

Commencing hydrogen demonstration experiment using megawatt-class water
electrolyser

Sumitomo Corporation (Head Office: Chiyoda-ku, Tokyo; Representative Director, President and Chief Executive Officer: Masayuki Hyodo) and Tokyo Gas Co., Ltd. (Head Office: Minato-ku, Tokyo; Representative Corporate Executive Officer, President and CEO: Takashi Uchida; hereinafter "Tokyo Gas") have agreed to conduct a joint hydrogen utilization demonstration experiment (hereinafter "this demonstration") at the Tokyo Gas Yokohama Techno Station using a megawatt-class polymer electrolyte membrane water electrolyser developed by ITM Power Plc (Headquarters: Sheffield, UK; CEO: Graham Cooley; hereinafter "ITM Power").

The Government of Japan has set a goal of achieving carbon neutrality by 2050, and aims to supply more than 420,000 tons of clean hydrogen*¹ per year. Hydrogen produced by water electrolyzers using electricity derived from renewable sources of energy is considered to be green hydrogen and a trump card for carbon-free societies in that no CO₂ emissions are produced during its production process. Furthermore, the upscaling of water electrolyzers is attracting worldwide attention as players aim to reduce green hydrogen production costs and boost efficiencies.

In this demonstration, we will be verifying the operation of ITM Power's large water electrolyser. This is the first operational verification to be carried out in Japan on a foreign-made large water electrolyser. Sumitomo Corporation plans to deliver a 2.0 MW-class water electrolyser, with its hydrogen discharge pressure adjusted from the product's standard specification of 2 MPa to less than 1 MPa to comply with Japanese domestic regulations, to Tokyo Gas Yokohama Techno Station in June 2022 and start a joint demonstration of the electrolyser. Tokyo Gas will install the water electrolyser and operate it under various operating conditions to understand the performance of the latest-generation water electrolyzers, and to accumulate know-how on the introduction of large water electrolyzers, including on equipment operation and construction of related facilities. The hydrogen produced will be used for the research and development of hydrogen utilization at Tokyo Gas Yokohama Techno Station with the aim of achieving decarbonization. The results from this demonstration will be shared by the two companies and utilized for future business development.

*1: A collective term that refers to green hydrogen, or hydrogen with a CO₂ emission-free life cycle, and blue hydrogen, or CO₂ recovered and utilized from manufacturing processes that use fossil fuels.

■ Comment from Hajime Mori, Executive Officer, Energy Division General Manager, Energy Innovation Initiative Director, Sumitomo Corporation:

“Sumitomo Corporation entered into a strategic partnership with ITM Power in 2018 and has been working to introduce the company’s polymer electrolyte membrane water electrolyser into the Japanese market. ITM Power’s advanced and cost-competitive electrolysis technology is set to drive green hydrogen production projects in Japan that use large electrolysers. At Sumitomo Corporation, we will continue to accelerate our efforts to build a hydrogen-based society with the aim of achieving carbon neutrality in 2050 and realizing sustainable energy cycles.”

■ Comment from Hisataka Yakabe, Executive Officer, General Manager of Hydrogen & Carbon Management Technology Strategy Department, Digital Innovation Division, Tokyo Gas:

“At the Tokyo Gas Group, we are strengthening our technological development for decarbonizing gas-state sources of energy in order to fulfill our ‘Challenge to Achieve Net Zero CO₂’ that we set forth in our management vision ‘Compass 2030.’ Through this demonstration, we will accumulate operational know-how on large water electrolysers, accelerate their social implementation in combination with the development of direct hydrogen utilization and methanation technologies, and contribute to achieving the government’s goal of ‘realizing a carbon-neutral, decarbonized society by 2050.’”

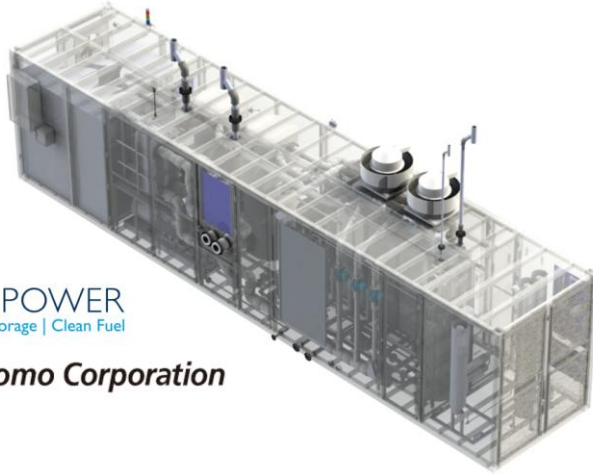
■ Comment from Graham Cooley, CEO, ITM Power:

“It is an honour for us to deploy our first electrolyser in Japan with Tokyo Gas. Together with our partner Sumitomo Corporation, we are looking forward to demonstrating how PEM electrolysis can make a major contribution to decarbonising industry and energy in Japan. This megawatt scale product at the laboratory of such a prestigious customer will help us to become better known in the key Japanese market.”

<Specifications of the water electrolyser to be used in this demonstration>

Model	HGas3SP
Electrolyser technology	Polymer Electrolyte Membrane (PEM)
Hydrogen production	30.9 kg/h
Power supply	2.0MW
System packaging and size	40-foot container Chiller/air blast

<Product photo>



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