



Kansai Electric Power  
power with heart



September 15, 2021

Iwatani Corporation

Kawasaki Heavy Industries, Ltd.

The Kansai Electric Power Co., Inc.

Marubeni Corporation

Stanwell Corporation Limited

APT Management Services Pty Ltd.

**Implementation of a Japan-Australia Project Feasibility Study for the Creation of a Large-Scale Green Liquefied Hydrogen Supply Chain  
- Six Japanese and Australian companies sign a memorandum of understanding -**

Four Japanese companies, Iwatani Corporation (hereinafter referred to as “Iwatani,” President: Hiroshi Majima), Kawasaki Heavy Industries, Ltd. (hereinafter referred to as “Kawasaki,” President and CEO: Yasuhiko Hashimoto), Kansai Electric Power Co., Inc. (hereinafter referred to as “Kansai Electric Power,” President and Director of the Company: Takashi Morimoto), and Marubeni Corporation (hereinafter referred to as “Marubeni,” President and CEO: Masumi Kakinoki), have come to an agreement and signed a memorandum of understanding with two energy infrastructure companies headquartered in Australia, Stanwell Corporation Limited (hereinafter referred to as “Stanwell,” CEO: Adam Aspinall) and APT Management Services Pty Ltd. (hereinafter referred to as “APA,” CEO: Robert Wheals), to jointly implement a feasibility study of the Central Queensland Hydrogen Project (hereinafter referred to as “CQ-H2”). This project will produce hydrogen on a large scale using renewable energy, liquefy it at the Port of Gladstone, Queensland, Australia, and then export the liquefied hydrogen to Japan.

Since hydrogen is widely expected to be an indispensable energy resource for the realization of a zero-carbon society, the creation of a hydrogen supply chain, which includes transportation from overseas, is considered essential<sup>\*1</sup>. However, since the currently established hydrogen production technology using fossil fuels emits CO<sub>2</sub> during the production process, in order to achieve a zero-carbon society, it is necessary to establish CO<sub>2</sub>-free hydrogen production in combination with CO<sub>2</sub> capture and storage technology and the use of renewable energy. Since the competition for the acquisition of CO<sub>2</sub>-free hydrogen sources has intensified globally, it is important to secure a low-cost power supply from renewable energy sources and export ports.

Against this backdrop, the Queensland government has been promoting the energy transition from fossil fuels to renewable energy and hydrogen. Moreover, Queensland has an extremely high potential for renewable energy, since the area experiences favorable weather conditions for more than 300 days a year. Stanwell, an electric power corporation owned by the Queensland government, also plays a key role in achieving this energy transition goal.

As such, from 2019 to 2020 Iwatani and Stanwell conducted a concept study of the production of green liquefied hydrogen and its export to Japan. Based on the findings of the study, the six Japanese and Australian companies agreed to fully implement a feasibility study to examine the commercial viability of the Project.\*<sup>2</sup>

The Project aims to produce and supply low-cost hydrogen reliably over the long-term and has set goals of producing at least 100 tons of hydrogen per day around 2026, and 800 tons of hydrogen per day from 2031.

Currently, the production volume of liquefied hydrogen in Japan is 30 tons per day maximum, meaning that the target production volume of 800 tons per day from 2031 is about 26 times as much as the current production volume in Japan.

| Expected year of commencement | Hydrogen Production Volume | Expected Renewable Energy Requirement |
|-------------------------------|----------------------------|---------------------------------------|
| 2026                          | At least 100 tons/day      | About 1 GW                            |
| 2031                          | At least 800 tons/day      | At least 7 GW                         |

The use of the Aldoga site (235 hectares), a hydrogen production base secured by Stanwell in the Gladstone region, will be considered for the Project, and a site of about 100 hectares in Fisherman's Landing is to be acquired as a hydrogen liquefaction and loading base.

The Project will also consider supplying green hydrogen, not only for export to Japan, but also to meet local demand.

The feasibility study will focus on examinations of production technology mainly for green hydrogen, the construction of hydrogen liquefaction plants and liquefied hydrogen carriers, associated finance and environmental assessments, and commercialization models.

Through the activities of the Project, all six companies will make every effort to create a bilateral large-scale hydrogen supply chain\*<sup>3</sup> promoted by the Japanese and Australian governments and thereby contribute to the realization of a zero-carbon society.

<Roles in the Project Feasibility Study>

| Company Name          | Expected Role   |
|-----------------------|---|
| Iwatani               | <ul style="list-style-type: none"> <li>• Coordination among Japanese companies</li> <li>• Operation of liquefied hydrogen plants and provision of know-how</li> <li>• Supporting the review of hydrogen production plants</li> </ul>  |
| Kawasaki              | <ul style="list-style-type: none"> <li>• Study on hydrogen liquefaction and loading terminals and liquefied hydrogen carriers from a technical and cost perspective</li> </ul>  |
| Kansai Electric Power | <ul style="list-style-type: none"> <li>• Provision of information on the potential utilization of hydrogen, such as a fuel for gas-fired power generation and heating energy availability for end-users</li> </ul>  |
| Marubeni              | <ul style="list-style-type: none"> <li>• Review of a commercialization model</li> <li>• Collection of information by leveraging the company's local network</li> <li>• Provision of off-taker information</li> </ul>  |
| Stanwell              | <ul style="list-style-type: none"> <li>• Coordination between Australian companies</li> <li>• Review of a hydrogen production plant<br/>(Reviews of hydrogen generators, power supply from renewable energy sources, and water resources)</li> <li>• Coordination of overall project development</li> </ul>   |
| APA                   | <ul style="list-style-type: none"> <li>• General advice on the reviews made by Australian companies<br/>(Hydrogen production plants and overall infrastructure, including electricity and water)</li> <li>• Advice on the construction of hydrogen pipelines</li> <li>• Advice on the management and operation of the plant in Australia</li> </ul> |

<Notes>

\*1: Mentioned in the Green Growth Strategy announced by the Japanese Ministry of Economy, Trade and Industry on June 18, 2021.

\*2: For implementation of the feasibility study, support will be provided by the Japanese and Australian governments (Australia: Australian Renewable Energy Agency (ARENA), Japan: Ministry of Economy, Trade and Industry).

\*3: "Japan-Australia Partnership on Decarbonization through Technology" was announced on June 13, 2021, where the project for the creation of a hydrogen energy supply chain is ongoing.

<Rendered image of Aldoga Site, a hydrogen production base>



<Reference Press Release>

- November 27, 2020 Iwatani implemented a concept study.

[http://www.iwatani.co.jp/img/jpn/pdf/newsrelease/1374/20201127\\_news\\_jp2.pdf](http://www.iwatani.co.jp/img/jpn/pdf/newsrelease/1374/20201127_news_jp2.pdf)

- November 27, 2020 Stanwell implemented a concept study.

<https://www.stanwell.com/our-news/media/central-queensland-a-future-hydrogen-export-powerhouse/>

- June 8, 202 Stanwell secured a site in Aldoga, a hydrogen production base.

<https://www.stanwell.com/our-news/media/stanwell-locks-in-land-for-central-queensland-green-hydrogen-project/>