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Global and China Hybrid Vehicle Industry (Stop-Go, 48V + BSG/ISG, HEV, PHEV) Research Report 2016-2020

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Abstracts

Hybrid vehicles make use of traditional fuels while being accompanied by electric motors and engines. Electric motors function as the auxiliary power of engines to improve low-speed power output and fuel consumption. Hybrid system can reduce fuel loss of traditional fuel vehicles and level down fuel consumption so as to save energy and reduce emission.

According to the revised versions of the mandatory national standards - Passenger Car Fuel Consumption Limits (GB 19578) and Passenger Car Fuel Consumption Evaluation Methods and Indicators (GB 27999), China requires that the average fuel consumption of passenger cars produced locally in 2015 should drop to 6.9L / 100km, and further to 5.0L / 100km by 2020.

In addition, Management Measures for Average Fuel Consumption of Passenger Car Companies (Draft)' has been stipulated, in which the most important content is concerned about the average fuel consumption credit and trading system of enterprises as well as hefty fines on non-compliance companies.

Globally, the EU's 2020 emission goal is 3.8L / 100km, while the United States and Japan target 5L / 100km.The EU undertakes enormous pressure on energy saving and emission reduction, thus it prefers hybrid technology.

On the market, there are three types of common hybrid system:

(1) 12V + Stop-Start System (Micro Hybrid) acts as the entry technology of hybrid vehicles. Micro hybrid vehicles can be accomplished only by adding a set of start-stop

system to traditional cars, so that engines can stop running in the case of a red light or traffic congestion and resume working as long as clutches are stamped again. By this means, 5%-15% of energy can be saved and 3%-6% of carbon dioxide emissions can be reduced.

(2) 48 + ISG / BSG System. In 2011, several German automakers jointly launched the concept of 48Vsystem, and constituted LV148 standards. 48V system supplies power to 12V system via DC / DC adapters so as to improve the existing 12V start-stop system. As an upgraded version of 12V start-stop system, 48V system supports extended load, enhances the fuel economy to 15%-20%, and only requires less than half of the costs of high-voltage hybrid technology.

(3) Full Hybrid (PHEV and HEV). The most widely used full hybrid P2 structure, for instance, connects motors and engines by clutches as well as links motors with transmissions through clutches as well. The system can enable idle speed start-stop, brake energy recovery, acceleration boost and battery electric driving.

In 2015, the global sales volume of electric passenger vehicles (EV & PHEV) soared 67.4% year on year to 549,000, mainly thanks to the growth in China and Europe, especially the radical growth in Chinese electric vehicle market. Specifically, 387,000 battery electric vehicles (BEV) and 163,000 plug-in hybrid electric vehicles (PHEV) were sold. Except PHEV, the development of hybrid market segments is shown as follows:

(1) 12V Start-Stop System. The most active promoter is the EU. Only 5% of new cars in Europe were equipped with start-stop system in 2008, while the proportion jumped to over 60% in 2014 when 12.55 million new cars were sold herein. This market will see explosive growth in 2017. By 2020, the global sales volume of new cars equipped with start-stop system will rise to 30 million, accounting for around 27% of the global new car sales.

(2) 48V System. Worldwide, major manufacturers will conduct the first mass production of 48V system in 2016 and will further raise the output in 2020. Continental AG predicts that the market share of hybrid vehicles will reach 20%, of which 50% will be powered by 48V micro hybrid system.

(3) HEV Market. In 2014, more than 1.9 million HEVs (including lithium battery HEVs and NiMH battery HEVs) were marketed globally; the figure was estimated at 2.056 million in 2015. According to the data of the market research agency FOURIN, Toyota became a HEV champion with the sales volume of 1.183 million in 2014, followed by

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Honda with 279,800, Ford with 87,208, Nissan with 84,316, and Hyundai Kia with 77,473.

The future development trends vary with countries:

(1) Europe will promote 12V start-stop system and 48V system aggressively, which will gradually become the standard configuration of original fuel vehicles. In addition, EV, PHEV and HEV will witness moderate development in Europe;

(2) Japan will prefer HEV and fuel cell technology, while the sales volume of EV and PHEV will remain at a low level;

(3) The United States are developinga variety of technologies simultaneously, but low oil prices will drag down the sales volume of EV and PHEV, whereas HEV will be favored;

(4) China will focus on EV and PHEV, and encourage more economical HEV. The pre-installation of 12V start-stop system will escalate fast. As for 48V system, Chinese government's attitude is ambiguous, and no vehicle manufacturers have made plans for the vehicle models involved with this technology.

Global and China Hybrid Vehicle Industry (Stop-Go, 48V + BSG / ISG, HEV, PHEV) Research Report 2016-2020 by ResearchInChina focuses on the followings:

Overview, classification, characteristics and applications of hybrid vehicle technology;

Global and China’s goals for automotive energy conservation and emission reduction, industrial subsidy policies and other aspects in the next decade;

Analysis on hybrid vehicle technology, working principles and applications of various structures, hybrid vehicle industry chain and development trends of technology;

Status quo and market segments (embracing 12V + start-stop micro hybrid system, 48V + BSG / ISG, full hybrid (HEV, PHEV), etc.) of global hybrid vehicle market; development and trends ofthe hybrid vehicle market in Japan, the United States and Europe;

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Status quo of Chinese hybrid vehicle market, as well as development and trends of market segments;

Hybrid operation, development strategies, products and technology solutions, customers and layout in China of 8 global and Chinese hybrid system integrators;

Hybrid operation, development strategies, products and technology solutions, customers and layout in China of 10 global and Chinese vehicle manufacturers.

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