to use existing infrastructure to achieve a 100% renewable hydrogen distribution system, including projected hydrogen production capacity of up to 90 MW to supply 10% hydrogen by volume in the State, and 2,400 MW to supply 100%. The AHC's work program provides clear guidance to third-party hydrogen suppliers on the potential for offtake through AGN's networks in South Australia, and how it might be achieved.

Together, the reports suggest that renewable hydrogen and biomethane could supply a material and growing share of Australia's future energy needs while utilising existing gas infrastructure.

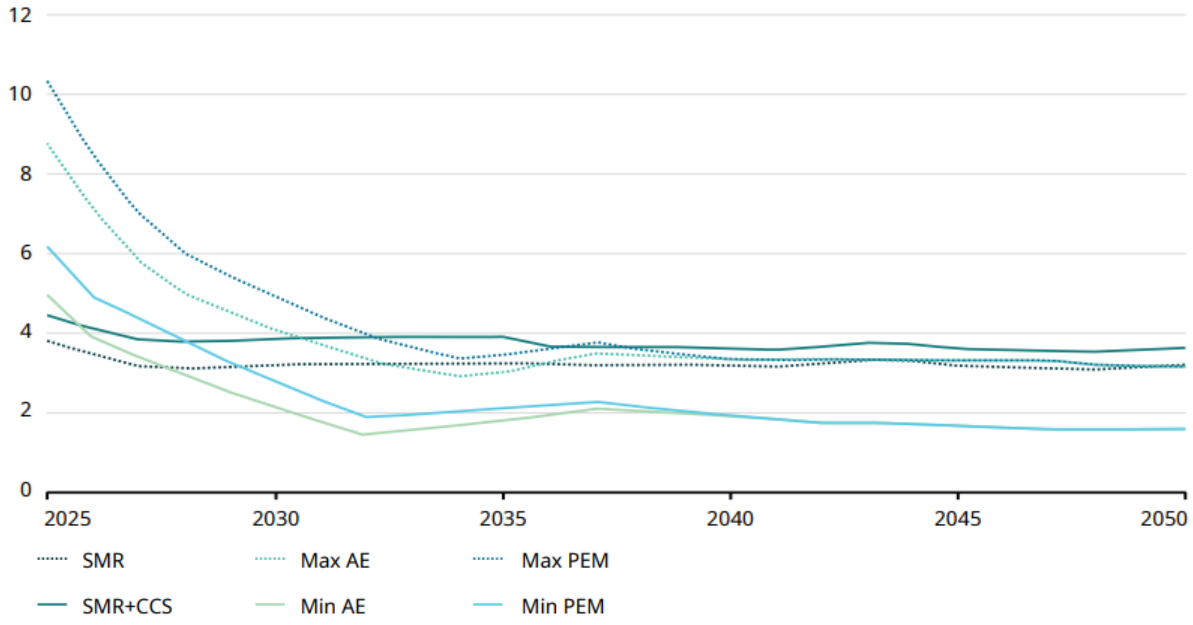
1.2.4. Renewable Gas Costs

As an emerging industry both globally and in Australia, hydrogen and biomethane contributes to higher production costs compared to well established natural gas extraction. However, advances in technology and other enablers indicate it is possible to rapidly bring down production costs as projects are supported to realise scale deployment.

Hydrogen Costs

Analysis presented in the 2024 National Hydrogen Strategy indicates Australian hydrogen production costs will fall substantially over the coming decades. Current renewable hydrogen costs are approximately $5–10/kg ($36–72/GJ), with projections of ~$1.5–4/kg ($12.50–33/GJ) by the mid-2030's driven by expected reductions of 40–60% in renewable electricity costs and 88–94% in electrolyser costs (refer Figure 4) [8].

Figure 4: Levelised Cost of Hydrogen production by method over time ($/kg)



The National Hydrogen Strategy notes other analyses suggest globally competitive production costs are likely to be in the range of US$1-2/kg in 2050[9].

This projection, combined with the legislated $2/kg Hydrogen Production Tax Incentive for certified low-emissions hydrogen from 2027, strengthens the case for hydrogen to become cost-competitive with natural gas over the medium to long term.

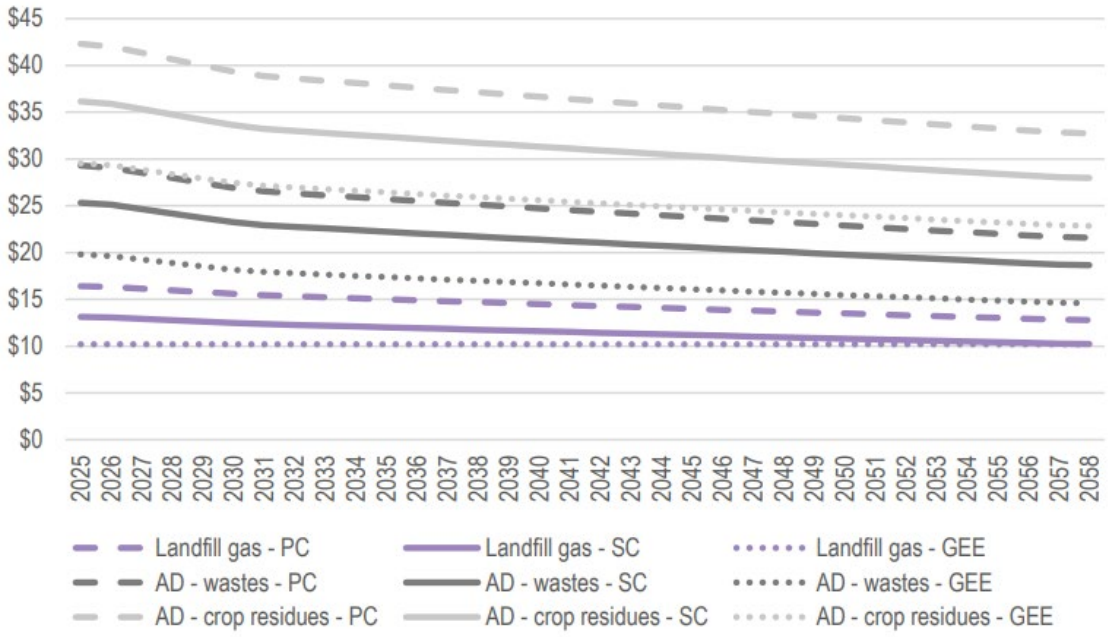
[8] DCCEEW. 2024. *National Hydrogen Strategy*, Figure 5, page 15.
[9] For example, McKinsey and Hydrogen Council 2023, Global Hydrogen Flows – 2023 Update.

Biomethane Costs

Biomethane costs vary widely by project, influenced by factors such as plant size, feedstock quality and location, local landfill levies, digestate market value, and commercial terms for sourcing residues.

As part of its recent 'Gas, Liquid Fuel, Coal and Renewable Gas Projections: Final Report for AEMO', ACIL Allen estimated high-level cost curves for key biomethane sources—landfill gas, waste, and crop residues—under each AEMO scenario. Current biomethane costs range from approximately $13–35/GJ depending on the source, with projections falling to $10–27/GJ by 2058 (refer Figure 5)[10].

Figure 5: Biomethane cost by feedstock, scenario and year ($/GJ)



Note: PC = Progressive Change scenario; SC = Step Change scenario; GEE = Green Energy Exports scenario.

This suggests some biomethane projects may already be competitive with natural gas today—as evidenced by Delorean's SA1 project commencing construction—with further uplift possible under favourable policy settings.

[10] ACIL Allen. *Gas, Liquid Fuel, Coal and Renewable Gas Projections: Final Report for AEMO.* Figure B.1, p. B-8.

1.3. South Australia's Energy and Climate Policy Context

1.3.1. Climate Goals and Electricity Target

South Australia has legislated a 60% reduction in greenhouse gas emissions by 2030 (from 2005 levels) and committed to net zero emissions by 2050[11]. It is also on track to reach 100% net renewable electricity by 2027, with renewable electricity already supplying around 70% of annual demand[12].

1.3.2. Natural Gas Policy

The South Australian Government recognises natural gas as essential to the energy transition, particularly to firm renewables, support reliability, and maintain affordability[13]. This position is reflected in recent initiatives such as the *Green Steel Strategy* (2024) and *Firm Energy Reliability Mechanism* (2025), where the government has moved to secure natural gas supplies to support electricity grid stability and industry needs.

Looking ahead, the State supports the progressive decarbonisation of natural gas and its infrastructure through hydrogen, biomethane, and Carbon Capture and Storage (CCS). The Energy Green Paper and a range of Departmental resources highlights CCS as a key enabler for low-carbon gas use in both power and industrial sectors, and explicitly supports its deployment in projects like Moomba CCS[14].

1.3.3. Hydrogen Policy

South Australia has pursued hydrogen development since its 2017 Hydrogen Roadmap, followed by the 2019 Hydrogen Action Plan and, most recently, the Hydrogen Jobs Plan. The latter committed $593 million to deliver a 250 MW electrolyser, 200 MW hydrogen-fuelled power station and associated storage near Whyalla.

While the project received Commonwealth environmental approval in late 2024, it was deferred in early 2025 as the government redirected investment to secure the future of the Whyalla steelworks. The Government has reaffirmed its support for hydrogen over the longer term despite this deferral. Minister Tom Koutsantonis stated, "*Hydrogen will play an important part in our transition, but our immediate priority is keeping Whyalla strong*"[15].

The State continues to back hydrogen as a long-term decarbonisation solution across electricity, transport, industry, and the gas sector. It's legislated *Hydrogen and Renewable Energy Act 2023* aims to streamline project approvals for a range of projects under development including the Port Bonython Hydrogen Hub near Whyalla, which is expected to host hydrogen export projects worth up to $13 billion[16].

1.3.4. Household Energy Policy

The South Australian Government maintains a technology-neutral approach to household energy use, prioritising reliability, affordability and consumer choice over mandates or financial inducements.

While programs such as EV charging infrastructure and community batteries are supported, these are system-level initiatives designed to enhance electricity grid resilience and flexibility, rather than mechanisms to drive household electrification.

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[11] Government of South Australia Department for Environment and Water (DEW). 2022. *South Australia's Net Zero Strategy 2024–2030*, Page 8.
[12] DEM. 2023. *Energy Green Paper*. Page 2.
[13] Ibid. Page 53.
[14] DEM. 2025. Carbon Capture and Storage, accessed 27 June 2025.
[15] InDaily. 2025. 'Whyalla steel rescue shifts focus away from green hydrogen plant', *InDaily*, 20 February.
[16] DCCEEW. 2023. *Port Bonython Hydrogen Hub to boost Australia's hydrogen industry*, accessed 27 June 2025.

This distinction reflects a broader policy orientation focused on collective benefit such as community storage or renewable gas blending, over direct support for individual households.

The government has also been critical of previous household subsidy schemes, such as the former governments Home Battery Scheme, arguing that public funding should prioritise investments with broader community or grid-wide impact[17].

This position extends to the government's stance on gas bans. South Australian leaders have rejected policies mandating fuel-switching in homes, such as those introduced in Victoria.

Premier Peter Malinauskas stated: *"Decarbonisation of the gas network is another way of achieving the right outcome… without necessarily disconnecting gas networks or stopping connections"*[18].

Minister Koutsantonis added: *"South Australia will not be banning the schnitzel or new gas connections… Natural gas is essential for our decarbonisation plans"*[19].

[17] Indaily. 2023. *"I'm glad we're killing it': Labor scraps renewable energy subsidy schemes"*, 1 June 2022, accessed 27 June 2025.
[18] Indaily. 2023. *"Premier eyes hydrogen fix for home gas connections"*, accessed 27 June 2025.
[19] Tom Koutsantonis MP, *Official X (formerly Twitter) Profile*, accessed 27 June 2025.

2. The Role of AGN SA's Network

1 Our South Australian gas network is extensive and strategically significant, comprising over 8,500 km of distribution pipelines and 480 km of transmission assets delivering gas to ~480,000 customers. Connection growth has remained stable, led by continued interest from residential customers.

2 Network access is dominated by residential connections (97%), but more than 73% of delivered gas serves commercial and industrial customers, reflecting diverse needs and use profiles.

3 Customers rely on gas for a range of reasons—such as process heat, energy reliability, cost-effectiveness or appliance preference—and are best placed to decide how and when to transition, based on their individual circumstances.

4 The network spans metropolitan, regional, and industrial areas, enabling tailored carbon reduction approaches and enhancing resilience across energy, water, and waste sectors.

5 The network is well positioned to deliver renewable and carbon-neutral gas, and to support a more integrated and flexible energy system through sector coupling and storage.

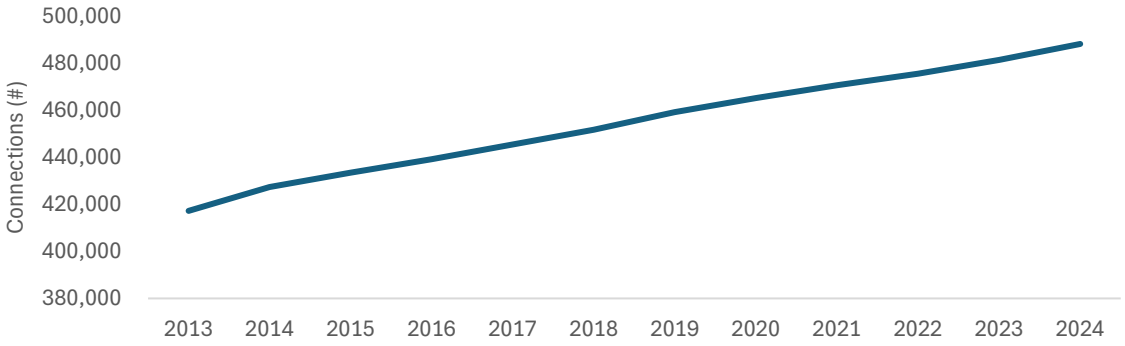
2.1. AGN SA's Network

The history of South Australia's gas distribution network dates back over 150 years to the South Australian Gas Company. The establishment of the network helped support economic growth and attract industry.

Customers, investors and the economy more broadly require stability, reliability and efficiency in energy, something gas network infrastructure provides. In 2023, AGN delivered 28.7PJ of gas to around 485,000 South Australian connections, equivalent to approximately two-thirds of South Australia's total electricity consumption over the same period[20].

The network is underground, reducing exposure to severe weather impacts and supporting secure energy supply. It enables the storage, transport, and use of both natural and renewable gases, connecting buyers and sellers across a broader market. Connection numbers have steadily increased, growing 17% since 2013—equivalent to an average annual growth of 1–1.5% (refer Figure 6).

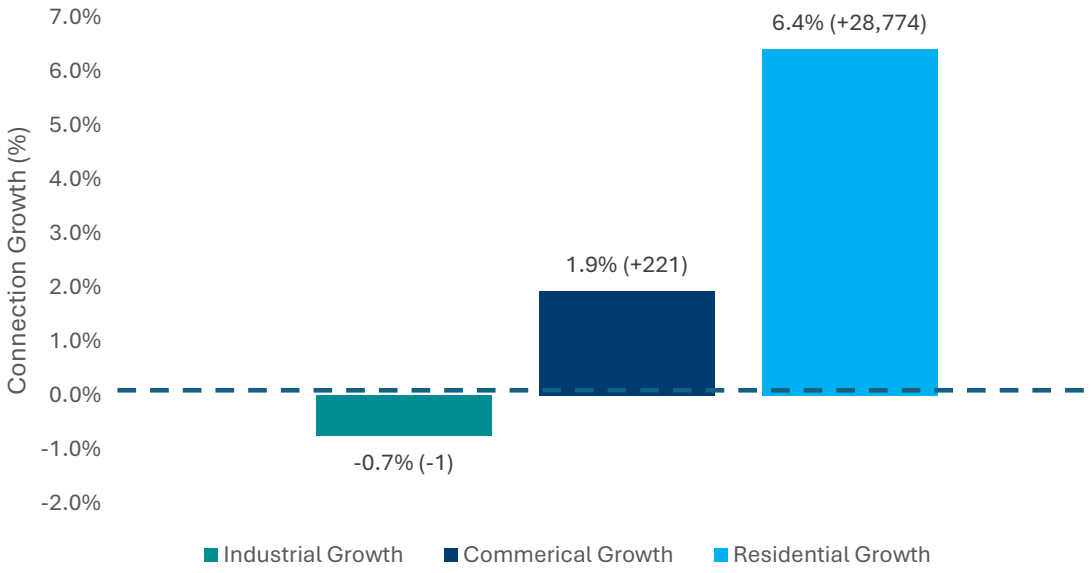
Figure 6: AGN SA Connection Growth 2013-2024[21]



[20] Calculated on the basis 1 PJ is equivalent to 278 GWh, and South Australia's electricity consumption of 12,000 GWh per year according to AEMO's 2023 South Australian Electricity Report.
[21] AGIG Annual Reports 2013 - 2025

Growth in demand for residential connections has coincided with stable commercial and industrial connections. From 2019-2024, residential connections grew at over 3x the relative rate of commercial connections, while industrial connections decreased by one connection overall (refer Figure 7).

Figure 7: AGN SA Connection Growth by Type (2019-2024)[22]



Usage varies significantly between customer groups. There is further significant diversity in usage within the same connection type (i.e. when comparing one commercial user to another).

Residential customers make up over 97% of connections but accounted for around 27% of total gas use in 2024 (refer Figure 8). By comparison, commercial and industrial users—less than 3% of connections—used approximately 73% of total demand (refer Figure 9). This reflects the higher average gas consumption per site in the commercial and industrial sectors.

Figure 8: AGN SA Connections By Customer Type (2024)

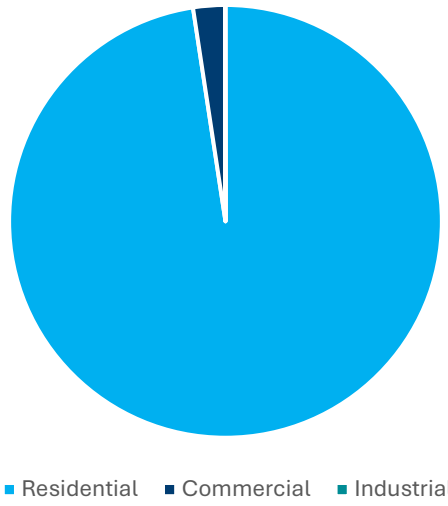
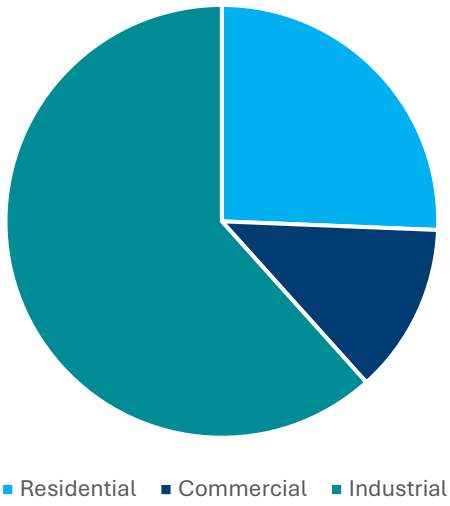


Figure 9: AGN SA Total Gas Use By Customer Type (#) (2024)



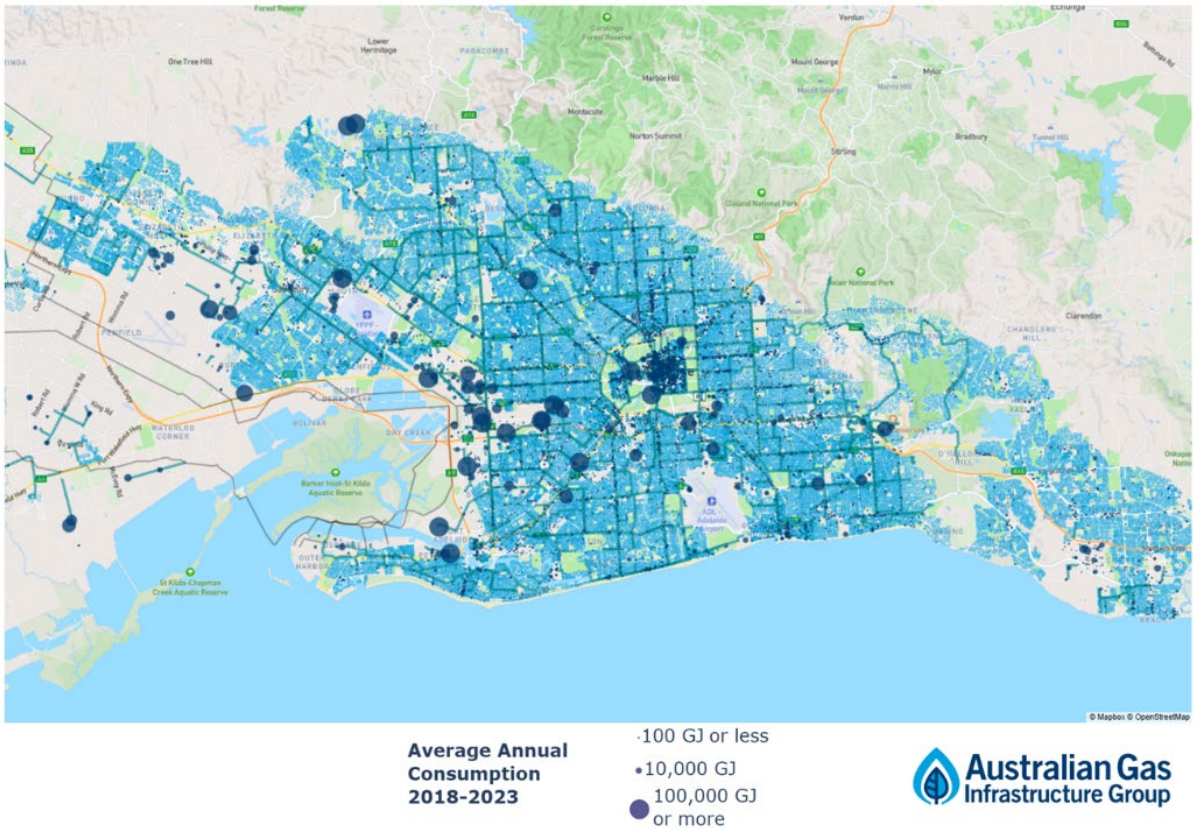
[22] AGIG. 2025. *Environmental, Social and Governance Report 2024*.

2.1.1. AGN SA Network Mapping

The following sections provide an overview of different users on our South Australian network, chart their geographic footprint and identify noteworthy patterns of trends associated with location and use.

Greater Adelaide and the Central Business District (CBD)

Figure 10: Greater Adelaide



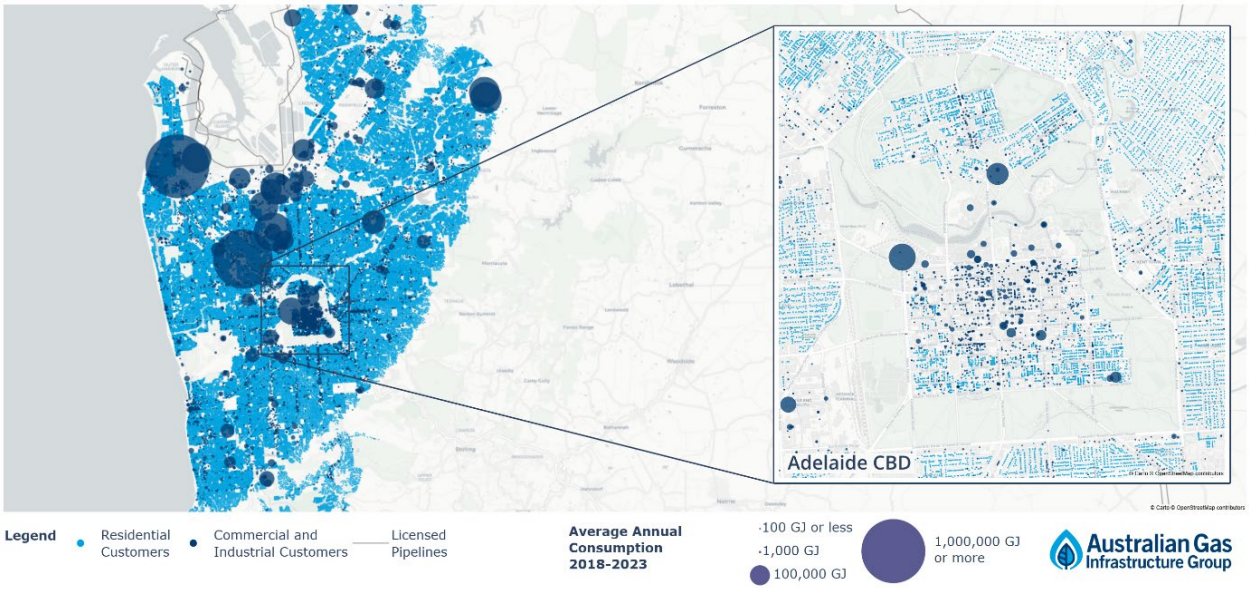
There are ~464,000 Greater Adelaide connections which make up 62% of total annual gas consumption. 98% are residential connections representing 38% of consumption, and 2% are C&I connections reflecting 62% of consumption.

The SA CBD primarily features C&I customers. While there are some areas outside the CBD with increased C&I gas consumption (CBD ring suburbs and the Port Adelaide industrial area) there are also consistently dispersed C&I customers throughout metropolitan SA, mixed amongst large numbers of residential customers.

Complex residential buildings are concentrated around the CBD and inner suburbs but are also widely dispersed throughout Greater Adelaide. In these densely populated areas, gas infrastructure is intricately integrated with other underground utilities (electricity, internet, sewerage, water) and often located underneath transport corridors (tram and train lines, roads, pedestrian footpaths).

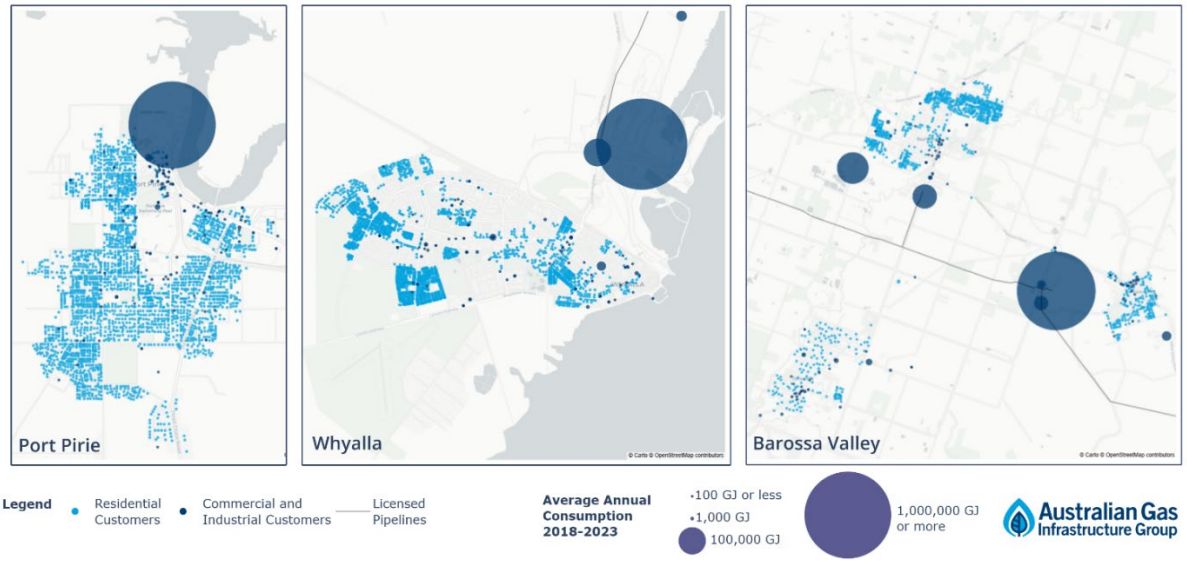
The varied volumes and widespread distribution of customers within AGN's Adelaide CBD network makes it difficult to identify any clear patterns or clusters of any customer types.

Figure 11: Adelaide CBD



Regional South Australia

Figure 12: Regional South Australia (Port Pirie, Whyalla, Barossa Valley)



There are ~20,000 Regional South Australian connections which make up 38% of total annual gas consumption. 97% are residential connections representing 3% of consumption, and 3% are C&I connections reflecting 97% of consumption.

C&I customers in these areas are major employers (metal product manufacturing, wineries, abattoirs, and paper mills) in regional locations and play a crucial role in the socio-economic structure of these communities. Some of these industries could also be regarded as belonging to essential sovereign capacity at a state and national level.

In these regional areas, C&I customers are significant employers of local residents. Over 80% of residential gas consumption is associated with households who are financially stretched or stretched, reflecting their continued choice to stay connected to the gas network as a valued and practical energy option.

2.2. AGN SA's Customers

2.2.1. Residential Customers

Residential connections cover a wide range of building types, and diversity in customer is further amplified when considering the type of gas appliances and the residents financial wellbeing.

Table 2: Residential Customer Types by Location and Financial Wellbeing

Location	Appliance Type	Financial Wellbeing[23]	Count	Average Annual Gas Usage (GJ/Customer) 2018-2023	Percentage of Residential Gas Consumption
Greater Adelaide	Hot Water System (HWS) + Cooking	Comfortable	184,517	13.3	32%
Greater Adelaide	Heating + HWS + Cooking	Comfortable	64,160	27.6	23%
Greater Adelaide	HWS + Cooking	Stretched	81,901	12.4	13%
Greater Adelaide	HWS + Cooking	Stressed	70,266	12.1	11%
Greater Adelaide	Heating + HWS + Cooking	Stretched	26,610	24.6	8%
Greater Adelaide	Heating + HWS + Cooking	Stressed	25,911	22.8	8%
Regional	HWS + Cooking	Stressed	9,092	13.4	2%
Regional	Heating + HWS + Cooking	Stressed	3,455	25.2	1%
Regional	Heating + HWS + Cooking	Stretched	1,314	31.2	1%
Regional	Heating + HWS + Cooking	Comfortable	1,177	33.1	1%
Regional	HWS + Cooking	Stretched	2,202	14.1	0%
Regional	HWS + Cooking	Comfortable	2,028	13.3	0%

Around 74% of South Australian households use gas for hot water and/or cooking only, with the remaining 26% also using gas for heating. Uptake of gas heating is used at similar rates across economic cohorts and is no more common in regional areas than in Greater Adelaide, despite colder conditions.

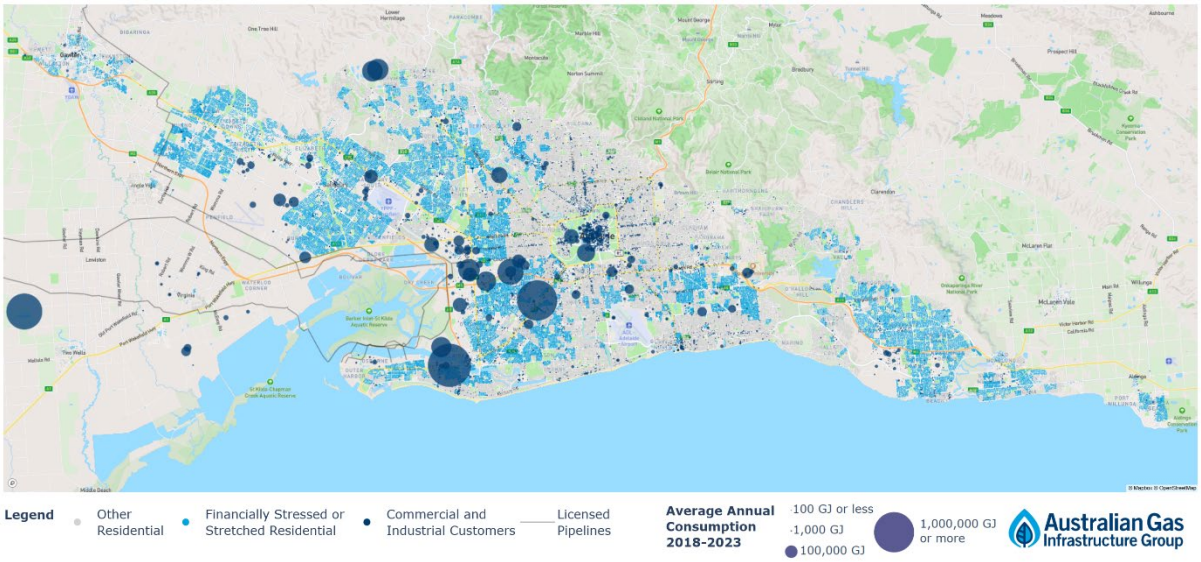
53% of residential gas users are financially comfortable, with 24% being financially stretched and 23% being financially stressed. Gas use is broadly proportionate with economic wellbeing, with financially comfortable customers accounting for ~56% of total residential gas use, while stressed and stretched households make ~44% of use. The slightly higher relative use for financially comfortable customers is likely due to larger dwellings and lower sensitivity to energy costs.

Over 80% of regional gas customers are financially stressed or stretched, compared to around ~45% in Greater Adelaide. This underscores the higher concentration of financially vulnerable households in South Australia's regional areas, and also reflects these regions are often co-located in areas with heavy commercial and industrial gas use. These communities are also more prominent in the northern and southern outer suburbs of Adelaide.

[23] "Financial Wellbeing" reflects the Australian Bureau of Statistics' Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) quintiles for all South Australian Local Government Areas: Financially Stressed – IRSAD quintiles 1 and 2; Financially Stretched – quintiles 3 and 4; and Financially Comfortable – quintile 5.

The relatively even distribution of gas use across income groups and regions underscores the essential role gas infrastructure continues to play. Future changes to the network need to consider both affordability and access to ensure vulnerable and regional customers are not disproportionately impacted.

Figure 13: Greater ADL – Showing Financially Stressed or Stretched Residential Customers.



2.2.2. Commercial and Industrial Customers

Commercial and industrial gas use is spread across various locations without any discernible geographic pattern, indicating that its utilisation is not concentrated in specific regions or communities.

There are some major industrial users in South Australia who offer valuable services to the region and the rest of the Australian economy. These users are equally prominent in Greater Adelaide and regional South Australia (refer Table 3).

Table 3: Commercial and Industrial Customer Types by Location

Location	Customer Type	Annual Gas Usage (TJ/year) Avg 2018-2023	Count	Location Connections Percentage	Location Consumption Percentage
Greater Adelaide	Residential	7,349	453,500	98%	38%
Regional	Residential	349	193,000	97%	3%
Greater Adelaide	Commercial	3,319	106,000	2%	17%
Regional	Commercial	179	640	3%	2%
Greater Adelaide	Industrial	8,634	100	>1%	45%
Regional	Industrial	11,137	36	>1%	95%

Figure 14: SA Commercial Archetypes Annual Gas Consumption (2018-2023 Average)

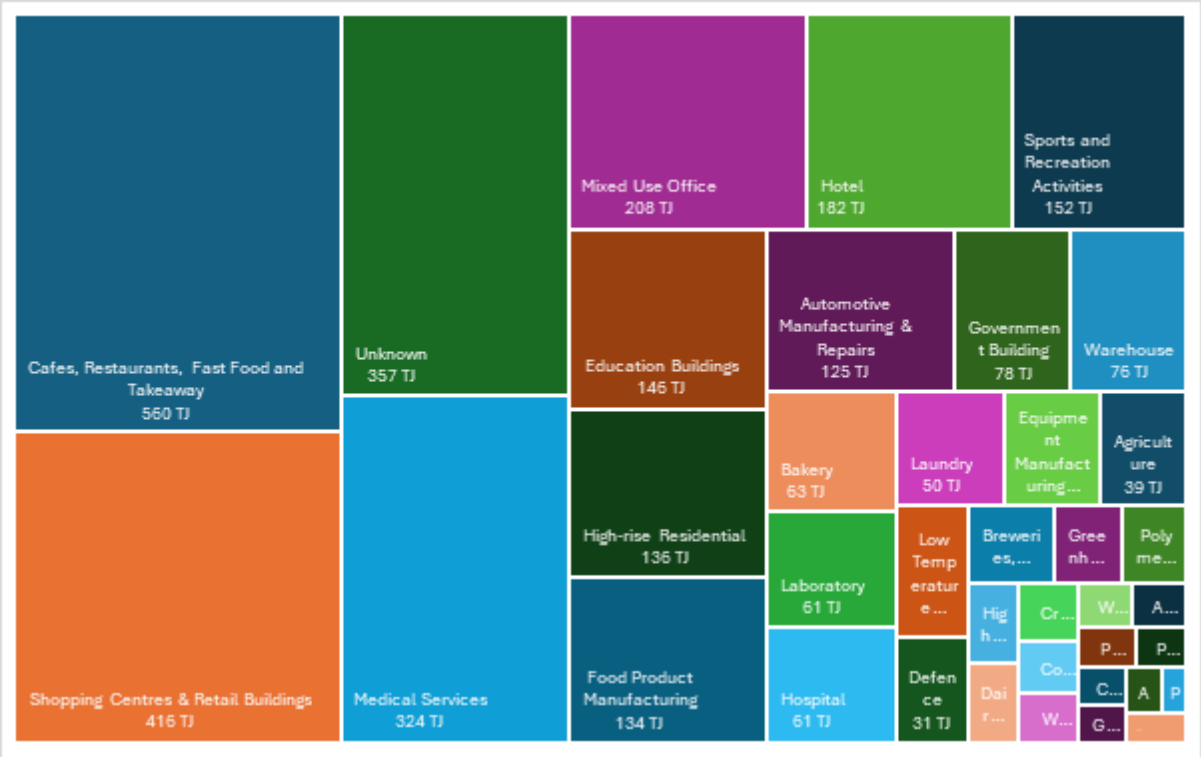


Figure 14 demonstrates commercial connections encompass over 41 different end-use cases, with no single type contributing more than 16% of total commercial gas use, highlighting the diverse locale and usage of these connections.

These commercial connections also service important community infrastructure such as cafes, bakeries, GP's, swimming pools, primary schools and car repair, all of which contribute significantly to South Australian society.

Figure 15: SA Industrial Archetypes Annual Gas Consumption (2018-2023 Average)

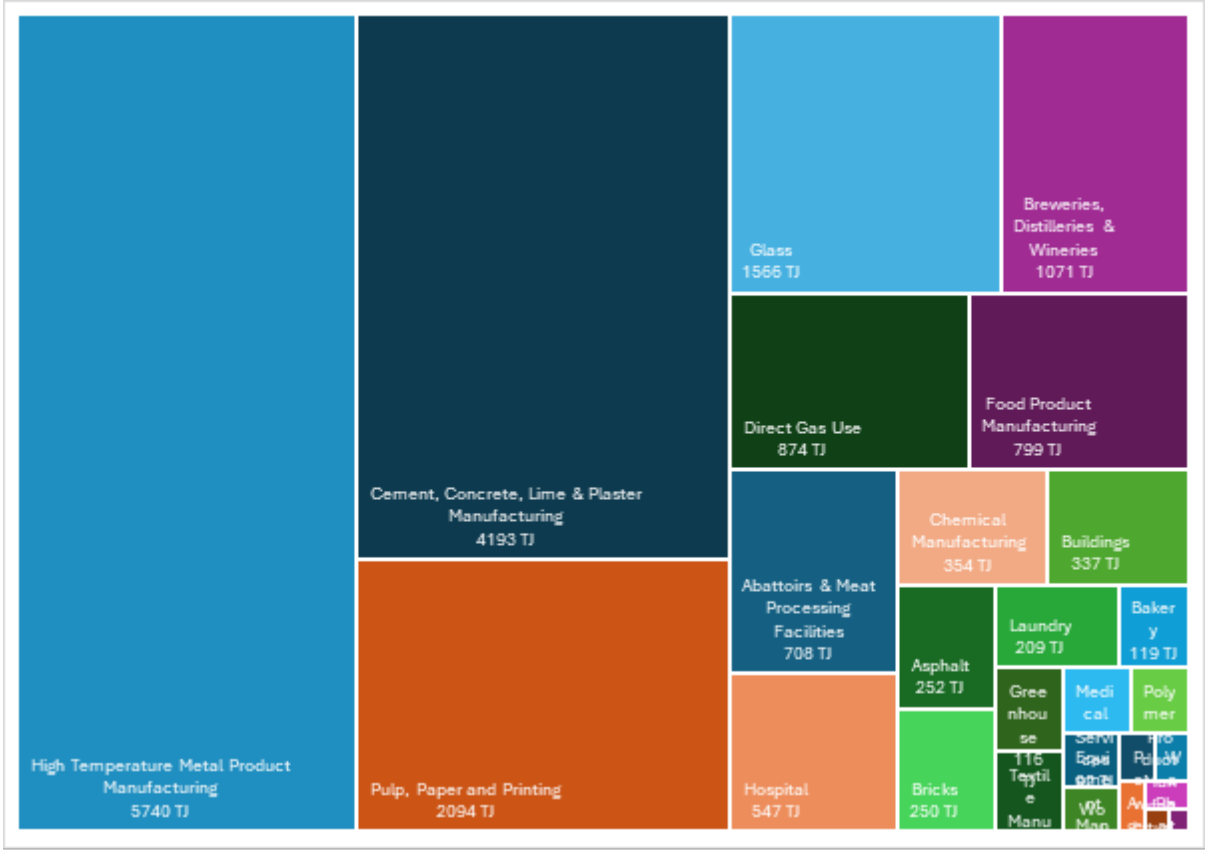


Figure 15 demonstrates Industrial connections encompass over 27 different use cases, with four key types—high-temperature metal manufacturing, glass, cement, and pulp and paper—contributing to over 70% of industrial gas consumption.

These sectors are widely regarded as hard to abate and will almost certainly require a form of renewable gas to continue servicing the South Australian community in a net zero future. The transition to renewable gas is crucial for these industries to maintain their operations while reducing carbon emissions.

Outside of these primary users, the gas network also supports critical activities such as hospitals, asphalt production, abattoirs, laundries, various manufacturing and wineries. These sectors play a vital role in the community by providing essential services and products.

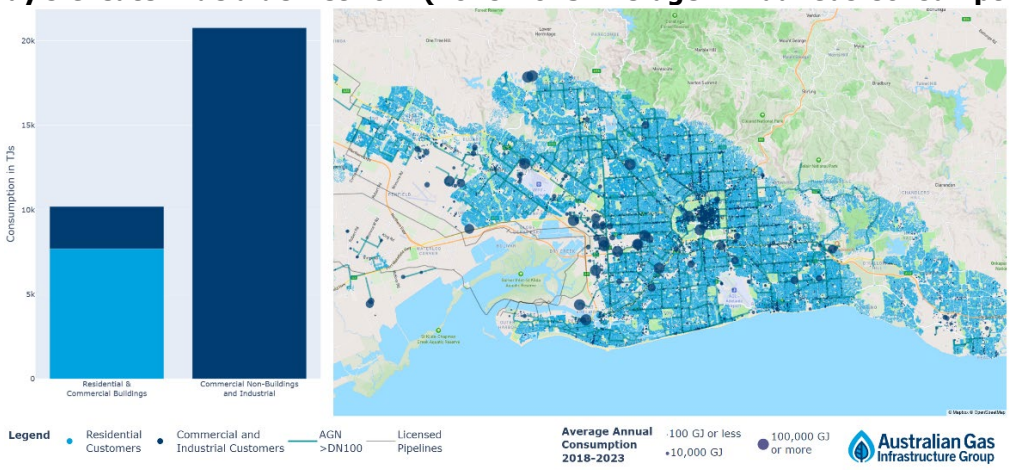
2.3. Plausible Futures for South Australia's Gas Networks

2.3.1. Illustrative Network Demand Under GSOO Scenarios

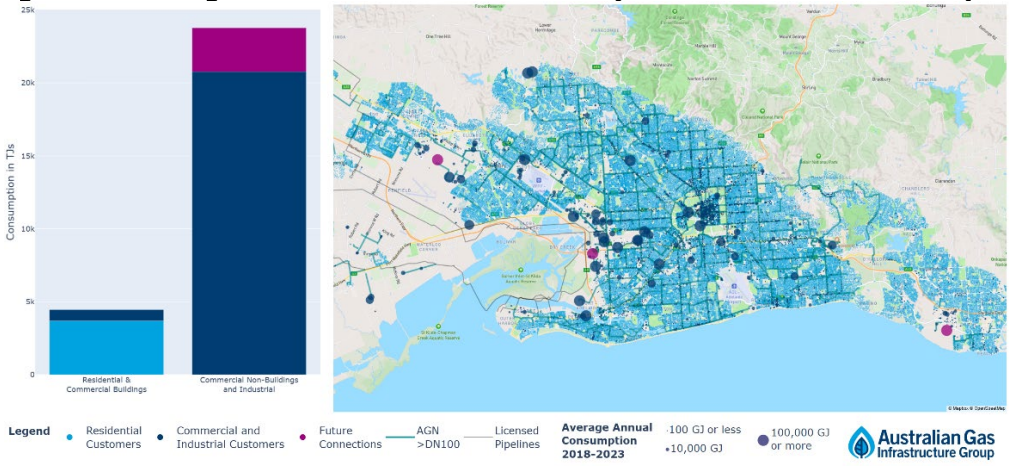
To explore the potential implications of GSOO scenarios on the AGN SA network, 'Step Change' and 'Progressive Change' scenarios referred to at Section 1.2.1 have been illustratively applied to the Greater Adelaide Network:

Figure 16: Illustrative Network Demand under 'Step Change' and 'Progressive Change' Scenarios, 2043

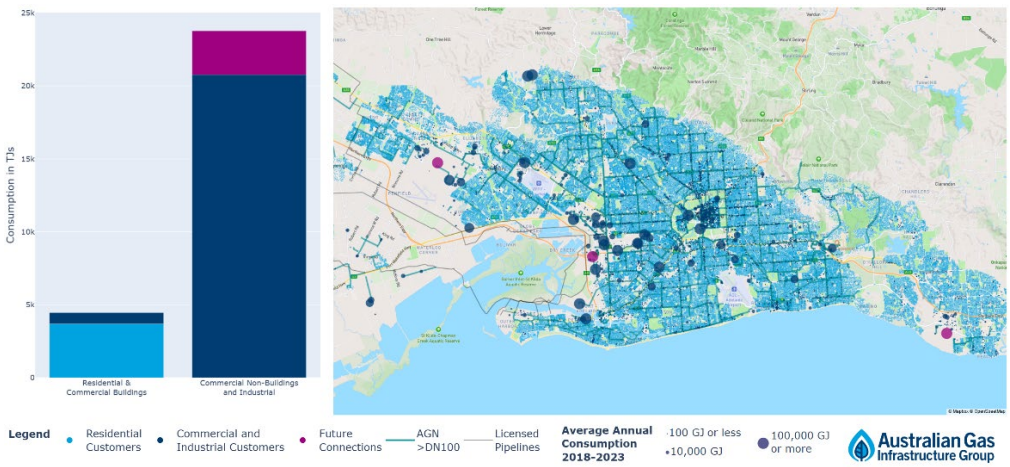
Today's Greater Adelaide Network (2018-2023 Average Annual Gas Consumption)



'*Progressive Change*' Greater Adelaide Network (2043 Annual Gas Consumption)



'*Step Change*' Greater Adelaide Network (2043 Annual Gas Consumption)



These maps are illustrative only and rely on general assumptions aligned with GSOO consumption projections. For residential and building-based customers, the methodology involved randomised reductions in connection numbers and gas use per connection[24]. Industrial and non-building commercial load growth is reflected with random purple dots representing one or multiple connections near existing commercial and industrial hubs.

The exercise shows that despite residential building connections decline (evidenced by fewer 'cyan' dots), a substantial number of residential customers continue to access the network. This combined with growth in commercial (non-building) and industrial customers helps sustain the overall structure of the network to continue servicing those who choose to use gas over the longer term.

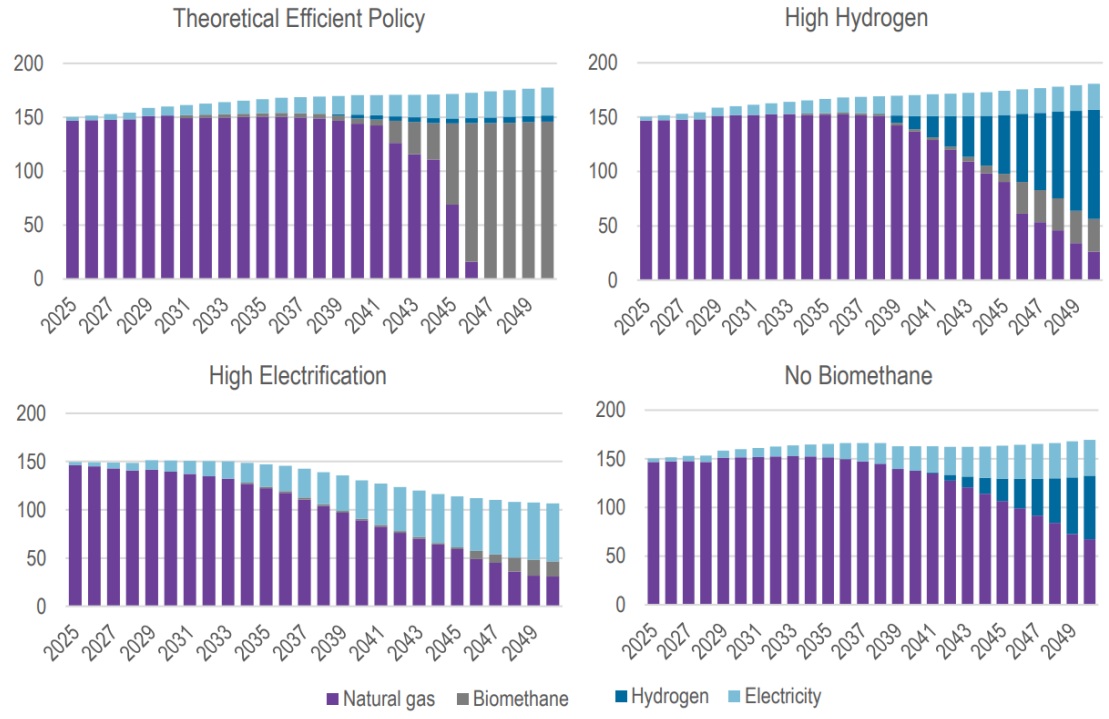
2.3.2. Plausible Gas Supply Futures for South Australia's Gas Networks

Section 2.2 demonstrates the diverse range of customer requirements on AGN's South Australian network. Section 2.3.1 then illustrates the potential composition of those customers on the Greater Adelaide network by 2043, based on AEMO's GSOO scenarios.

Each household and business face a unique and evolving set of considerations when deciding how to meet their energy needs in line with net zero goals—such as cost, infrastructure compatibility, operational requirements, and cultural or lifestyle preferences.

This diversity supports multiple transition pathways, including biomethane, hydrogen, electrification, and offset natural gas. In 2024, ACIL Allen modelled the lowest-cost path to net zero, showing that shifts in technology and costs could alter the optimal fuel mix[25].

Figure 17: ACIL Allen: Residential fuel mix (PJ): Theoretical Efficient Policy scenario and selected sensitivities



[24] Under 'Progressive Change', 20% of residential and 50% of commercial buildings were randomly and uniformly removed from the map with a 40% decrease in consumption applied to the remaining. Under 'Step Change', 60% of residential and 50% of commercial buildings were randomly and uniformly removed from the map with a 40% decrease in consumption applied to the remaining.

[25] ACIL Allen. 2024. *Renewable Gas Target: Delivering lower cost decarbonisation for gas customers and the Australian economy,* prepared for APGA and ENA, Figure 3.15, p. 27.

When managing the transition for hundreds of thousands of South Australian customers, we anticipate an approach where new supply projects, whether biomethane, hydrogen, or others such as synthetic methane, emerge in line with resource availability, infrastructure readiness, and end-user demand. For example:

- **Biomethane-led scenarios:** With some projects commercially competitive today ($13-35/GJ) and no need for appliance modification, biomethane can be integrated quickly and seamlessly when supply is available [26]. Biomethane-rich regions such as Mount Gambier, Murray Bridge, and northern Adelaide may align more naturally with this pathway due to the presence of large biogas producers and agricultural activity.
- **Hydrogen-led scenarios:** Hydrogen adoption may occur more gradually, given its higher relative fuel costs ($36–72/GJ) and the potential need for appliance modification beyond 20% blending[27]. However, hydrogen production costs are expected to decline significantly by the mid-2030s. Adelaide could be well served by the proposed Hydrogen Park Adelaide and potential future expansions. Should the Port Bonython Hydrogen Hub progress or Hydrogen Jobs Plan resume, networks in Whyalla and Port Pirie would be well positioned for a hydrogen-led pathway, given their proximity to commercial-scale hydrogen production and high industrial demand.
- **Natural gas as a backstop:** Where hydrogen or biomethane is unavailable or limited, natural gas could play a role provided emissions from this natural gas is offset to achieve net zero. Continuing to use small volumes of natural gas can help maintain optionality and reduce transition costs by allowing for the gradual replacement of household appliances.

The evolution of South Australia's electricity supply is an instructive analogy for this view. Once designed around predictable, centralised coal and gas generation; South Australia's grid now dynamically manages a range diverse inputs—from rooftop solar and batteries to wind farms and variable GPG with instantaneous imports/exports with neighbouring jurisdictions.

The gas network is now entering a similar phase of transformation, moving from a single-fuel model to a multi-vector energy platform. We are actively planning for these future configurations. While the exact supply mix remains uncertain, the role of our network remains clear. By maintaining optionality, enabling new gas sources, and supporting customer choice, we will continue to provide a reliable energy service that adapts to local and national needs through the transition to net zero.

[26] Refer 1.2.4. for discussion on hydrogen and biomethane supply cost projections
[27] Ibid

3. Net Zero Ambition

1. Our Net Zero Ambition is to achieve net zero emissions in our own operations; and to enable net zero for our customers.
2. We aim to enable net zero for our customers by preparing our assets to deliver renewable and carbon-neutral gas, so households and businesses supported to achieve their chosen energy pathway.
3. Our Net Zero Ambition includes three clear performance metrics across key time horizons for today, 2030 and 2050. Achieving these goals relies on a combination of key enablers, all of which are progressing:
    a. Regulatory reform: Updating gas and energy market rules to recognise renewable gas and establish its transparent, government-backed certification.
    b. Enabling policy: Accelerating market development through a mix of 'push' policy levers that provide funding and incentives to stimulate supply, and 'pull' levers that drive demand by encouraging market uptake and usage.
    c. Connecting projects: Connecting third-party renewable gas projects to our networks, while also demonstrating what's possible through AGIG led projects.
    d. Customer and stakeholder engagement: Working closely with communities, industry and government to build understanding, support informed choice, and align on transition pathways.

AGN's ongoing commitment to transparency and the disclosure of Environmental, Social and Governance (ESG) targets and performance are outlined through AGIG's annual ESG Report and suite of other related publications[28].

This section relates specifically to our progress towards achieving net zero emissions as set out in our Net Zero Ambition. Further information on our broader targets as aligned with the United Nations Sustainable Development Goals are available in our ESG Report.

3.1. Overview

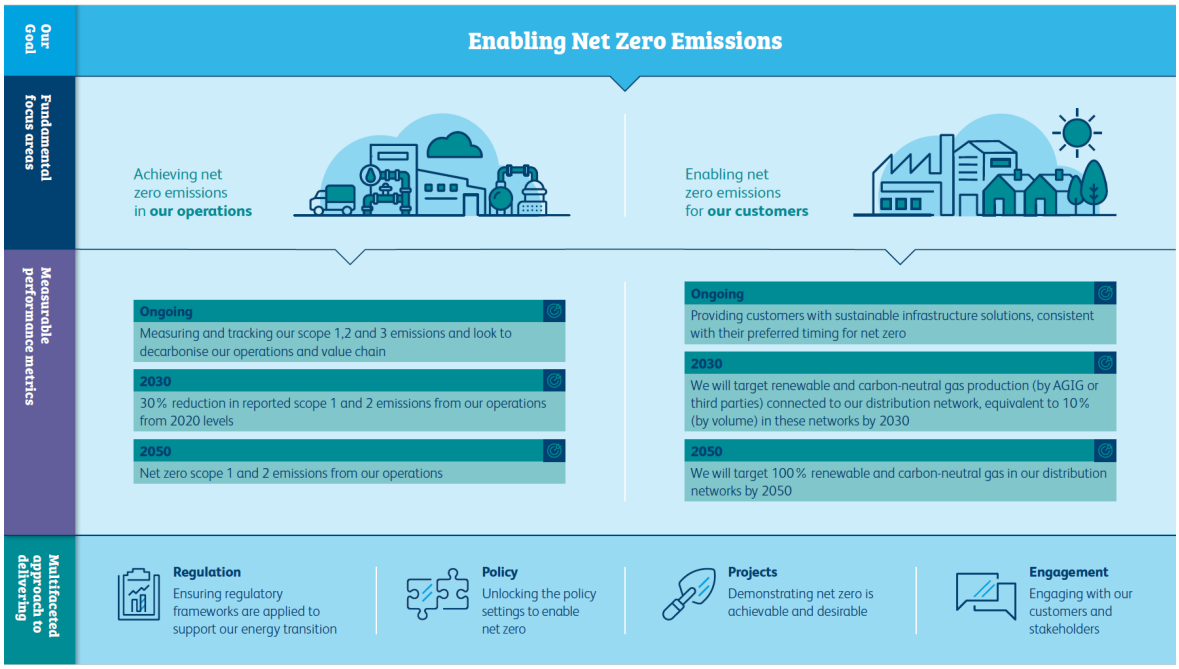
The science of climate change and its impacts on our natural and built environments is well recognised. Addressing climate change requires collective action across value chains. Our Net Zero Ambition is to:

- Achieve net zero emissions in our own operations
- Enable net zero for our customers

We are targeting net zero scope 1 and 2 emissions across all our operations by 2050, with an interim aim to reduce our scope 1 and 2 emissions by 30% from 2020 levels by 2030.

While the energy we deliver is not classified as a scope 1, 2, or 3 emission for AGIG, our Net Zero Ambition emphasises going beyond our direct responsibilities to support our customers in their efforts to reduce emissions.

[28] Our ESG Report is supported by a range of other corporate publications, available on our website, include: 2024 Community Impact Report; 2024 Energy Charter Report; 2024 Sustainability Report; 2024 Data Book; Diversity, Equity and Inclusion Plan; Modern Slavery Statement; Reflect Reconciliation Action Plan; and Sustainable Procurement Statement.



The following section focusses on progress towards supporting our customers to reduce their emissions.

3.2. AGN's Customers' Emissions

As part of enabling net zero emissions for our customers, our Net Zero Ambition includes three high level aims over time horizons of today, 2030 and 2050. AGN considers renewable and carbon-neutral gases do not result in additional carbon emissions to the atmosphere. This could include:

- Hydrogen, which does not contain any carbon and when be produced using renewable electricity.
- Biomethane, derived from organic materials such as agricultural waste and sewage.
- Carbon neutral natural gas, where emissions are fully offset through the purchase and retirement of certified carbon offset units.

All the above would be verified under recognised schemes, or equivalent frameworks approved by relevant authorities. This section outlines progress to date, with regulatory, policy, project, and engagement enablers discussed in Section 3.3.

3.2.1. Ongoing: Sustainable Infrastructure Solutions

Our ongoing aim is to provide customers with sustainable infrastructure solutions, consistent with their preferred timing for net zero. This approach recognises households and businesses face a unique set of considerations when assessing the best solution for their energy needs, and our overarching ambition is to support their chosen pathway. Key activities against which we deliver out targets include:

- **Mains replacement**: In 2024, we replaced 162 km of old gas mains in South Australia with hydrogen-ready polyethylene. While the mains replacement program is safety driven, the polyethylene used in the replacement is compatible with hydrogen to 100%. Completion of the mains replacement program in SA is on track for 2026.
- **Third-party supply**: AGN actively encourages and advocates for third parties to participate in the market our networks provide with a view to building supply and competition. In 2024, we published an Interconnection Policy outlining the process for renewable gas projects looking to connect to our networks,

and led the development of a Code of Practice for Renewable Gas Connections. In 2025, we signed our first biomethane connection agreement with Delorean Corporation.

- **AGIG supply**: We are investing in demonstrating the pathway to a reducing our customers emissions by building renewable gas production facilities. In 2024, Hydrogen Park South Australia delivered up to a 10% renewable gas blend by volume to ~4,000 customers. We also progressed Hydrogen Park Adelaide, and expanded activity at HyP Gladstone and HyP Murray Valley.

3.2.2. 2030: 10% renewable and carbon neutral gas (by volume)

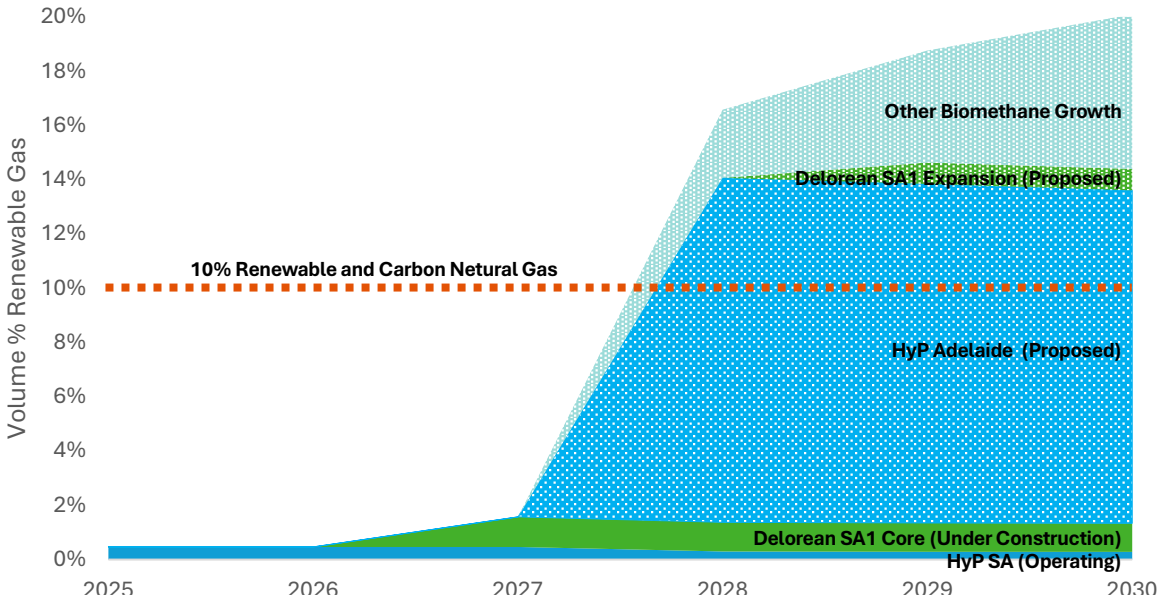
We aim to deliver renewable and carbon-neutral gas volumes equal to 10% of network demand by 2030. Progress towards this aim is supported by the foundational ongoing activities outlined above.

This aim is expressed on a volumetric basis to align with how gas is introduced, measured, and managed within the network, noting that retailers convert volume to energy for billing purposes. Because hydrogen contains about one third the energy per unit volume of natural gas or biomethane, the volume of renewable gas required to achieve our aim can vary depending on the mix. Based on 2024 usage in South Australia, this could require:

- ~2.6 PJ of biomethane; or
- ~0.8 PJ of hydrogen (if hydrogen only); or
- ~1.3 PJ of biomethane and ~0.4 PJ of hydrogen (50:50 blend).

Section 1.2.1 highlights how expectations of gas demand can change over time as the environment is influenced to varying degrees by policy incentives, appliance efficiency and consumer preferences. As gas demand changes, the volumes of renewable gas required to meet the targets also change, which could impact the role AGN plays in meeting its targets.

Figure 18: Illustrative line of sight towards AGN South Australia's 10% volume by 2030 aim



Assumption	Commentary
Gas demand	Applies historic 5-year (2019-2024) growth rates of AGN gas demand to 2030.
Project contributions	Indicative supply to AGN network based on public announcements.
Other Biomethane Growth	Based on identified biomethane potential (refer Section 1.2.3) noting introduction of enabling regulations and policies to support biomethane in networks (refer Sections 3.3.1 and 3.3.2). Hydrogen projects are excluded from 2030 view.

3.2.3. 2050: 100% renewable and carbon neutral gas

Reaching 10% renewable gas supply is a foundational step toward our 2050 ambition of delivering 100% renewable and carbon-neutral gas through our networks.

Achieving 100% renewable and carbon neutral gas depends on the continued emergence of a competitive renewable gas market, with multiple Government reports highlighting the potential for hydrogen and biomethane to be cost-competitive with natural gas over the longer term[29]. There is a further requirement for supportive regulatory and policy environments, with highlights outlined in Section 3.3.

As described in Section 2.3, there are multiple plausible transition pathways for our customers to achieve net zero including biomethane, hydrogen, electrification, and the continued use of natural gas with offsets. Our scenario planning reflects this, with future network composition to be shaped by localised supply resources and customer requirements.

Noting biomethane and other forms of carbon neutral gas are directly interchangeable with natural gas, much of our early work has been demonstrating how renewable hydrogen could be introduced to our network under hydrogen-led scenarios:

- **100% Hydrogen Networks:** From 2019 to 2023, we partnered with governments and industry through the Australian Hydrogen Centre (AHC) to undertake Australia's most comprehensive assessments of hydrogen integration into existing distribution networks. This multi-year program examined several detailed workstreams covering network compatibility, appliance readiness, safety, cost modelling, regulatory requirements, and transition planning for both 10% and 100% hydrogen supply. The work concluded that transitioning to 100% hydrogen is technically viable, economically feasible, and can be delivered safely with targeted investment and policy support.
- **100% Hydrogen Appliances:** Testing led by the Future Fuels Cooperative Research Centre has confirmed that the majority of existing appliances can operate safely and effectively with up to 20% hydrogen blends, with work underway to determine the maximum upper limit[30]. For 100% hydrogen use, new appliances or burner modifications may be needed, though existing fittings and internal pipes are compatible. We've supported development of 100% hydrogen appliances—including cooktops, barbecues and heating units—and demonstrated their use through the HyHome project in Melbourne's north.
- **Digital Meters:** In 2023, we deployed approximately 400 digital meters in Mitchell Park (SA) within the HyP SA blended gas zone. Deploying the next generation of digital meters that are capable of measuring hydrogen could be a key facilitator of future gas networks.

[29] Refer Section 1.2.4 for a summary of Government cost projections for hydrogen and biomethane .
[30] Proud D, Smith N (2023) RP1.4-05 – Performance of Type A appliances with blends of hydrogen and natural gas. Future Fuels Cooperative Research Centre.

3.3. Approach to Delivery

We measure and report on our Net Zero Ambition through a multifaceted strategy focused on four key enablers: regulation, policy, projects, and engagement.

While we actively lead many of these initiatives, we recognise that some – such as market conditions and policy developments – are outside our direct influence. Success also depends on collaboration across government, industry, and community partners to reinforce our shared commitment to net zero.

3.2.4. Regulation

Governments have either agreed or significantly progressed key reforms to enable the delivery of renewable gases in networks. These reforms are foundational to creating a level playing field for fuels like hydrogen and biomethane, and to ensuring customer access to verified clean energy options. Key measures include:

- In 2022, Australian Energy Ministers agreed to amend the *National Gas Law* and *National Energy Retail Law* to define hydrogen, biomethane, synthetic methane, and their blends as "covered gases," enabling these gases to be regulated alongside natural gas, with supporting changes to rules and procedures to ensure safe integration into existing markets, networks, and consumer frameworks.
- In 2023, South Australian Government introduced the *Hydrogen and Renewable Energy Act 2023,* aiming to provide a comprehensive licensing framework for large-scale hydrogen and renewable energy projects across their lifecycle, streamlining approvals while ensuring coexistence with other land uses and strong Aboriginal engagement.
- In 2024, GreenPower introduced a pilot for Renewable Gas Guarantee of Origin (RGGO) certificates, allowing commercial and industrial gas users to match their gas consumption with certified renewable gas. Mars Petcare is the first business in Australia to secure RGGO certificates from HyP Murray Valley.
- In 2024, the Australian Government established a voluntary Guarantee of Origin scheme for renewable hydrogen under the *Future Made in Australia (Guarantee of Origin) Act 2024*. From late 2025 it will certify the emissions intensity and origin of renewable hydrogen to support domestic and international markets by providing transparent, government-backed certification.
- From 1 July 2025, the National Greenhouse and Energy Reporting Scheme (NGERS) will introduce market-based reporting for renewable gases, allowing entities including those who fall under the Safeguard Mechanism to claim emissions reductions through renewable gas certificate purchases.

3.2.5. Policy

We continue to advocate for a mix of *'push'* policy levers that provide funding and incentives to stimulate supply, and *'pull'* levers that drive demand by encouraging market uptake and usage, to accelerate market development.

Examples of 'push' policies that encourage the supply of renewable gas include:

- $6.7 billion Hydrogen Production Tax Incentive (from 2027–28)
- $2 billion Hydrogen Headstart initiative
- $1.7 billion Innovation Fund for priority low-carbon sectors
- $17.1 million to implement the National Hydrogen Strategy
- $32.2 million to fast-track GO Scheme rollout

- $1.9 billion to re-capitalise ARENA;

Examples of 'pull' policies to encourage the use of renewable gas include:

- New South Wales Government's *"Renewable Fuel Scheme"*
- The Victorian Government's proposed *"Renewable Gas Target"*

While South Australia has not proposed a state target or certificate scheme, consistent with its technology neutral approach to energy use (see Section 1.3.4), a national target is under consideration by the Energy and Climate Change Ministerial Council following Victoria's request.

A coordinated national mechanism could play a critical role in enabling delivery of the National Hydrogen Strategy, which sets a goal of up to 15 million tonnes of renewable hydrogen production by 2050 but is not presently supported by a certificate scheme or mandatory target.

3.2.6. Projects

We are investing in projects that demonstrate the pathway to a low-carbon future. We are building renewable gas production facilities and preparing new and existing assets, for future fuel and carbon transport and storage. In 2024, we advanced a number of these projects:

- In March 2024 we increased our renewable gas blend from HyP SA from up to 5% to up to 10%, delivered this renewable gas blend to approximately 4,000 homes, businesses, and schools. We also launched public discussion on the proposed Hydrogen Park Adelaide development.
- HyP Gladstone came online in November, blending up to 10% renewable hydrogen to our Gladstone gas distribution network which supplies around 700 homes, business and industrial customers.
- Ground was broken at our forthcoming HyP Murray Valley facility, a 10 MW electrolyser and associated equipment to produce renewable hydrogen. The electrolyser is set to be the largest on the east coast of Australia at the time of its commissioning. Initially the facility will use renewable hydrogen for gas blending at up to 10% by volume to start decarbonising the gas networks in the Albury Wodonga region. Mars Petcare has become the first business in Australia to take this path to reduce its carbon footprint, securing all Renewable Gas Guarantee of Origin certificates allocated to production at HyP Murray Valley for its food manufacturing business under GreenPower's Renewable Gas Certification scheme.

We also actively encourage and advocate for third parties to participate in the market our networks provide with a view to building supply and competition. By working closely with existing and emerging gas suppliers, we aim to integrate renewable and carbon-neutral gases seamlessly into our infrastructure, ensuring that customers have access to cleaner energy choices.

In 2024, we published an Interconnection Policy outlining the process for renewable gas projects looking to connect to our networks. We also led the development of the Australian Pipelines and Gas Association's Code of Practice for Renewable Gas Connections. In April 2025, AGIG announced it has signed its first agreement to connect the first biomethane project led by Delorean Corporation into its South Australian gas networks in the northern suburbs of Adelaide.

3.2.7. Engagement

Engagement with our customers and stakeholders remains central to understanding their needs and ensuring alignment with broader societal expectations as we strive for net zero together.

As Australia's first renewable hydrogen public blending project, securing community acceptance for HyP SA was key to pave the way for the wider introduction of hydrogen in South Australian gas networks.

Longitudinal research found that HyP SA's customers are satisfied with the project's delivery, with strong results observed in terms of project awareness, appeal and experience.

HyP SA further serves as a valuable meeting place for wider engagements on South Australia's renewable gas potential, with around one tour per week taking place since its opening in 2021.

Beyond HyP SA, in 2024 we:

- Partnered with MasterChef Australia to provide carbon-neutral biomethane for cooking challenges and carbon-neutral hydrogen for one of the barbecue challenges.
- Presented on the future of gas at over 36 external conferences, with participation in more than 100 events, workshops, seminars and roundtables.
- Conducted 40 tours of HyHome, with over 460 visitors to site.
- Trialled 400 digital meters at selected households in the HyP SA blended gas zone.
- Introduced a 100% hydrogen powered Toyota Mirai to the Melbourne pool car fleet.