

January 21, 2022

Dawn of Australia's Hydrogen Industry



Today's arrival of the world's first liquefied hydrogen carrier, the Suiso Frontier, in Victoria marks the success of the Hydrogen Energy Supply Chain (HESC) Pilot Project and the dawn of Australia's hydrogen industry.

HESC's vision is to produce carbon neutral hydrogen through extraction from a mix of Latrobe Valley coal and biomass, capturing and storing CO₂ via CarbonNet and optimising energy efficiency in the HESC supply chain.

The 225,000 tonnes of carbon neutral liquefied hydrogen (LH₂) produced by HESC in a commercial phase will contribute to reducing global CO₂ emissions by some 1.8 million tonnes per year (equivalent to the emission of about 350,000 petrol-driven cars), while providing valuable infrastructure for other hydrogen projects in the region.

In a commercial phase, the project will create 30,000 full-time jobs across the Gippsland and Mornington Peninsula regions over the life of the project.

During the Pilot Project, 99.999% pure hydrogen has been produced from Latrobe Valley coal and biomass via gasification, trucked to Hastings, cooled to -253 degrees and subsequently liquefied to less than 800 times its gaseous volume to create highly valuable liquefied hydrogen.

The loading of liquefied hydrogen onto the Suiso Frontier for the return journey to Kobe, Japan, makes the HESC Project the most advanced and scalable hydrogen project in Australia and the first project in the world to make, liquefy and transport liquid hydrogen by sea to an international market.

The Australia-Japan HESC partnership is at the cutting edge of creating new technology, cleaner energy, and jobs for both countries.

The learnings from the Pilot will form the basis for further work towards delivering HESC at a commercial scale. Specifically, the team will undertake extensive research and development into the technical and operational requirements that delivery of a commercial-scale project will entail.

Activities that will be undertaken include:

- Continuing to test and demonstrate the transport of liquid hydrogen across the ocean with further return trips of the Suiso Frontier between Australia and Japan.
 - Undertaking regulatory approval activities.
 - Ongoing discussion and monitoring of CarbonNet.
 - Investigations on the economics of the commercial-scale project and its business model.
 - Engagement with potential 'off-takers' in Australia and Japan.
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- Further refining and testing of biomass feed stock for hydrogen production (blending with Latrobe Valley coal).
 - Improving technologies to reduce costs and carbon intensity across the supply chain. This includes further development of the ortho-para conversion catalyst for creating LH₂ in partnership with CSIRO.
 - Implementing a comprehensive stakeholder engagement program to continue building social licence among impacted communities.

The HESC Project Partners are: Kawasaki Heavy Industries, Ltd (KHI), Electric Power Development Co., Ltd. (J-POWER), Iwatani Corporation (Iwatani), Marubeni Corporation (Marubeni), AGL Energy (AGL) and Sumitomo Corporation (Sumitomo). Royal Dutch Shell (Shell), ENEOS Corporation and Kawasaki Kisen Kaisha, Ltd. (K-Line) are also involved in the Japanese portion of the project.

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