Hydrogen Park South Australia

A pathway to a cleaner energy future.

Australian Gas Networks

Part of Australian Gas Infrastructure Group

Hydrogen Park South Australia

Australia's National Hydrogen Strategy sets a vision for a clean, innovative, safe and competitive hydrogen industry that benefits all Australians.

It aims to position our industry as a major global player by 2030.

The Government of South Australia is targeting net zero emissions by 2050.

A cleaner energy future

Australia's gas sector is on the pathway to a cleaner energy future.

Australia is committed to reducing carbon dioxide emissions to between 26% and 28% below 2005 levels by 2030 and each Australian state and territory is targeting net zero emissions by 2050 or earlier.

Natural gas is an important part of our energy mix. We use it in homes and businesses to heat our buildings, heat water and to cook. It is also used by many large industries and to generate electricity. Compared to other energy sources, it is already lower carbon – providing 44% of Australian household energy but only 13% of household greenhouse gas emissions.* But we can do more.

Australia's gas sector is on the pathway to a cleaner energy future.

We can achieve this by using renewable or carbon neutral gas, such as hydrogen.

Hydrogen Park South Australia (HyP SA) will produce renewable hydrogen which we will blend with natural gas for supply to our customers. We are also providing direct hydrogen supply to industry, and aim to supply hydrogen for transport in the future.

HyP SA demonstrates renewable hydrogen production and blending technology in an Australian context and paves the way for future commercial hydrogen production.

Any incentive to tackle greenhouse emissions and the environment is a good cause

Neils Neilson, Mitchell Park Resident

* www.energynetworks.com.au/projects/gas-vision-2050/

Kickstarting the Hydrogen Economy

The future of gas is bright. As a business we are taking active steps to contribute to a low carbon economy.

HyP SA is an Australian first project that will deliver renewable hydrogen gas to customers through our existing gas distribution network.

Located at Tonsley Innovation District, HyP SA produces renewable hydrogen through a process called electrolysis.

Hydrogen is a gas of the future, providing a safe, convenient zero emissions fuel for households and businesses.

Hydrogen is produced using a 1.25MW Siemens Proton Exchange Membrane electrolyser – currently the largest of its kind in Australia – which splits water into hydrogen and oxygen using renewable electricity.

Blending hydrogen with natural gas helps to achieve our emissions goals because, when burned, hydrogen does not release any carbon emissions (only water vapour and heat). That means if we blend renewable hydrogen with natural gas for domestic use, the blended gas will produce less carbon than 100% natural gas.

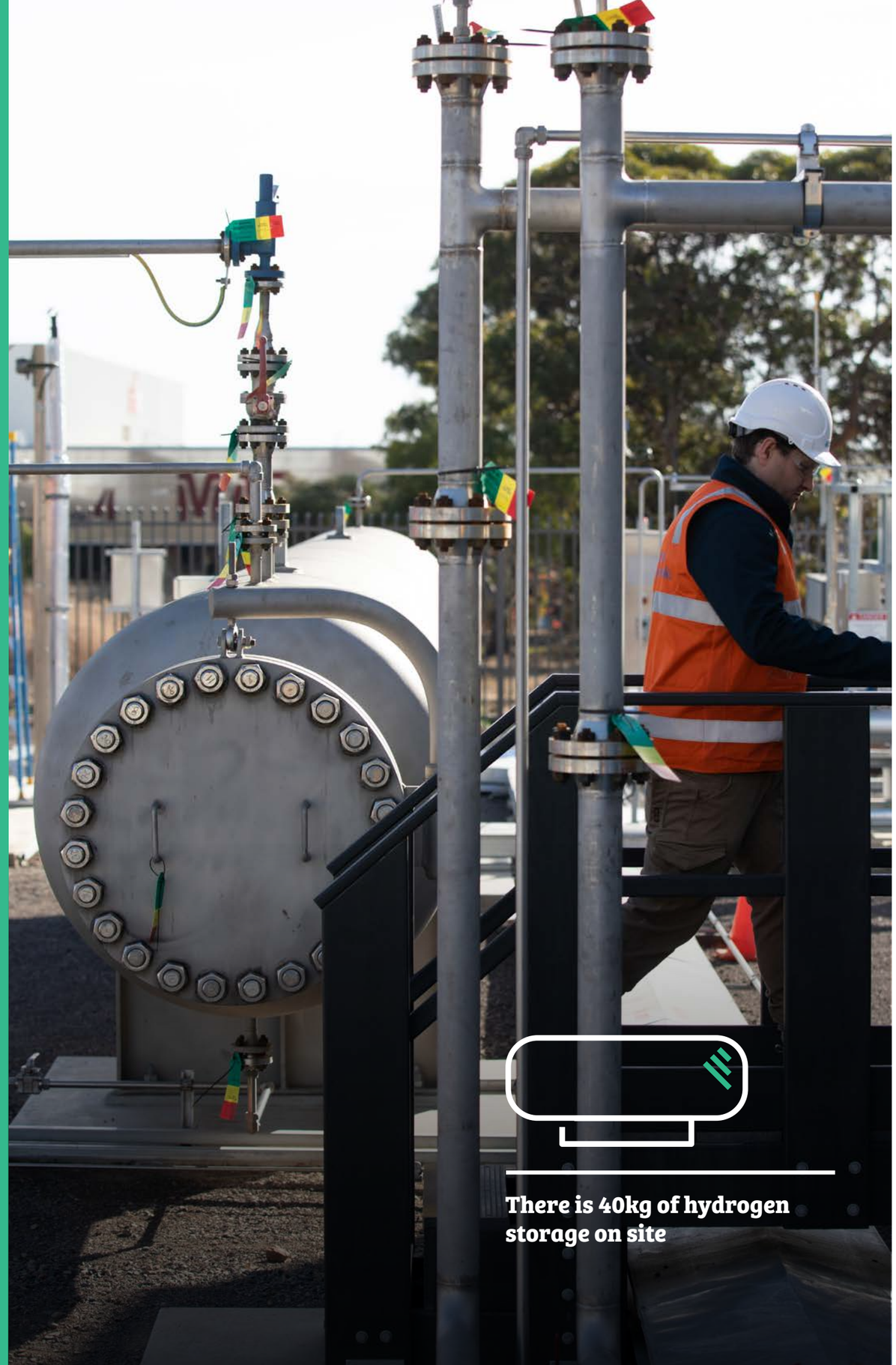
The 5% renewable gas blend will be supplied through the existing gas network to more than 700 households in the nearby suburb of Mitchell Park.

Hydrogen's time has come

Dr Alan Finkel, Australian Chief Scientist

The $14.5 million project is supported by a $4.9 million grant from the South Australian Government's Renewable Technology Fund.

Valuable learnings from HyP SA's operations will be published through the Australian Hydrogen Centre, supported by the Australian Renewable Energy Agency and the South Australian Government.



There is 40kg of hydrogen storage on site

Who We Are

Australian Gas Networks (AGN) is one of Australia's largest gas distribution companies. Our networks serve more than 1.3 million homes and businesses in South Australia, Victoria, Queensland, New South Wales and the Northern Territory.

AGN has a long history of serving South Australians, with our origins dating back more than 150 years to the South Australian Gas Company.

In South Australia, we own and manage the network that deliver gas to more than 450,000 homes and businesses across Adelaide, Whyalla, Port Pirie, the Barossa Valley, Murray Bridge and Berri.

We understand that the affordability, reliability and sustainability of energy is very important to South Australians, both now and in the future. We are proud of our safety and service levels and are leading the way with respect to renewable gas projects in Australia.

AGN is part of Australian Gas Infrastructure Group (AGIG), one of Australia's largest energy infrastructure businesses.

AGIG operates across all mainland states and the Northern Territory providing gas distribution, transmission and storage services. We are committed to a low carbon future and the development of renewable gas projects such as such as HyP SA across Australia.

Thank You to Our Project Partners

Supported by Government of South Australia

Designed by: GPA ENGINEERING

Constructed by: VALMEC

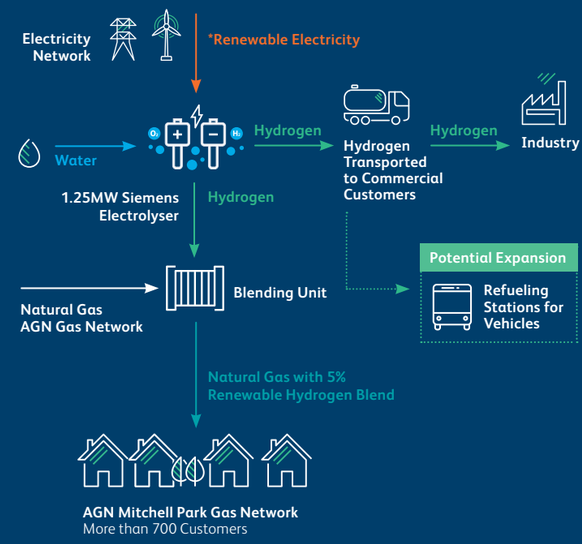
Electrolyser by: SIEMENS energy

Tube Trailer Facilities by: BOC, A Member of The Linde Group

Hydrogen Park South Australia

1. Electrical Input
2. Water Input and Purification
3. Electrolyser
4. Hydrogen Purification
5. Hydrogen Storage Tank
6. Gas Analyser Hut
7. Gas Network Blending
8. Tube Trailer Bay

How It Works



*AGN will purchase (and voluntarily surrender) Large Scale Generation Certificates (LGCs) as required to ensure the electricity used to produce hydrogen is renewable.

Hydrogen Fast Facts

Hydrogen is the simplest and most abundant molecule in the universe

Hydrogen is colourless, odourless, non-toxic and an excellent carrier of energy

When burned, hydrogen produces only heat and water vapour – no carbon emissions

Like natural gas, hydrogen can be used to heat buildings and power vehicles

Research indicates that net zero emissions from gas networks can be reached with hydrogen at half the cost of electrification*

Hydrogen production through electrolysis brings together gas and electricity networks, using the gas network like a giant battery to store excess renewable electricity

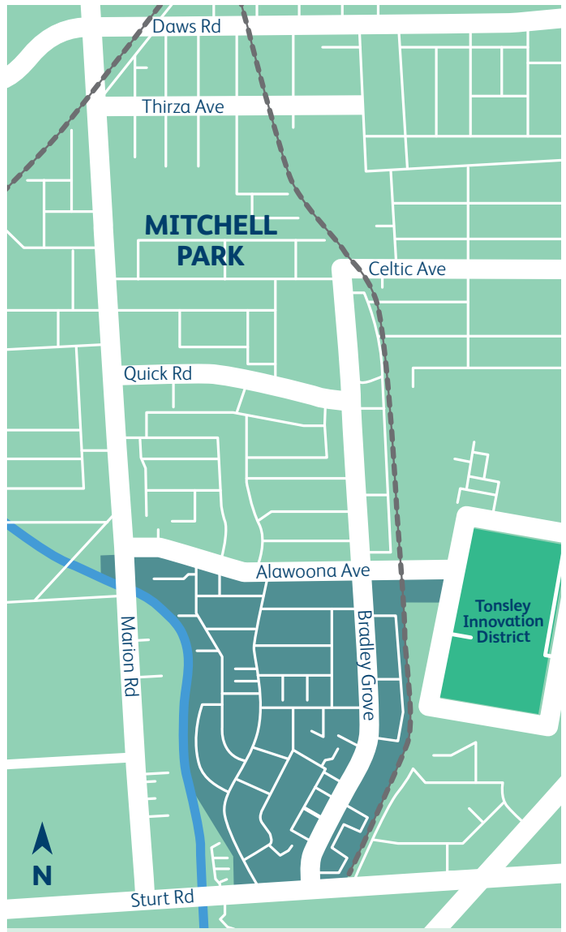
Until 1969 South Australia used to rely on Towns Gas which was manufactured from coal and consisted of 50-60% hydrogen

A hydrogen economy will deliver economic benefits by harnessing its strengths as an excellent energy carrier to deliver wind and sun energy to new and existing industries, including export

* Frontier Economics, 2020.

The Blended Gas Project Area

The southern area of Mitchell Park was chosen due to its close proximity to the Tonsley Innovation District. The area also represents a good sample of typical South Australian homes. Gas customers living in the area bounded by the railway line, Alawoona Avenue, the Sturt Creek and Sturt Road began receiving the 5% renewable gas blend in May 2021.



MAP LEGEND

- Sturt River
- Train line
- Blended gas project area
- Not in the blended gas project area

Project Timeline

Phase 1

Mid 2018 to Late 2019

Planning and design of onsite infrastructure at HyP SA.

Phase 2

Mid 2019 to Mid 2021

Mitchell Park community introduced to the project and supported through ongoing engagement. Construction of the HyP SA Australia facility.

Phase 3

Mid 2021 to Mid 2026

Properties within the southern area of Mitchell Park will receive blended gas (5% renewable hydrogen with natural gas). Supply to industry via tube trailers.

Phase 4

Mid 2026

Project benefits are assessed with consideration given to the future supply of blended gas to additional residential suburbs. Ongoing supply to industry via tube trailers.

HyP SA can produce up to20kg of hydrogen per hour

Major Supplier to Industry

Tube and Trailer

HyP SA will also supply renewable hydrogen to industry throughout South Australia and Australia via tube trailer facilities.

Tube trailers are semi-trailers with gas storage tanks that vary in length from small tubes to very large size tanks – enabling gases like hydrogen to be road-hauled from a supply site to any destination.

This new Adelaide-based hydrogen supply chain will replace current tube trailer hydrogen deliveries that come from Victoria, saving more than 100,000km of driving and around 120,000kg of associated carbon emissions every year.

Benefits of a Hydrogen Economy

Economic benefits

Jobs
Building a new industry and jobs for Australians

Economic benefit
Enhanced fuel security with potential to supply the world through export

CO_2 savings
Lowest cost decarbonisation for customers

New industry
Decarbonisation of industry through tube trailer

Sector coupling
Coupling gas and electricity networks to allow efficient use of renewable electricity

Gas customer benefits

Safe
Approvals by government and regulators

Easy for customers
No difference to gas service

Billing
Customers in Mitchell Park will pay no more for the 5% renewable gas blend than for 100% natural gas

Our Hydrogen Projects

HyP SA's delivery of a 5% renewable gas blend to Mitchell Park is the first step to lowering carbon emissions. We are also pursuing more projects, aiming to blend up to 10% renewable gas in South Australia and across the other regions we serve before 100% conversion.

Our other hydrogen projects include:

Hydrogen Park Gladstone (HyP Gladstone)

Located at Gladstone in central Queensland, HyP Gladstone has completed detailed engineering and design for construction. From 2022, HyP Gladstone will produce up to a 10% renewable gas blend, supplying more than 770 residential, commercial and industrial customers. HyP Gladstone is supported by the Queensland Government.

Hydrogen Park Murray Valley (HyP Murray Valley) (proposed)*

Located in Wodonga in Victoria, HyP Murray Valley is currently under development with strategic partners ENGIE. From 2023, HyP Murray Valley will produce renewable hydrogen to supply more than 40,000 existing residential, commercial and industrial connections in Wodonga (Victoria) and nearby Albury (New South Wales). HyP Murray Valley is supported with conditional funding from ARENA.

Clean Energy Innovation Park (CEIP) (proposed)*

Located in Warradarge in Western Australia's mid-west, CEIP is currently under development with strategic partners ATCO. Renewable hydrogen may be used to supply the gas network, transport and industry. CEIP is supported with conditional funding from ARENA.

The Australian Hydrogen Centre

A joint industry research centre undertaking feasibility studies in South Australia and Victoria, for extending from 10% hydrogen blends in the gas network to 100% conversion. The Australian Hydrogen Centre is supported by Commonwealth, South Australian and Victorian Governments.

West Australian Feasibility Study

This study determines if and how the Dampier to Bunbury Pipeline can introduce hydrogen into its mix. It includes a technical assessment and a roadmap to assist with regulation development. The Western Australian Feasibility Study is supported by the Western Australian Government.

*Final Investment Decisions for these projects is expected in early 2022.

Find out more

If you have any further questions about Hydrogen Park South Australia or blended gas, or would like to be kept informed about the project, get in touch:

Go online and visit blendedgas.agn.com.au | agig.com.au

Email our project team at communityengagement@agig.com.au

Call 1300 001 001 and press option 8 to speak to our friendly team