The spreading of Fuel Cell Vehicles -A Case study of Japan -

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Overview

Now there is a worldwide trend to abandon fossil fuel vehicles. Britain and France decided to stop selling them by 2040. Germany, India and Norway have likewise indicated that they will gradually stop selling fossil fuel vehicles in the next 20-30 years. The Chinese government has said it is planning a specific time to stop producing and selling fossil fuel vehicles. For the time being, we cannot say whether these policy goals can be successfully implemented or not, but to some extent, policies have a direct impact on market demand.

Judging from the current global vehicle market, in recent years, hybrid vehicles have gained popularity in Europe and the United States. The rapid development of electric vehicles has also occurred in China and Norway. In the context of the current vehicle fuel transformation, what is the future of fuel cell vehicles? Fuel cell vehicles and electric vehicles both use a motor instead of engine, so it said to be also a branch of electric vehicles. However, electric vehicles use electricity directly, and fuel cell vehicles generate electricity from fuel cells loaded inside the vehicle and then supply the electricity to the motor. In this respect, there is a similarity with the form in which hybrid kinetic energy is recovered and converted into electricity. So to some extent fuel cell vehicles can be seen as a high-performance hybrid car. In the process they do not emit any harmful substances, known as the ultimate green vehicle. So, in the future global vehicle market, will fuel cell vehicles have a place, if so, in what kinds of areas? My current institution, Kyushu University, Japan, is also involved in specialized fuel cell research and development, as are Japanese vehicle manufacturers such as Toyota. Therefore, in my paper I investigate the development of fuel cell vehicles in Japan in particular and conduct in-depth discussions on fuel cell vehicles.

In Japan, in 1969, a fuel cell vehicle test was conducted at the Osaka Industrial Research Institute of the Industrial Technology Institute. In December 2002, cars known as“Toyota · FCHV”and“Honda · FCX”, were produced by the Toyota Motor Corporation and Honda Motor Co. (Honda) and leased in the US and Japan. Toyota started to sell the sedan type Toyota · MIRAI in Japan on December 15, 2014. It is said that the car-MIRAI runs for about 650 kilometers once being filled in 3 minutes. On March 10, 2016, Honda launched a mass-produced sedan "Honda Clarity Fuel Cell", which achieved a cruising range of 750km after one filling (3 minutes). And at the latest Tokyo Motor Show 2017, a minivan named "Fine-Comfort Ride", a new type FCV concept car, was released from Toyota. It is said that its cruising range extends to about 1,000 km.

In this paper, I examine the reason why Fuel Cell Vehicles have become widespread in Japan, and I will analyze the issues that impede their spread till now. Lastly, I will look into the future of fuel cell vehicle development.

Methods

Surveys, interdisciplinary research.

Results

I am still working on it. I will give the result if I am so lucky to have an opportunity to give the presentation in June.

Conclusions

Even though there are a lot of problems of promoting fuel cell vehicles, they still have a bright future in some specific areas.

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