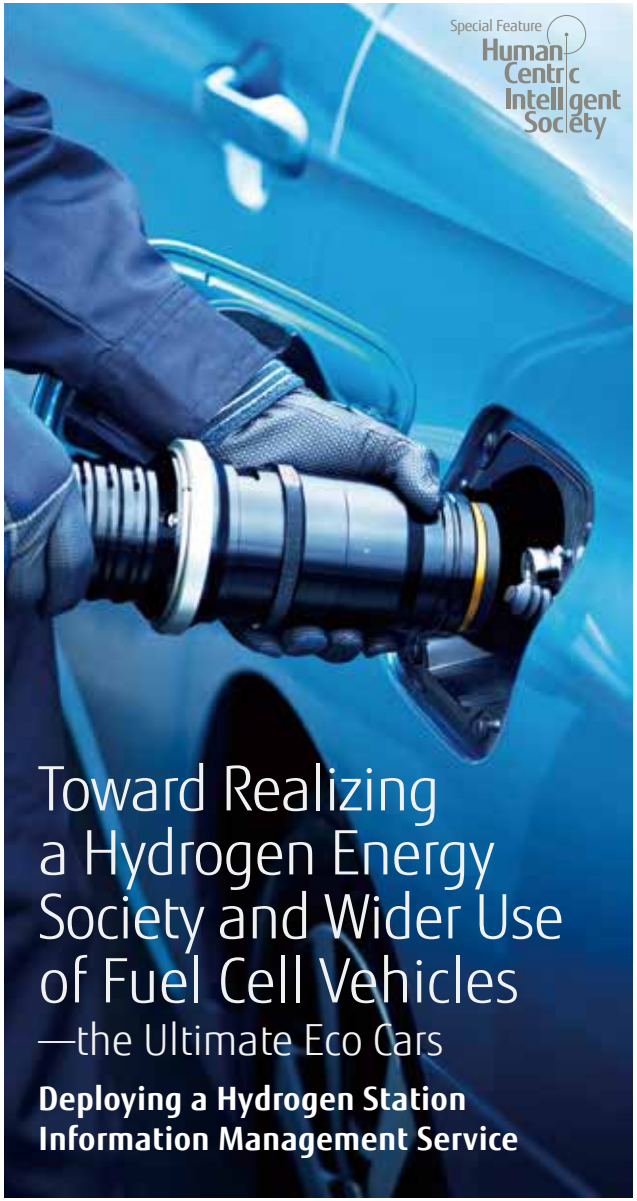


Theme

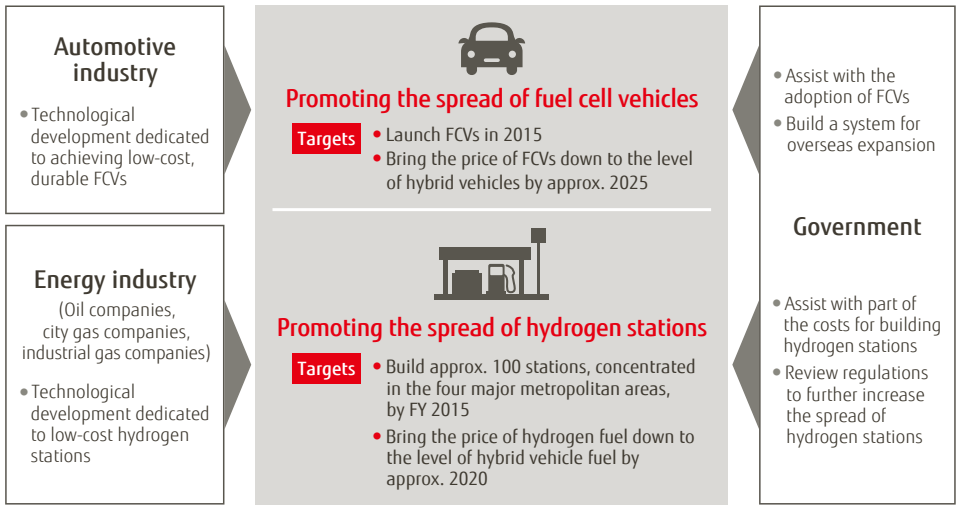
Greater availability of hydrogen fuelling stations is the key infrastructure element needed to achieve a hydrogen energy society

Amidst the growing severity of environmental issues, such as the risk of fossil fuel depletion, global warming, etc., hydrogen is attracting attention as a next-generation source of clean energy that does not emit CO_2. The government in Japan, where energy resources are in short supply, is aggressively pushing forward the use and application of hydrogen as a major energy strategy issue.

In 2014, fuel cell vehicles (FCV), which use fuel cells that generate electricity via the chemical reaction between hydrogen and oxygen, came onto the market and expectations are for them to lead the way toward realizing a hydrogen energy society. At the same time, over-arching collaboration between the government, municipalities, and companies in various industries is indispensible for building the infrastructure that holds the key to hydrogen availability. There are various hurdles to building hydrogen fuelling stations for FCVs. Among these are the high cost of construction and the need to comply with domestic regulations on high-pressure gas.

As of the end of FY 2014, there are only 17 hydrogen stations nationwide that are in fixed locations similar to conventional gas stations. In recent years, mobile hydrogen stations offering the benefits of low-cost construction and easier acquisition of operating space are becoming more prevalent—a trend which is expected to continue in the future.

Diagram of public-private collaboration for increasing fuel cell vehicles (FCV)




Takakura Hydrogen Station in Hachioji, Tokyo

Created by Fujitsu based on a Nihon Keizai Shimbun article from July 16, 2014 (morning edition)

Solution Provide a system giving real-time information on the locations and operational status of hydrogen fuelling stations

As infrastructure develops, the next hurdle for the spread of FCVs is the question of when and where drivers can replenish hydrogen levels. A service is needed that provides FCV drivers with accurate information in real time on the operational status of hydrogen fuelling stations. To create such an environment, the Fujitsu Group has developed, then launched in December 2014, the Hydrogen Station Information Management Service, which gathers and delivers hydrogen station information.

Since the service uses the cloud-based platform SPATIOWL, information on hydrogen station location and operational status input by hydrogen fuel suppliers is unified on the cloud. This information is sent to the automobile manufacturer's datacenter, then is transmitted as hydrogen station information to FCV drivers in real time.

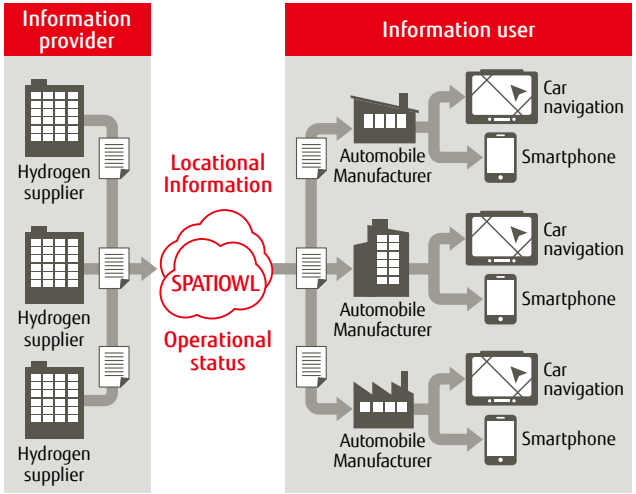
Toyota Motor Corporation uses Fujitsu's service to support drivers of its MIRAI fuel cell vehicles. Toyota provides Hydrogen Station List, a car navigation system application, and Pocket MIRAI, a smartphone application, to help its customers enjoy an enriching experience with their FCV.

The government of Japan is continuing to strategically build programs and infrastructure, including setting a target of approximately 100 hydrogen stations by the end of FY 2015,* aimed toward achieving a hydrogen energy society. In this context, the Hydrogen Station Information Management Service not only contributes to the spread of FCVs, but also makes collaboration possible with companies engaging in new business using hydrogen energy, and arguably accelerates innovation in the use of sustainable energy.

The Fujitsu Group will continue to contribute to better transportation for society and the more complete achievement of a hydrogen energy society by providing ICT solutions.

* NEDO's (New Energy and Industrial Technology Development Organization) "NEDO Hydrogen Energy White Paper" http://www.nedo.go.jp/content/100567362.pdf

Diagram of the Hydrogen Station Information Management Service




Hydrogen Station List, a navigation application

Pocket MIRAI, a smartphone application

Stakeholder's Message

A Service Contributing to a Hydrogen Energy Society

Takako Yamada
Telematics Business Department, e-Toyota Division, Toyota Motor Corporation

I believe the Fujitsu Hydrogen Station Information Management Service plays an important role in the development of a hydrogen society. The easy-to-use development environment was a great help, allowing us to create services in a short period of time. We will continue to carefully enhance these services by listening to feedback from customers and related suppliers, ensuring we provide them with a high level of satisfaction.

The Spread of Hydrogen Energy through Corporate Tie-Ups

Takashi Kanada
Telematics Service Division Manager, Innovation Business Headquarters

SPATIOWL, the Fujitsu solution behind the Hydrogen Station Information Management Service, is an open cloud platform. Therefore, it enables collaboration with a wide range of companies. I believe that the use of hydrogen energy will be promoted through innovations created by different companies working together, each providing technologies in its specialized area.