Kogan Renewable Hydrogen Demonstration Plant

CS Energy is working with Senex Energy and IHI Engineering Australia to build a green hydrogen production facility and pave the way for a new industry on the Western Downs.

The project will be located at CS Energy's Kogan Energy Hub next door to our Kogan Creek Power Station near Chinchilla on the Western Downs.

The project will include the co-location of a solar farm, battery, hydrogen electrolyser, hydrogen fuel cell, hydrogen storage and out loading facility.

The demonstration plant's hydrogen electrolyser will only be powered by behind-the-meter solar energy, making it one of the few truly renewable hydrogen projects in Australia.

The aim of the project is to produce renewable hydrogen and provide energy and other grid services while gaining expertise from an operational hydrogen project from production, storage, transport and handling.

The Queensland Government is providing $28.9 million towards the project and a refueling network from their Queensland Renewable Energy and Hydrogen Jobs Fund.

Fast facts

- ~1 MW hydrogen electrolyser
- 2 MW solar farm
- 2 MW/4 MWh battery
- 30 kW hydrogen fuel cell
- Approx. 750kg onsite hydrogen storage
- Approx. 75,000 kg p.a. hydrogen production

How it works

The Kogan Renewable Hydrogen Demonstration Plant will be one of the few true renewable hydrogen projects in Australia. This is because its hydrogen electrolyser will only be powered by behind-the-meter renewable energy from a co-located solar farm and battery.

Here's how it will work:

- The solar farm produces solar energy to power the hydrogen electrolyser.
- The battery stores excess solar energy so hydrogen can be produced outside solar hours.
- The electrolyser produces hydrogen by splitting water into hydrogen and oxygen, a process known as electrolysis.
- A hydrogen fuel cell uses oxygen and excess hydrogen to produce electricity.
- Hydrogen is stored onsite ready for collection by offtake customers.
- Trucks collect the hydrogen at the onsite loading station.

Hydrogen offtakers

Hydrogen can be used as fuel for transport or heating, a way to store electricity, or as a raw material in industrial processes.

In 2022 Sojitz Corporation was announced as the first offtaker for the Kogan Renewable Hydrogen Demonstration Plant. Renewable hydrogen from the plant will be exported to the Republic of Palau for a project to assess the potential of renewable hydrogen for use in fuel cells and marine vessels to reduce their reliance on fossil fuels.

Discussions are well advanced with other potential offtakers in the domestic heavy transport and haulage market in Queensland. CS Energy is investigating technology and location options for modular hydrogen refuelling stations in the South East Queensland and Western Downs freight corridor.

Local skills development opportunities

CS Energy has collaborated with the Toowoomba and Surat Basin Enterprise (TSBE) on two projects to encourage local participation in the hydrogen value chain. The first is a hydrogen supplier portal to ensure that existing skills and capability in the region can be utilised to support hydrogen projects in the region.

CS Energy and TSBE have also partnered with the Western Downs Council and Construction Skills Queensland on an industry-led investigation to identify the new skills needed to create a sustainable and long-term industry via the Southern Qld Hydrogen Industry Institute. The project will run across the construction and maintenance phase of the Kogan Renewable Hydrogen Demonstration Plant.

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