

**“Financing Programme to Demonstrate Decarbonization
Technology for Realizing Co-Innovation”**

and

**“Pilot Project for Comprehensive Support throughout
the Whole Hydrogen Supply Chain Abroad”**

February 2, 2022

**Global Environment Centre Foundation
(GEC)**



Japan (MOEJ) promotes the JCM Financing Schemes for the transition to a decarbonized society in developing countries.



< JCM Financing Schemes >

1. Financing Programme for JCM Model Projects
- ✓ 2. **Financing Programme to Demonstrate Decarbonization Technology for Realizing Co-Innovation**
- ✓ 3. **Pilot Project for Comprehensive Support throughout the Whole Hydrogen Supply Chain Abroad**

Budget for projects starting from FY 2021 is about JPY 8.8 billion (approx. USD 88 million) in total by FY2023 (USD1 = JPY100)

“Financing Programme to Demonstrate Decarbonization Technology for Realizing Co-Innovation”

Purposes and Characteristics

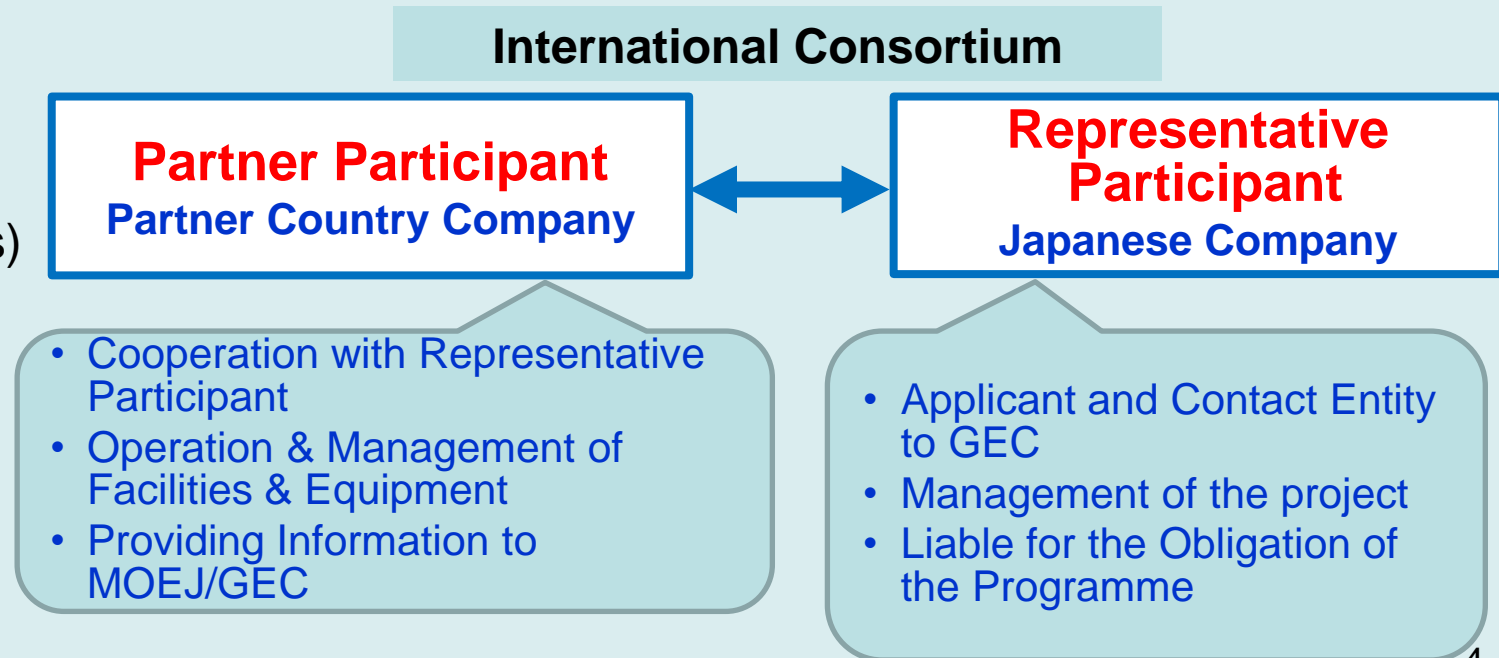
This financing programme aims to;

- Contribute to creating a decarbonized society through renovation and dissemination of high quality decarbonization technologies.
- Create innovation beneficial for both Japan and partner countries through collaboration (co-innovation).
- Contribute to fulfill the aim of a greenhouse gas reduction in Japan through the Joint Crediting Mechanism (JCM) .
- Bring benefits to the technology developers in Japan as a result.

Participant Eligibility

- Japanese entities (e.g. private companies)

Participants must establish the International Consortium that consists of foreign entities, etc.



Implementation Period of Financing Programme

- Project implementation period shall be within 3 years.

(Application documents for the Contract of Finance must be submitted in the first fiscal year.)

Ratio of Financial Support

- Small and medium-sized enterprises: 2/3
(Definition in the law of Japan)
- Participants who do not fall into the above classification
 - Project cost at time of the application exceeds ¥100,000,000 per fiscal year: 1/2
 - Project cost at time of the application does not exceed ¥100,000,000 per fiscal year: 1/3

- This financing programme is intended for renovation and demonstration of decarbonizing technologies that reduce energy-related CO2 emissions.
- Desirable projects are those that aim to systematize or package multiple technologies.

Eligible Technologies are contributing to;

- The reduction of energy-related CO2 emissions through waste management in partner countries.
- The reduction of CO2 emissions from the transport, household, or business sectors and others in partner countries.
- The promotion of renewable energy using solar power generation, wind power generation, geothermal power generation or hydroelectric power generation in partner countries.
- Transformation of social systems of partner countries into decarbonizing ones.
- The reduction of energy-related CO2 emissions other than the above cases.

- The financing programme covers the costs below.
- **Costs directly required to implement the project.**

Cost of ;

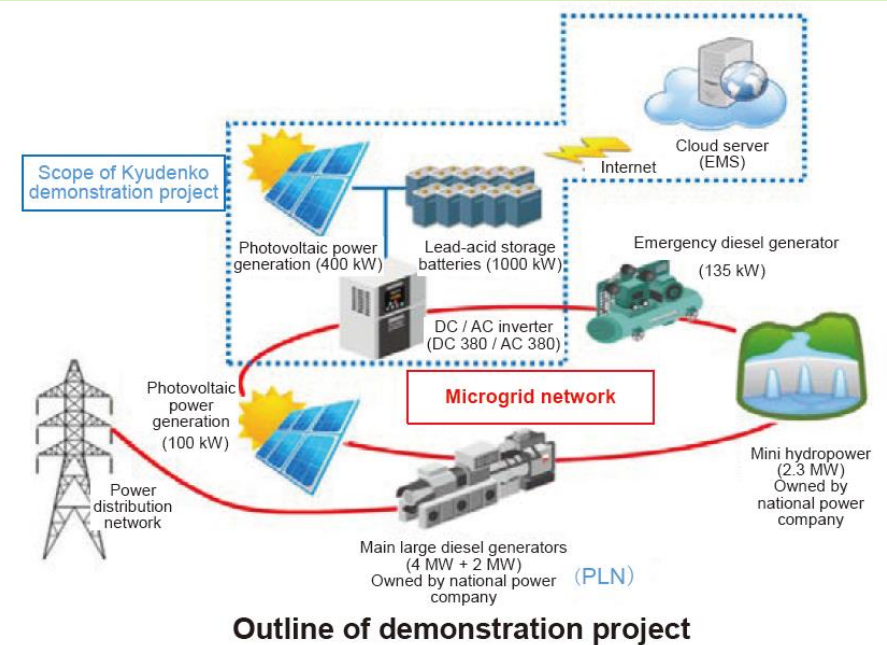
- Machinery and equipment
- Erection and installation
- Ancillary work
- Survey and test
- Facilities / instruments (including monitoring system)
- Administrative work

Development of an energy management system (EMS) to provide a stable supply of renewable energy Representative Participant: Kyudenko Corporation

Outline of project

This project aims to;

- Reduce CO2 emissions by substituting renewable energy for existing diesel generators.
- Also, in collaboration with Agency for the Assessment and Application of Technology, to demonstrate EMS and storage batteries for stable power supply from various sources including renewable energy.



Region: Sumba Island

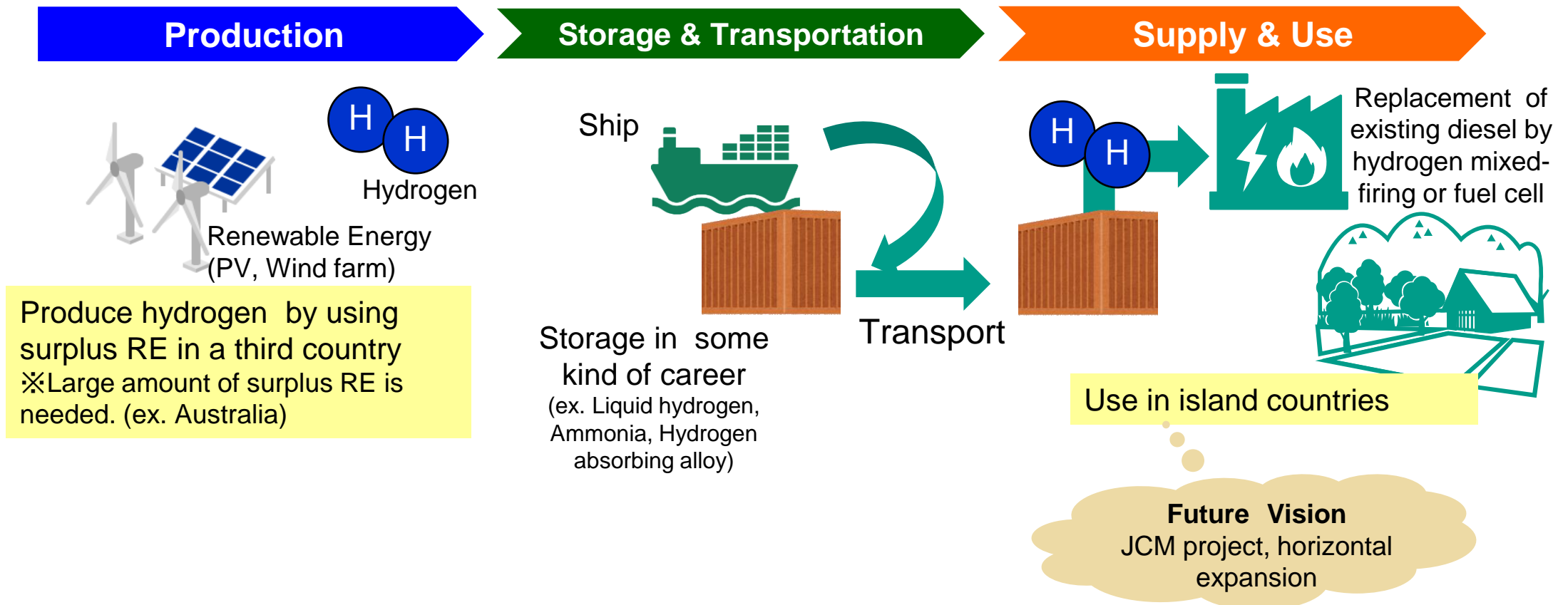


Map data ©2021 Google

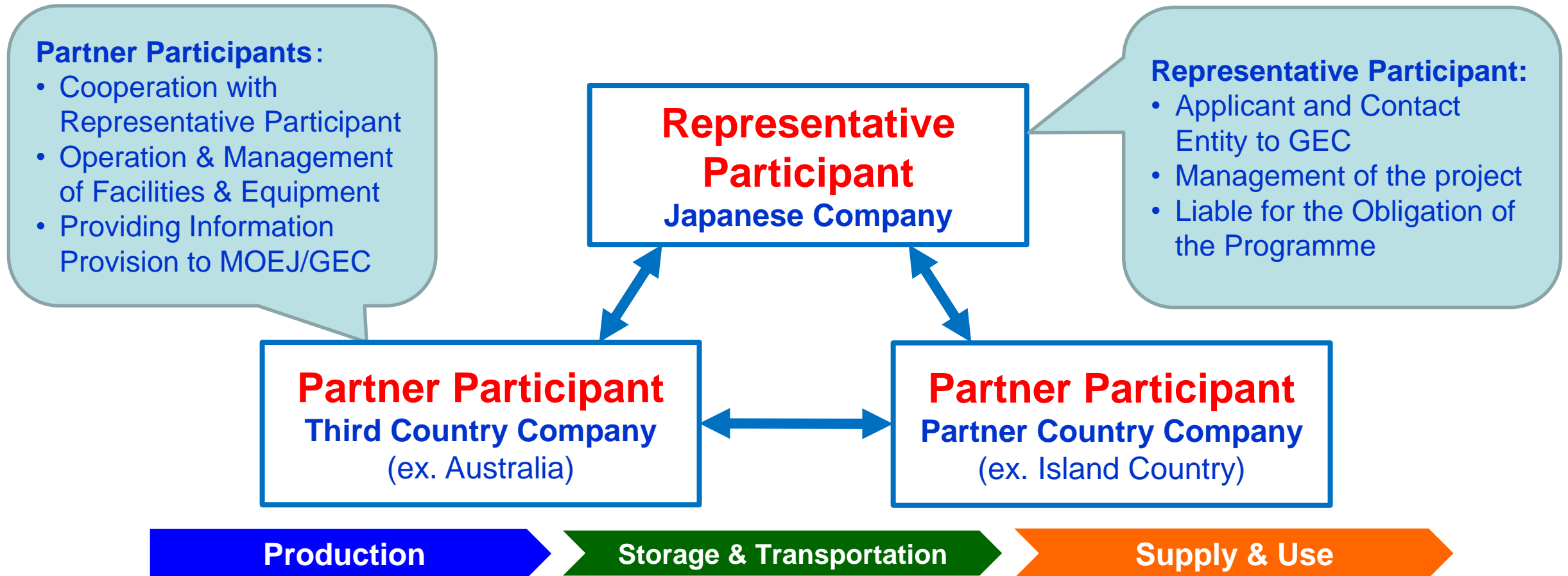
- A model region for the introduction of renewable energy designated by the Indonesian government.
- Local power grids in isolated islands are mainly supplied by diesel generators.

**“Pilot Project for Comprehensive Support throughout
the Whole Hydrogen Supply Chain Abroad”**

- Produce and storage renewable hydrogen in a third country where renewable energy is abundant, and transport to supply and use in island countries.
- Cultivate demand market by supplying renewable hydrogen to island countries, which will lead to JCM projects and help developing countries transition to a decarbonized society.



International Consortium



- 1. Budget for projects starting from FY 2021 :**
JPY 500 million/year (Approx. USD 5 million/year)

- 2. Ratio of Financial Support :**
50% of Costs Eligible for Financing

- 3. Costs Eligible for Financing :**
Costs directly required to implement the project
 - a. Machinery and equipment
 - b. Erection and installation
 - c. Ancillary work
 - d. Survey and test
 - e. Facilities / instruments (including monitoring system)
 - f. Administrative work

1. Implementation Period of the Project :

Within 3 fiscal years

2. Period of Financial Support :

1 fiscal year (applicable continuously to the next year)

3. Evaluation of financial support needs 2 steps as follows

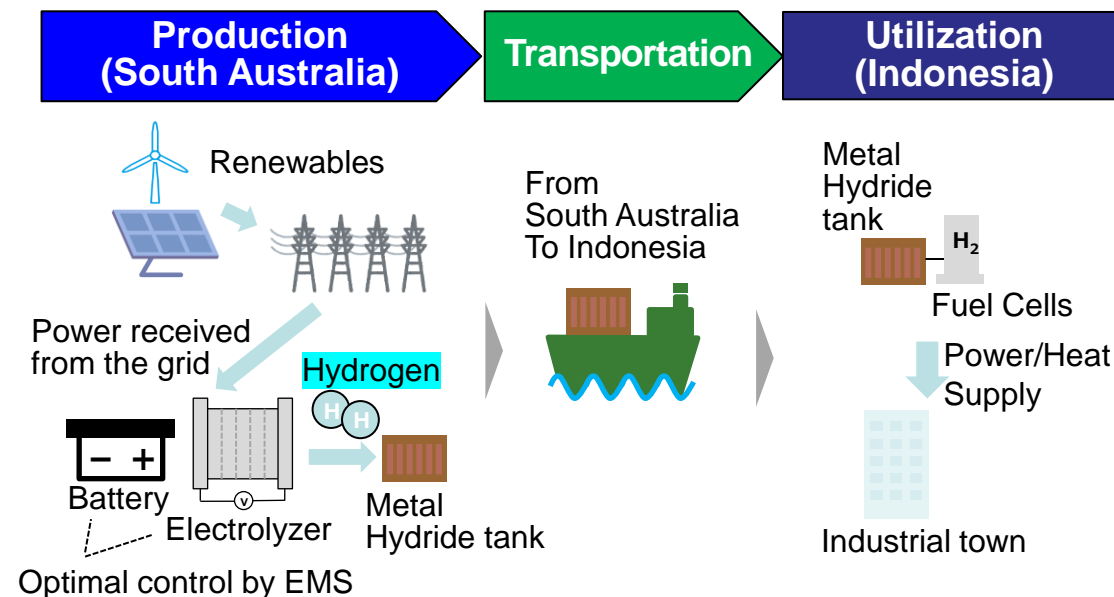
- **Preliminary Selection:** The detailed plan of the entire project period should be described in the project implementation plan in the proposal in the first year.
- **Evaluation of contents:** Applicants selected for the financial support must submit application documents for the Contract of Finance each fiscal year.

Production of economical green hydrogen in South Australia, transportation of hydrogen by metal hydride to Indonesia and utilization of hydrogen through fuel cell in industrial town in Indonesia

Representative participant:
Marubeni Corporation

Outline of demonstration project

- In South Australia, materialize economical and stable green hydrogen production by 1) making effective use of grid surplus power come from renewable energy, 2) improving the utilization rate of electrolyzer by using the energy charged in the battery, 3) developing and operating the energy management system (EMS) for the optimal operation of electrolyzer and battery depending on weather and spot power price etc., and also try to contribute the grid stabilization at the same time.
- By using the metal hydride tank, transport the green hydrogen from South Australia to Java island in Indonesia, and do power/heat supply services in the industrial town in Indonesia by using fuel cells.



Outline of partner country / region

Site for utilization: Bekasi, West Java, Indonesia



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- Indonesian government lists environmental measures as a priority and is working to materialize the low carbon society under their medium-term development plan to 2024.
- There are many islands, and they rely on mainly fossil fuel generations.

Site for production: Adelaide, South Australia

Prospects at commercialization (around 2030)

Estimated GHG reduction: 7,929 tCO₂/y (1st Step)

1st Step: Installment of total 2MW fuel cells as distributed power supply in industrial towns near Jakarta and do power/heat supplying services by utilizing the economical green hydrogen produced in South Australia.

2nd Step: Based on the 1st Step experience, minimize the operational risk and try to adopt the same business model in other islands in Indonesia and other Pacific Island countries by installing fuel cells as the replacement of existing diesel generators.

Demonstration Project on Green Hydrogen Production in Australia, its Transportation to Palau and Utilization by Fuel Cell and Fuel Cell Boat

Representative participant:
Sojitz Corporation

Outline of demonstration project

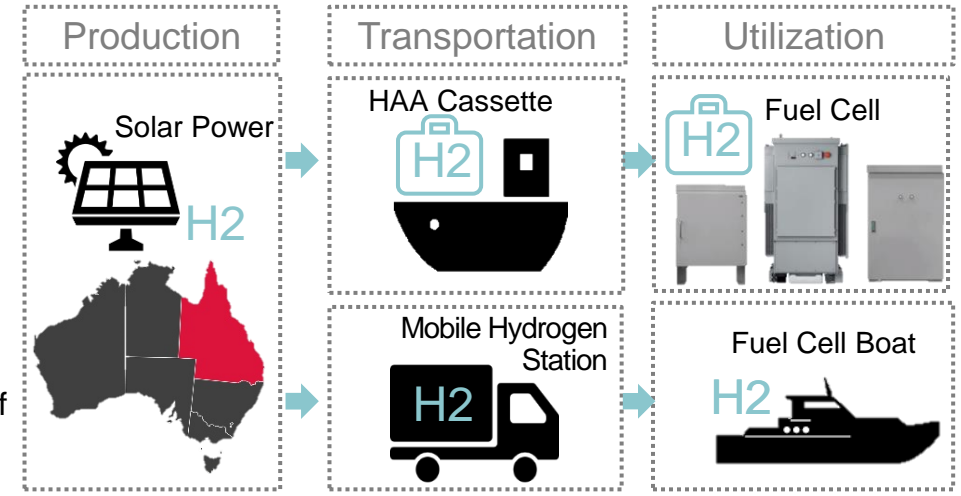
Demonstration project involves the use of solar power generation to produce green hydrogen in Queensland, Australia, which will then be transported to Pacific Island countries for utilization in small fuel cells and hydrogen fuel boats that have the potential to popularize hydrogen use on islands.

1. Stationary Fuel cells

Transport hydrogen to Palau by Hydrogen Absorbing Alloy (HAA) cassette. In anticipation of a hydrogen-based society after 2030, demonstrations will be conducted with the aim of implementing stationary fuel cells to realize a distributed power supply and backup power sources.

2. Fuel Cell Boat

In anticipation of a hydrogen-based society after 2030, a demonstration will be conducted with the goal of converting marine fuel small boats to hydrogen fuel boats in the future. During the period for this project, demonstrations with hydrogen fuel boats will first be carried out off the coast of Queensland, Australia.



Outline of partner country / region



Maps Data: Google, ©2021

【Site for utilization : Republic of Palau】

There is currently a high dependence on fossil fuels for energy. As part of its efforts to shift towards decarbonization, Palau has committed to achieving a target of 45% renewable energy generation by 2025.

【Site for production : Queensland, Australia】

The government of Japan and Australia have announced their commitment to the Japan-Australia Partnership on Decarbonization through Technology.

Prospects at commercialization (around 2030)

Expected GHG reduction: 9,131tCO2/y

Seek to achieve early commercialization of an economically efficient hydrogen supply chain that will extend to include neighboring Pacific Island countries.

1. Stationary Fuel cells

Palau has a poor power grid system, and there is a demand for the construction of a backup power system. At present, the country's main source of energy is independent power plants that rely on diesel fuel. Try to achieve decarbonization by implementing stationary fuel cells as a distributed power supply and a backup power source.

2. Fuel Cell Boat

Palau is an archipelago comprised of over 200 islands, where more than 1000 marine fuel small boats are in operation as part of island tourism, daily life, and the fishing industry. Try to achieve decarbonization by converting marine fuel small boats to hydrogen fuel boats.

Gracias Thank you!

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