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Hot Tech Innovators

Automotive Electrification

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Companies:

WiTricity, Qualcomm Halo, NUVVE, MOEV Inc., Jedlix

The State of the Market

Automotive Electrification

■ Introduction and Context

Safe, sustainable personal mobility sits at the center of all of the prevailing automotive megatrends: automation, connectivity, artificial intelligence, and car sharing in a mobility as a service framework. It is now universally accepted among stakeholders that this core vision of safe and sustainable mobility cannot be achieved so long as transportation modes depend upon an internal combustion engine (ICE).

■ Consolidated Position

In recent years, electric powertrains, being the incumbent alternative to IC powertrains, have faced competition from hydrogen fuel cell technologies. Toyota was among the most aggressive players in this space, highlighting the abundance of hydrogen in contrast to the electric powertrain's dependence on rare earth metals. Within the last 2 years, however, electric powertrains have solidified their position as the primary alternative to an ICE, owing to three key factors.

The Primary Alternative Powertrain

Automotive Electrification

▪ Tesla Effect and Increasing Range

Tesla, though small scale in terms of production, has played a major role in marketing the idea of dependable electric car ownership. By developing a network of superchargers backed by high-density lithium ion batteries, Tesla has effectively targeted the primary sticking point for consumers: range anxiety. The Nissan Leaf and Chevrolet Volt have moved longer range electric vehicles (EVs) into higher volume models, ahead of Tesla's push into the mass market.

▪ Supporting Infrastructure and Ecosystem

In contrast to hydrogen fuel cell technologies, which were plagued with storage and distribution concerns, much of the supporting infrastructure for EVs is already rolled out on an international scale. Furthermore, EVs have enjoyed widespread interest from every major OEM; the development of fuel cell technologies has been centred around Toyota and Honda, with some interest also expressed by Mercedes-Benz.

▪ “Dieselgate” Crisis

The revelation that Volkswagen and other OEMs had deliberately used defeat devices to circumvent mandatory emissions tests has reignited interest in an alternative to IC engines, with the promise to offer an electric powertrain on all models from OEMs such as Volkswagen and Mercedes-Benz forming a vital part of the PR response to the emissions scandal.