

About the project



THE VISION FOR GAS IN THE FUTURE

Whether it's for hot water, domestic heating or gas-fired cooking, gas plays a central role in the lives of over 6.5 million Australian households. Today, gas delivers 44% of Australia's household energy but only 13% of household greenhouse gas emissions. It also plays an important role in industry and power generation.

Australia has committed to a reduction in carbon dioxide (CO₂) emissions to between 26% to 28% below 2005 levels by 2030. We can achieve this by using carbon-free or carbon-neutral gases such as hydrogen in place of natural gas (methane).

PRODUCING RENEWABLE GAS AT HYDROGEN PARK SOUTH AUSTRALIA

We're developing a renewable gas production facility called Hydrogen Park South Australia, which is located at the Tonsley Innovation District. This facility will produce renewable hydrogen using renewable electricity (wind and solar*) and water. Hydrogen can be used in the same way as natural gas for heating our homes and businesses, generating electricity and as a transport fuel. The benefit of hydrogen is that it does not contain any carbon and can be blended with natural gas to create a cleaner gas.

The main aim of this project is to demonstrate that we can produce hydrogen and use it as a carbon-free source of energy in an Australian context – similar work is already occurring overseas. This includes blending up to 5% renewable hydrogen with natural gas into a section of our distribution network.

The 5% hydrogen blend is a first step to meeting our emissions targets. We are also pursuing more projects, aiming to blend up to 10% hydrogen in South Australia into the future, as well as looking to eventually move to 100% hydrogen gas across the regions that we serve.

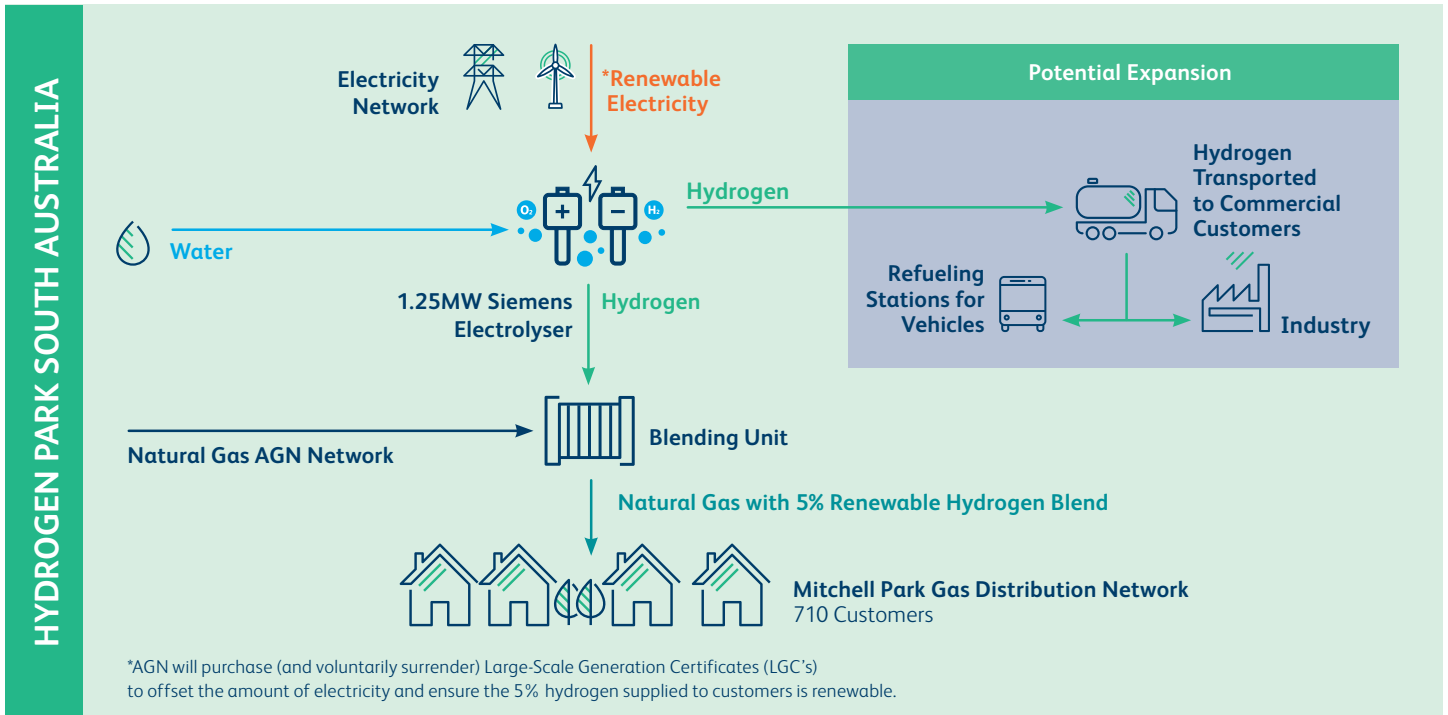
*AGN will purchase (and voluntarily surrender) Large-Scale Generation Certificates (LGC's) to offset the amount of electricity used and ensure the 5% hydrogen supplied to customers is renewable.

The 5% renewable hydrogen blend is an important first step to meeting our emissions targets. We are also pursuing more projects, aiming to increase hydrogen blends in South Australia into the future.

A pathway to cleaner energy
Blended 5% renewable gas in Mitchell Park

For more information
blendedgas.agn.com.au

A PATHWAY TO CLEANER ENERGY



HOW WILL THIS PROJECT WORK?

From mid 2020, for a period of five years, we will produce renewable hydrogen at the Tonsley Innovation District using water and renewable electricity through a process known as electrolysis. The project will produce a maximum of 20kg of hydrogen per hour and, on average, we expect to produce around 40-60kg per day. We'll have the capacity to store approximately 40kg of hydrogen on site.

The renewable hydrogen will be blended with natural gas to supply nearby homes and businesses via the existing gas network. We are also targeting supply to other markets via tube trailers (long storage tubes on the back of semi-trailers) to industry and the transport sector.

Additionally, planning is underway for a National Hydrogen Centre creating a community education hub as well as facilitating project work to underpin similar developments around Australia.

To create the hydrogen gas, we will be installing a 1.25 megawatt Siemens PEM (proton exchange membrane) electrolyser at our Tonsley facility. PEM electrolysers have a very fast start-up time and can quickly absorb excess renewable electricity from

a power system, converting water into hydrogen and oxygen.

The electrolysis process does not damage the water, rather it separates the hydrogen and oxygen, with the hydrogen then reformed back into water vapour when it is burned, releasing energy as heat. The water volumes consumed to produce hydrogen are very low: 300 litres per hour, or the equivalent of a 30 minute shower using a low flowshower head.

Other equipment on site includes a blending unit (to facilitate the supply of 5% renewable hydrogen with natural gas), electrical supply transformers and switches, water and hydrogen purification equipment, gas quality analysis equipment, heat exchangers, a storage vessel, compressors and pumps.

WHAT OUTCOMES WILL THE PROJECT DELIVER?

This project is a demonstration of our commitment to reducing carbon emissions and delivering affordable, reliable and low emission energy to our customers.

Our facility at Tonsley will:

- be one of the largest electrolysers in Australia and Australia's first integrated electricity-hydrogen-public gas network project
- show how electrolysers can be integrated into electricity and gas networks around the country, to support electricity grid stability and decarbonisation
- produce renewable hydrogen as a first step to decarbonising various sectors, including gas use in homes
- accelerate research and development, which will inform a commercial hydrogen economy
- provide the opportunity for a National Hydrogen Centre facilitating education, training, research and engagement

WHO ARE THE PROJECT PARTNERS?

Australian Gas Networks, part of Australian Gas Infrastructure Group, will deliver the project, supported by a \$4.9 million grant from the South Australian Government.