



**Global and China Hybrid Vehicle (Stop-Go,  
48V + BSG/ ISG, HEV, PHEV) Industry  
Report, 2017-2020**

**Apr.2017**

## **STUDY GOAL AND OBJECTIVES**

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

## **REPORT OBJECTIVES**

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

## **METHODOLOGY**

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

## **INFORMATION SOURCES**

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

## Abstract

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.

There are three types of hybrid power system by power:

First, 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.

Second, 48V+ISG/BSG System. In 2011, several German automakers jointly launched the concept of 48V system, 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.

Third, 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.

By dynamical structure, hybrid power system falls into three types: Series Hybrid Electric Vehicle (SHEV), Parallel Hybrid Electric Vehicle (PHEV), and Power-Split Hybrid Electric Vehicle (PSHEV).

## Performance Comparison of Three Hybrid Power Systems

Type of Hybrid Power System	PHEV	SHEV	PSHEV
Fuel Economy	-	+	++
Energy Conversion Efficiency	-	-	+
Reliability	-	-	++
Structural Complexity	++	+	-
Cost	++	+	-
Motor/Battery Requirements	-	-	++
Vehicle Weight	++	+	-
Main Models	Honda Accord, BYD Qin	Chevrolet Volt, BMW i3	Toyota Prius, Camry HEV, BYD Tang

Notes: ++ good, + fair, - poor

Source: ResearchInChina

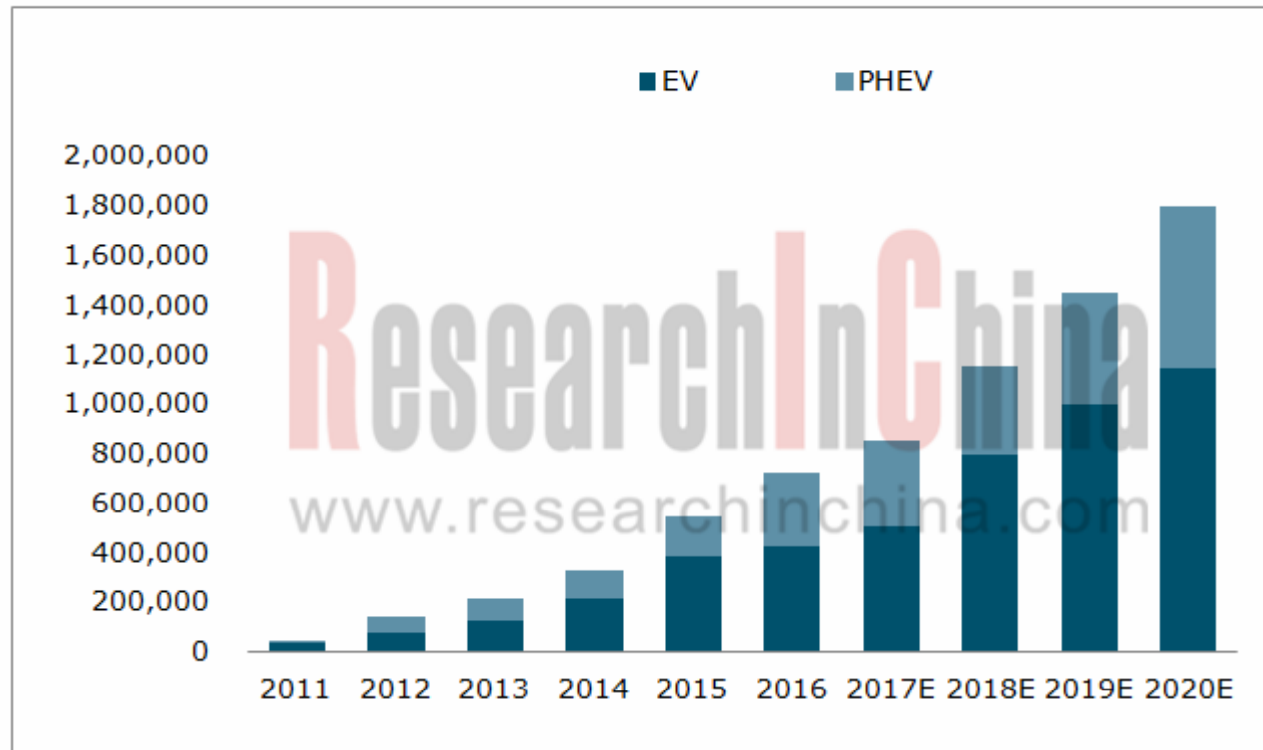
Major component suppliers are speeding up the 48V micro hybrid product process with higher requirements on fuel consumption and emissions in China. Delphi's products have been applied in Honda Civic 1.6L (overseas edition) and will be used by another two automakers in 2017, and Continental also started mass production in 2016. Domestically, the world's first 48V mass-produced car – Changan EADO Electric Type was first launched in November 2016.

726,000 electric passenger vehicles (including 424,000 EVs and 302,000 PHEVs) were sold worldwide in 2016, up 32.2% from a year earlier, claiming an approximately 0.84% share of global total automobile market. With intensified efforts in promoting electric cars on a global scale, electric passenger vehicle sales volume will grow to 1.8 million in 2020.

The report highlights the following:

- ◆ 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 of the hybrid vehicle market in Japan, the United States and Europe;
- ◆ 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.

## Global Electric Passenger Vehicle (EV&PHEV) Sales Volume, 2011-2020E



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