



Electric and Fuel Cell Vehicles in Japan

Market Overview & Opportunities

The Japanese government first outlined the importance of the country shifting away from conventional internal combustion engines automobiles in a major way in the Next Generation Automobile Strategy published by the Ministry of Economy, Trade and Industry in 2010. While the 2010 strategy mainly relied on the increased adoption of hybrid, plug-in hybrid, and hybrid vehicles, it was followed by the 2014 Strategic Roadmap for Hydrogen and Fuel Cells and the 2017 Basic Strategy for Hydrogen in which the government expressed its commitment to realizing a “hydrogen society.”

In spite of the ambitious targets outlined in the 2010 strategy, electric vehicles contributed only 0.41% and fuel cell vehicles only 0.02% of all vehicle sales in Japan in FY 2017.

One of the major reasons behind the slow adoption of non-hybrid next generation vehicles, besides their relatively high cost compared to conventional and hybrid vehicles, is Japan’s power generation mix. With the 2011 Fukushima disaster having put nuclear power generation in Japan to a near halt and renewable generation still only contributing a small portion of the total, the country still relies heavily on fossil fuels. With that, the environmental benefits of electric and fuel cell vehicles are not as pronounced as they are in countries with cleaner power mix.

Still, partly due to increasingly stringent regulations overseas, Japanese automakers are continuing to invest into development of both electric and fuel cell vehicles creating a range of opportunities in the market.

This report explores the macro-environment of the market for electric and fuel cell vehicles using the PESTEL framework and the micro-environment by looking at the types of companies present in the ecosystem. It also presents the most important trends in the market as well as the factors that drive and constrain its growth.

Finally, the report outlines what some of the major opportunities and threats related to electric and fuel cell vehicles—and “green mobility” overall—are.

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Sample Excerpts

From the Political Factors section:

The Japanese government first outlined the importance of the country shifting away from conventional internal combustion engines (ICE) automobiles in a major way in the Next Generation Automobile Strategy published by the Ministry of Economy, Trade and Industry (METI) in 2010. The strategy aims to reduce the share of new cars with ICEs sold in Japan to 30%-50% by 2030. In the same period, it aims to increase the combined share of plug-in hybrid vehicles (PHV) and electric vehicles (EV) to 20%-30% and that of fuel cell vehicles (FCV) to 3%. That said, the strategy also pointed out that cars with ICEs should continue to be produced by the country's automakers to stay competitive in emerging markets.

From the Social Factors section:

When asked about their biggest concerns about EVs, 45% of the respondents mentioned high acquisition and operating costs (1 percentage point less than in 2012), 12% mentioned limited range (4 percentage points less than in 2012), and 9% mentioned lack of charging infrastructure (3 percentage points less than in 2012). Points of concern that saw the largest increases in mentions between 2012 and 2019 included lack of interesting products (5% to 9%) and long charging time (6% to 8%).

From the Market Drivers section:

With not only EVs but also PHVs benefiting from them, the number of public car chargers available in Japan has grown from about 6,000 in 2012 to about 28,000 in 2016, spread across roughly 21,000 different charging stations.

The widespread availability of these stations, combined with services like the NCS Card, increase the convenience of using EVs and PHVs, enticing consumers and businesses alike to opt for these next generation vehicles over conventional ones with their next purchase.

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From the Market Drivers section:

Currently, there are only 132 hydrogen refueling stations in Japan. While the government plans to increase the number to 320 by 2025 and 900 by 2030, even at that point, the number will be considerably lower than the 21,000 EV charging stations available across the country today.

While FCVs offer better range than EVs, the low number of hydrogen refueling stations will still negatively affect the convenience of using FCVs for the foreseeable future.

It is also worth noting that at this point, 50 of the 132 hydrogen refueling stations are located in the Greater Tokyo Area. The majority of the remainder is spread across the Nagoya Metropolitan Area, the Kansai region, and the north of Kyushu. The availability of hydrogen refueling stations in the rest of the country is minimal.

From the Market Opportunities section:

Over the longer term, with the use of EVs in Japan increasing, the country's electricity grid is expected to need upgrades to deal with the resulting increases in demand and changes in consumption patterns. This, together with additional pressures on the grid created by Japan's planned addition of more variable renewables to its electricity supply in the coming years, means that there will be opportunities to provide software and hardware solutions to optimize grid operation.

From the Market Threats section:

Last but not least, considering that hydrogen is perceived by some to be dangerous, there is potential for a considerable number of objections against the construction of hydrogen refueling stations and production facilities to be raised by local residents as the hydrogen industry grows.

One such example has already been recorded in 2017, when residents of Harumi District in Tokyo's Chuo Ward, where the Athletes Village has been built, expressed their concern about the presence of such a facility in their community.

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