Toshiba to conduct experiment of energy supply system utilizing renewable energy and hydrogen

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System image

Toshiba Corporation today announced that the company has agreed with Kawasaki City to conduct a cooperative demonstration experiment of an independent energy supply system utilizing renewable energy and hydrogen. This system will be set up in the Kawasaki Marien public facility and Higashi-Ogishima-Naka Park in the Kawasaki Port area, and demonstration will be conducted from April next year until the end of fiscal 2020.

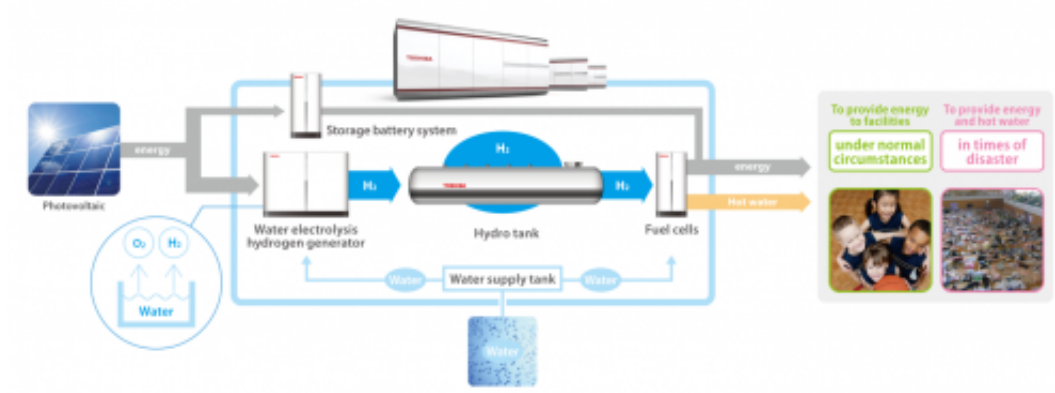
Kawasaki Marien, a municipal facility to promote Kawasaki Port, is a designated emergency evacuation area. In times of disaster, the installed system will be able to provide an estimated 300 evacuees with electricity and hot water for about one week.

The independent energy supply system combines photovoltaic

installations, a storage battery, hydrogen-producing water electrolysis equipment, hydrogen and water tanks, and fuel cells. Electricity generated from the photovoltaic installations will be used to electrolyze water and produce hydrogen, which will then be stored in hydrogen tank and used in the fuel cells to provide electricity and hot water. Since the system can operate on only sunlight and water, it will be able to independently provide electricity and hot water in times of emergency, even when lifelines are cut. It will also be possible to transport the system to disaster-hit areas on trailers.

Under normal circumstances the system's overall energy management system will be used to contribute to peak shifting and peak cutting for power used in the Kawasaki Marien public facility and Higashi-Ogishima-Naka Park, through optimized control of the photovoltaic installations and the storage battery, etc.

As well as utilizing Toshiba's superior long-life SCiB™ lithium battery as the storage battery, the system will use Toshiba's highly durable Ene-farm pure hydrogen fuel cells to achieve long-term stable operation.



System structure

Kawasaki City will supply the demonstration test environment, and Toshiba is responsible for the design, manufacture and maintenance of the equipment. The results obtained will be jointly utilized by Kawasaki City and Toshiba.

Kawasaki City and Toshiba entered into agreements on collaboration and cooperation in October 2013, to work toward the achievement of a "Smart Community". Using Toshiba's Smart Community Center next to Kawasaki Station as a base of operations, the two parties have so far promoted measures that include energy management for buildings around the station area, commercial revitalization, and electric bus operation.

Toshiba will continue to advance the development of residential fuel cells and hydrogen-related technology, such as hydrogen generators, a product area in which it holds the top domestic share, and seek to contribute to the hydrogen society of the future.

Installation sites	Kawasaki Marien and Higashi-Ogishima-Naka Park
Period	Fiscal 2015 - Fiscal 2020
Key specifications	Photovoltaic facility: 25kW Hydrogen tank storage capacity: 275Nm3 Total output: 30kW Hydrogen electrical power storage capacity: 350kWh * Hot water supply capacity: 600/h

Outline of demonstration

Provided by Toshiba Corporation

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