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Asahi Kasei Corporation  
JGC Holdings Corporation

## **Start of green chemical plant demonstration project utilizing large-scale hydrogen production system**

Asahi Kasei Corporation (“Asahi Kasei”) and JGC Holdings Corporation (“JGC”) have jointly applied for a project entitled “Large-scale Alkaline Water Electrolysis System Development and Green Chemical Plant Demonstration” (“the Project”) under the “Green Innovation Fund /Hydrogen Production by Water Electrolysis Using Renewable Energy” envisioned for fiscal 2021–2030 by Japan’s New Energy and Industrial Technology Development Organization (“NEDO”), and the Project has been accepted.

### 1. Background

Hydrogen is expected to play an important role for achieving a carbon neutral society. Asahi Kasei has advanced developments to commercialize hydrogen production technology including development of the world-leading 10 MW large-scale alkaline water electrolysis system at the Fukushima Hydrogen Energy Research Field (FH2R) as part of a NEDO project<sup>1</sup> while JGC has developed ammonia production technology using CO<sub>2</sub>-free hydrogen through the Cross-ministerial Strategic Innovation Promotion Program (SIP)<sup>2</sup> led by the Cabinet Office of Japan.

### 2. Overview of the Project

Asahi Kasei and JGC will work together in the Project to jointly demonstrate the large alkaline water electrolysis system on a scale of up to 100 MW<sup>3</sup> and the green chemical plant using hydrogen from renewable energy, leveraging the hydrogen-related technology both companies have accumulated over an extended period, to enable practical application in society as swiftly and surely as possible.

Demonstration and commercialization of the large alkaline water electrolysis system on a 2-digit MW scale will utilize feedback from FH2R in constituent technology developments together with module technology for parallel installation of electrolyzers to meet market needs from the perspectives of safety, durability, performance, and cost.

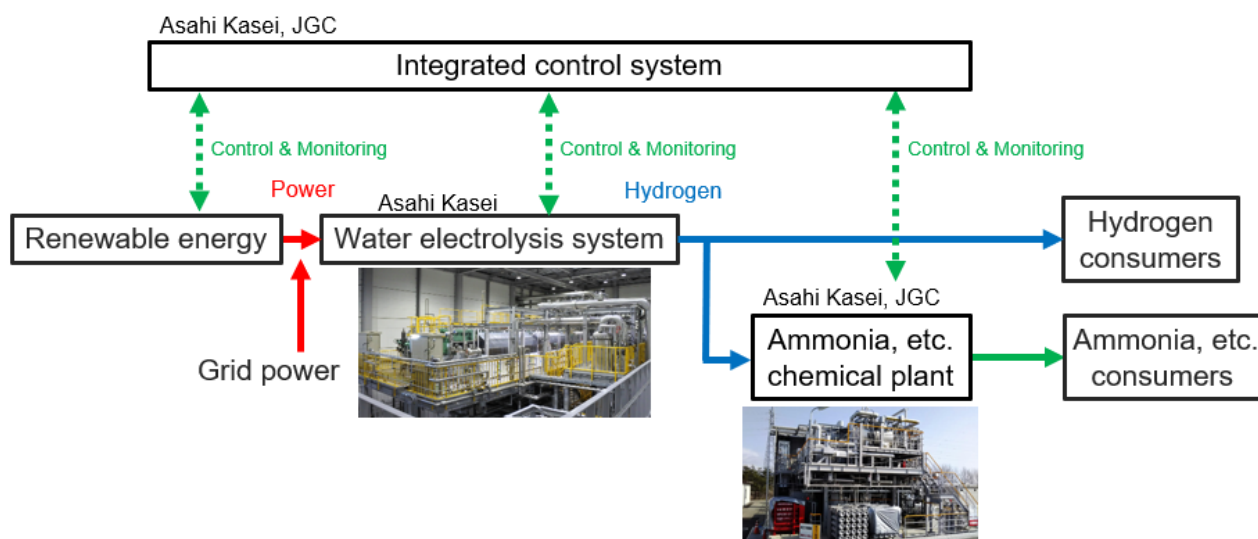
For the green chemical plant, Asahi Kasei and JGC will jointly develop an integrated control system which controls the amount of hydrogen supply and optimizes plant operation in the process supplied by hydrogen feedstock originating from fluctuating renewable energy. Feasibility study (FS) and technological demonstration will also be performed on plants utilizing the integrated control system for chemical synthesis of products such as green ammonia.

To accelerate commercialization and market creation by elucidating benefits and challenges related to practical application in society, companies involved in the supply chain of green hydrogen and green chemicals are invited to participate in the Project. In fiscal 2021, Mitsubishi Corporation and JERA Co., Inc. are scheduled to join as consigned companies.

### 3. Roles of involvement in the Project

- (1) Technological development for scale-up and modularization of the alkaline water electrolysis system (Asahi Kasei)
- (2) Development of constituent technology for large alkaline water electrolyzers (Asahi Kasei)
- (3) FS and technological demonstration of green chemical plants (Asahi Kasei and JGC)

Schematic illustration of the Project



#### *About Asahi Kasei*

Asahi Kasei identifies the Environment & Energy as one of its priority fields for provision of value subject to priority allocation of management resources. In addition to its goal of carbon neutrality by 2050, the Asahi Kasei Group contributes to reduced GHG emissions around the world through technologies, products, and services such as production of green hydrogen, components for batteries, plastic recycling, CO<sub>2</sub> chemistry, etc. Moving forward, we will contribute to life and living for people around the world through enhanced collaboration with supply-chain partners while addressing global climate issues by leveraging the scientific strengths cultivated since our founding.

More information on the sustainability of the Asahi Kasei Group

[https://www.asahi-kasei.com/sustainability/about\\_sustainability/](https://www.asahi-kasei.com/sustainability/about_sustainability/)

#### *About JGC*

In May 2021, JGC formulated the Long-term management vision of “2040 Vision”, where “Enhancing planetary health” is set as Purpose of the JGC Group and realization of “societies in harmony with environment” and “Improvement of Energy Access” are identified as important issues (Materiality). Aside from the Project, JGC is making various efforts to promote the use of hydrogen and ammonia, which are expected to contribute to decarbonization of society.

More information on the sustainability of the JGC Group

<https://www.jgc.com/en/esg-hsse/>

- <sup>1</sup> Project name: Hydrogen social construction technical development project/Hydrogen energy system technical development/Technical development concerning business model construction and the large-scale actual proof of a re-energy use hydrogen system
- <sup>2</sup> SIP Energy Carriers/ Development of technologies to produce ammonia using CO<sub>2</sub>-free hydrogen, store, and transport
- <sup>3</sup> Equivalent to average electricity consumption of approximately 200,000 ordinary households.

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