Hydrogen Energy Supply Chain

Developing a hydrogen industry for Australia's future

Hydrogen is a fuel of the future and has the potential to provide a secure and clean source of energy as countries tackle the challenge of meeting national and international emissions reduction targets.

In 2014, global hydrogen production was in excess of 64 million tonnes estimated to be valued at AUD$132 billion[1]. The Hydrogen Council, a global organisation of leading energy, transport and industry companies with an interest in hydrogen estimates that the international hydrogen market will be worth approximately US$2.5 trillion in 2050[2].

As a first step in developing a viable hydrogen industry in Australia, the Victorian and Australian Governments are supporting a world-first project which is backed by the Japanese Government and led by Kawasaki Heavy Industries (KHI), working together with Electric Power Development Company (J-Power), Iwatani Corporation (Iwatani), Marubeni Corporation (Marubeni) and AGL. The project will produce hydrogen in the Latrobe Valley in south-east Victoria for export to Japan.

THE HYDROGEN ENERGY SUPPLY CHAIN PILOT PROJECT

The Hydrogen Energy Supply Chain (HESC) Pilot Project presents an opportunity for Australia to be at the forefront of the rapidly expanding and increasingly important hydrogen production industry.

The HESC Pilot Project will develop and trial a fully integrated supply chain for hydrogen starting with the production of hydrogen in the Latrobe Valley in south-east Victoria and ending with the transport of that hydrogen in liquefied form to Japan.

Hydrogen production in Victoria's Latrobe Valley

The HESC Pilot Project involves the construction of a hydrogen production plant in the Latrobe Valley. The plant will use proven gasification technologies to produce hydrogen gas and will be located on AGL's Loy Yang site.

Hydrogen transport to Port of Hastings and beyond to Japan

The hydrogen gas will then be transported by road in a pressurised tank to the Port of Hastings in Victoria. Here, the gas will be liquefied using well developed technology which is already being used in several other countries.

The liquefied hydrogen will then be shipped by a specifically designed carrier ship to an unloading base in Japan where it will be used for a variety of applications, including in fuel cells and in electric vehicles.

The Pilot Project will bring together in a single supply chain, a number of proven technologies needed to create a viable Australian hydrogen industry.

1 Hazer Group, *Prospectus*, 2015
2 Hydrogen Council, *Hydrogen Scaling Up*, 2017
Image provided by Kawasaki Heavy Industries (KHI)

CARBON OFFSETS

The HESC Pilot Project will offset carbon emissions produced.

A Carbon Capture and Storage (CCS) solution is critical to any future commercial operation. The Victorian and Australian Governments' CarbonNet Project has the potential to deliver the CCS solution for the commercial project.

The CarbonNet Project is investigating the potential for establishing a commercial-scale CCS network. The network would bring together multiple carbon dioxide (CO_2) capture projects in Victoria's Latrobe Valley, transporting CO_2 via a shared pipeline and injecting it into deep underground offshore storage sites in Bass Strait.

LOOKING TO THE FUTURE: INVESTMENT AND JOBS IN VICTORIA'S LATROBE VALLEY

The project will see significant investment and benefits flow into the Victorian and wider Australian economy.

The Pilot Project will see around half a billion dollars in investment across the full supply chain in Australia and Japan. Approximately half of this investment will be in Victoria where the Pilot Project is expected to create a number of jobs during its planning, construction and one year of operation.

Based on a number of factors – including the successful completion of the Pilot Project, regulatory approvals, social licence to operate and hydrogen demand, the decision to proceed to a commercial phase will be made in the 2020s with operations targeted in the 2030s. Comprehensive community engagement would be ongoing during this period and build on the engagement undertaken during the Pilot Project.

It is estimated that more than half of the multi-billion dollar investment required for a full commercial operation would be spent on infrastructure located in Australia, with thousands of jobs set to be created during the commercial phase.

KEEPING THE COMMUNITY INFORMED

The Victorian and Australian Governments are committed to keeping communities fully informed about the HESC Pilot Project as it progresses.

Opportunities for the community to learn more about the project as it progresses will be provided in a range of ways, including through additional fact sheets and web and electronic news updates.

Further information can be found at the relevant government and project partner websites:

invest.vic.gov.au/opportunities/hydrogen-energy-supply-chain

industry.gov.au/HESC

hydrogenenergysupplychain.com

AN OPPORTUNITY FOR VICTORIA AND AUSTRALIA

The HESC Pilot Project puts Australia in a strong position to be the first place in the world to create a thriving hydrogen export industry that will bring significant economic benefits in the form of jobs and investment to the Latrobe Valley, Victoria and Australia.

The project also allows Victoria to play a leading role in developing a clean, new source of energy for domestic consumers and markets.

The HESC Pilot Project builds on both Victoria's and Australia's long and well-established relationship with Japan and provides an opportunity for Australia to lead the way in the production of the fuel of the future.

Image provided by Kawasaki Heavy Industries (KHI)

Australian Government
Department of Industry, Innovation and Science

VICTORIA State Government