

August 4, 2017

Hitachi, Ltd.

Marubeni Corporation

Miyagi Consumer's Co-operative Society

Tomiya City, Miyagi Prefecture

**Commencement of Demonstration to Establish
Low Carbon Hydrogen Supply Chain in Tomiya City, Miyagi Prefecture**

Adopted by Ministry of the Environment as “FY2017 Low Carbon Hydrogen Technology
Demonstration Project in Cooperation with Local Government”

Hitachi, Ltd. (Toshiaki Higashihara: President & CEO; “Hitachi”), Marubeni Corporation (Fumiya Kokubu: President and CEO; “Marubeni”), Miyagi Consumer’s Co-operative Society (Hiromu Miyamoto: President; “Miyagi COOP”) and Tomiya City, Miyagi Prefecture (Hirotooshi Wako: Mayor; “Tomiya City”) are to commence a demonstration (“Demonstration”) to establish a low carbon hydrogen supply chain in Tomiya City, Miyagi prefecture, where hydrogen is generated by an electrolyzer powered by a solar power generation system and used as an energy source. This Demonstration was adopted by the Ministry of the Environment as “FY2017 Low Carbon Hydrogen Technology Demonstration Project in Cooperation with Local Government” and will commence from August 2017 in order to obtain results by FY2019.

As the power generation of renewable energies such as solar power fluctuates depending on climate conditions, attention is on the power storage method in which hydrogen is transformed from excess power to supply stable power. As hydrogen does not emit carbon dioxide and can be efficiently utilized, it is also an effective energy to reduce global warming and is necessary in the establishment of a supply chain that reduces carbon dioxide emissions.

Hitachi, Marubeni, Miyagi COOP and Tomiya City are to commence the Demonstration to establish a supply chain, where hydrogen is generated by an electrolyzer powered by solar power generation system and is stored as energy, and hydrogen is delivered to family houses (registered as members of Miyagi COOP), Miyagi COOP supermarkets and afterschool children’s club houses in Tomiya City.

The Demonstration uses the existing solar power generation system installed at the logistics center of Miyagi COOP. Solar power is transformed to hydrogen by an electrolyzer. Hydrogen is stored in the form of cassettes containing metal hydride* in order to deliver hydrogen together with other items to the users through the available distribution network of Miyagi COOP. After delivery, the cassette is attached to a pure hydrogen fuel cell and converted to power and heat so that the users can utilize them as energy.

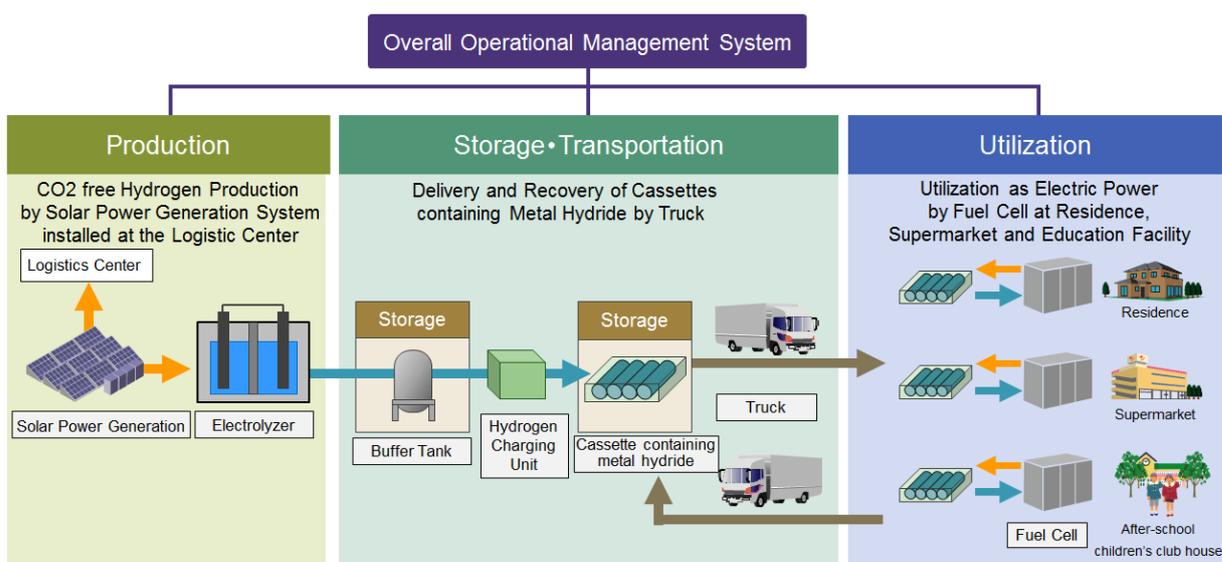
The available distribution network enables hydrogen delivery at a low carbon generation and low cost. Hydrogen stored at each residence is planned to be used from late afternoon to night when solar power decreases, resulting in effective energy utilization. Furthermore, demonstration of a local-production-and-consumption-type hydrogen supply-and-demand chain can pave the way to nationwide deployment, which is expected to contribute to the expansion of hydrogen utilization and reduce carbon dioxide emissions.

Hitachi is in charge of overall system design, procurement and installation of the main equipment and overall operational management of hydrogen storage and delivery by maintaining the hydrogen supply and demand balance. Marubeni is in charge of the extraction of problems such as the economy for commercialization and to provide solutions. Miyagi COOP will operate a hydrogen supply chain demonstration facility. Tomiya City will provide the demonstration site and will make educational activities for the purpose of expansion and promotion of the hydrogen supply chain and also study future city ideas that incorporate zero carbon dioxide emissions.

Hitachi, Marubeni, Miyagi COOP and Tomiya City will promote the nationwide expansion of the supply chain, starting with establishment in Tomiya City and continuing with a rollout across Miyagi prefecture, the Tohoku region and then to all other areas of Japan, targeting future society with zero carbon dioxide emissions.

* Metal Hydride: Alloy which absorbs hydrogen when temperature decreases or pressure increases and which discharges hydrogen when temperature increases or pressure decreases.

■ Outline of Demonstration



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