Hydrogen Park South Australia

A guide to hydrogen production

Australian Gas Networks

Hydrogen Park South Australia

Welcome
A pathway to a cleaner energy future

Welcome to Hydrogen Park South Australia (HyP SA) at the Tonsley Innovation District. HyP SA is an Australian-first facility, producing renewable hydrogen for a 5% renewable gas blend supplied via the existing gas network.

HyP SA is the first step in South Australia's renewable gas journey and will help achieve the State's commitment to net zero emissions by 2050.

In addition to supplying a 5% renewable gas blend to more than 700 households, HyP SA will also supply 100% renewable hydrogen to industry throughout South Australia and potentially Australia via tube trailer facilities.

This booklet provides a snapshot of the facility and the hydrogen production process.

Visit **blendedgas.agn.com.au** and **agig.com.au** to learn more about how we are paving the way for a cleaner, greener future through HyP SA and our projects across Australia.

The $14.5 million facility is supported by $4.9 million from the South Australian Government

Electrical Input 1
Renewable electricity enters the site directly from the local electricity network, passing through a series of electrical componentry to ensure it meets specifications for hydrogen production.

The plant will be running when there is surplus renewable electricity in the system and purchasing and surrendering sufficient quantities of Large-scale Generation Certificates when required.

Water Input and Purification 2
Water enters the site through the SA Water mains connection and is purified by a water purification system. Purified and demineralised water is then pumped into the electrolyser.

Electrolyser 3
Hydrogen is produced at HyP SA using a 1.25MW Siemens Proton Exchange Membrane electrolyser, which splits water into hydrogen and oxygen using electricity.

The electrolyser can rapidly respond to fluctuations in the electricity market ramping up when renewable electricity is abundant and switches off in times of high electricity demand.

Hydrogen Purification 4
Oxygen and hydrogen then exit the electrolyser. The oxygen is vented outside the building, while the hydrogen is sent for further purification. In the future, oxygen may be captured and used in industrial applications.

Hydrogen leaving the electrolyser is over 99% pure. The hydrogen purification unit removes any final traces of oxygen and water from the hydrogen to make it 99.999% pure. This high quality hydrogen is preferred by many emerging industries, including hydrogen fuel-cell vehicles.

Hydrogen Storage Tank 5
Once purified, the hydrogen can be stored in the 40kg storage vessel for later use, be sent directly to the networks or be sent to the tube trailer bay.

Gas Analyser Hut 6
The gas analyser measures purity of the hydrogen and verifies the correct amount of hydrogen for no more than a 5% blend with natural gas.

Gas Network Blending 7
Renewable hydrogen is blended with natural gas using the gas blending equipment, before the 5% renewable gas blend is transported to more than 700 households in the adjacent suburb of Mitchell Park via the existing gas network.

Tube Trailer Bay 8
HyP SA will supply renewable hydrogen to industry throughout South Australia and potentially Australia via tube trailer facilities.

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

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

Scan to learn more about HyP SA and our other hydrogen projects.

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