

# Island Pilot Project: Renewable Energy Hydrogen System Enhancing Aquaculture

Project Name: Renewable energy research and study projects contributing to the development of high-level energy infrastructure in Iki City.

Verification testing of CO2-free hydrogen utilization through

the Power-to-Gas practical application system

On-land aquaculture section with self-sufficient,

BCP-capable operation via a renewable energy hydrogen power supply system

## [Features]

- Transforming a portion of solar power into hydrogen to then provide electricity through fuel cells at times of need. (Self-reliant operation, BCP capability)
- Utilizing waste heat from the water electrolysis and fuel cells to heat the water tank.
- Supplying oxygen to the water tank from the electrolysis by-product, raising the oxygen concentration.

Enhanced  
Fish  
Growth



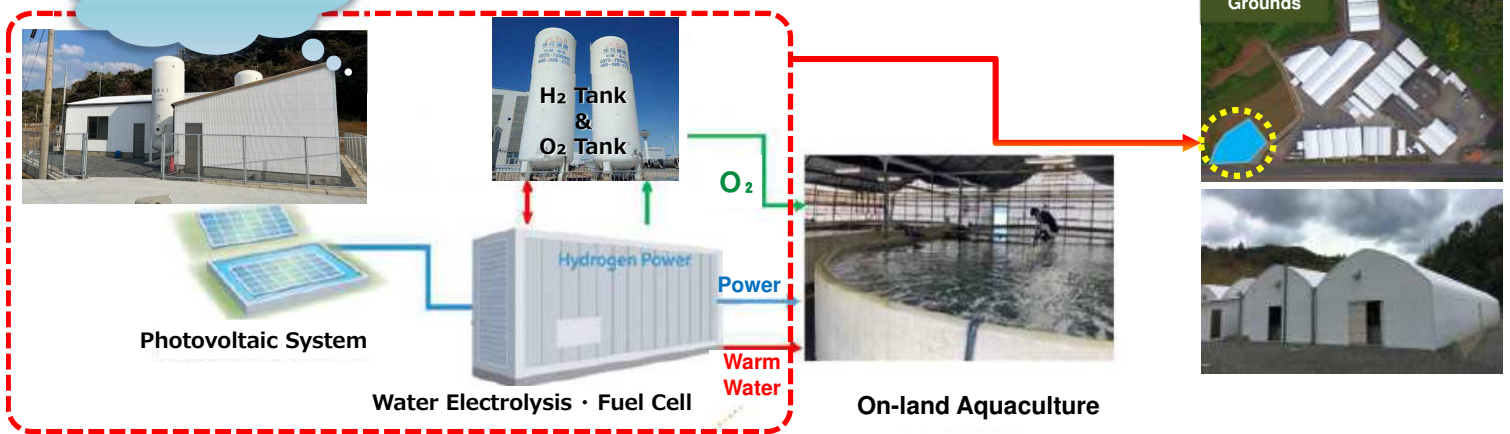
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The University of Tokyo



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World's First ?!

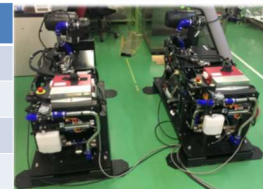


## Technical Specifications : Water Electrolysis, H<sub>2</sub> and O<sub>2</sub> Supply Unit

Type of Electrolysis		PEM
H <sub>2</sub> Generation Capacity	Flow	10Nm <sup>3</sup> /h
	Pressure	0.8MPa.G
O <sub>2</sub> Generation Capacity	Dew Point	>-40℃
	Flow	5Nm <sup>3</sup> /h
External Dimensions	Pressure	0.6MPa.G
	Dew Point	No condensation (@ 1atm)
Heat Exchanger Function		Removal of exhaust heat at the time of electrolysis by a water-cooled heat exchanger.
Safety Measures		<ul style="list-style-type: none"> <li>Monitoring of O<sub>2</sub> levels in H<sub>2</sub> as well as H<sub>2</sub> levels in O<sub>2</sub></li> <li>H<sub>2</sub> leakage detection in equipment</li> </ul>

## Technical Specifications: Fuel Cell Power Supply Unit

Type of Power Generation	PEFC
Power Generation Capacity	2 Units of 8kw
Output Voltage	Rated Value: 48Vdc (Voltage Range: 40~52Vdc)
Output Current	0~210A
H <sub>2</sub> Pressure Supplied	90±5kPa.G
Outer Dimensions	1500 x 700 x 850mm
Weight	300kg
Heat Exchanger Function	Removal of exhaust heat at the time of power generation by a water-cooled heat exchanger.
Safety Measures	Leakage monitoring through a hydrogen detector



Please note that the technical specifications for this device, as provided by the manufacturer in Japan, may differ depending on the country in which you plan to use the device. Please consult the relevant documentation or seek expert advice if you have any concerns or questions about using this device in a particular location.