

Global Market of Automotive Lithium-ion Batteries: Key Research Findings 2016

◆ Research Outline

Yano Research Institute has conducted a study on the global market of automotive lithium-ion batteries with the following conditions:

1. Research period: From May to August, 2016
2. Research targets: Automobile manufacturers (in Japan, Europe, U.S.A., and South Korea), manufacturers of lithium ion batteries (in Japan, Korea, and China)
3. Research methodologies: Face-to-face interviews by the expert researchers, surveys via telephone/email, and literature research

<What are Automotive Lithium-ion Batteries?>

Automotive lithium ion batteries in this research indicate those LiBs (lithium ion batteries) installed in xEVs (i.e., 48V mild HEVs, strong HEVs, PHEVs, and EVs). Also, LiBs included in the market size indicate those installed in passenger cars and so are those in the electric buses (PHEV and EV) in China.

◆ Key Findings

■ Prospect of Global Automotive LiB Market Size Reaches 27,853MWh in 2015, and 39,349MWh by 2016

The global automotive LiB (lithium-ion batteries) market in 2015 leaped to 210.1% of the size of the previous year to attain 27,853MWh based on the production of xEVs using LiBs. Aggressive promotions by each government aiming to improve serious environmental problems have rapidly expanded the sales of PHEVs and EVs especially in China, which eventually expanded the automotive LiB market, tremendously. This tendency is likely to continue in 2016, with the automotive LiB market being projected to attain 141.3% of the size of the preceding year to attain 39,349 MWh.

■ Global Automotive LiB Market Boosted by Sales of PHEVs and EVs Promoted by Each Government Policies

The 2015 global market of automotive LiBs (based on the production of xEVs using LiBs) is consisted of LiBs for EVs, dominating 86.6% of the market to attain 24,112MWh, those for PHEVs occupying 11.9% at 3,303MWh, and those for HEVs accounting for 1.6% at 438MWh. Therefore, LiBs for EVs and PHEVs dominate 98.5% of the entire global automotive LiB market. Sales of LiBs for EV were driven by the policies of each government encouraging consumers to drive EVs from environmental point of view. Such attempt was especially prominent in China, where they sold electric buses that use high-capacity LiB Packs of about 100 to 300kWh, which boosted the market. In addition to favorable sales of PHEVs in China, multiple European automakers launched their new PHEVs one after another, which raised the PHEV market. The market of LiBs for PHEVs has also expanded in proportion to growth of the PHEV market.

■ Global Automotive LiB Market Projected to Achieve 155,430MWh by 2020

In the stricter environmental regulations at each country, automakers are planning to sell new xEVs successively. Moreover, there are more attempts to boost the xEV market further, such as

extended subsidies and preferential treatment policies for xEVs until 2020 by multiple governments, and the regions like California in U.S. trying to raise the mandatory sales ratio of xEVs. These attempts are likely to stabilize the xEV market growth in 2016 and beyond, contributing to the expansion of the global automotive LiB market projected to achieve 155,430MWh by 2020, based on the production of xEVs using LiBs.

◆ **Report Format**

Published report: “Lithium-ion Battery Market for Vehicles 2016”

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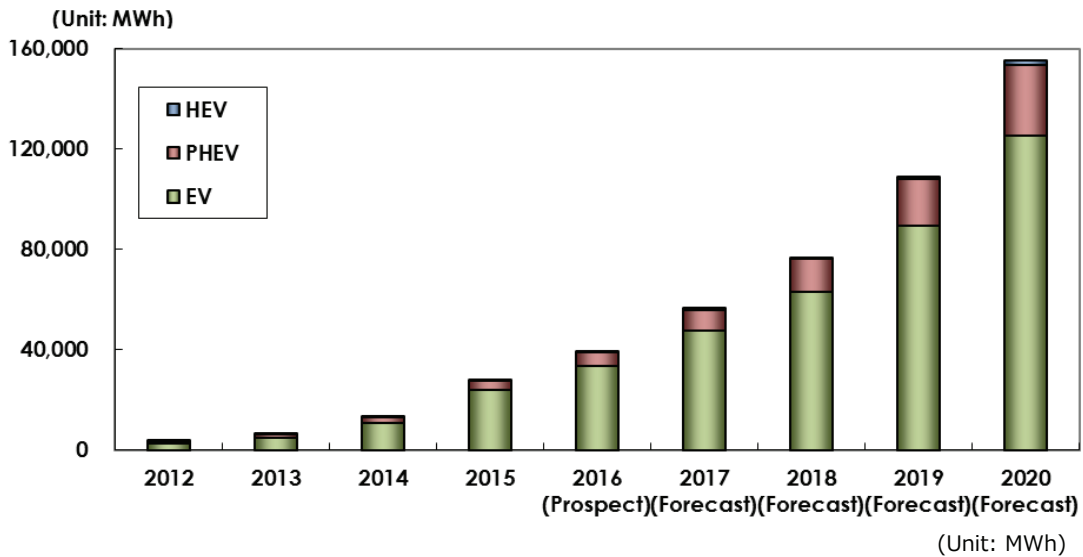
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■ **Table & Figure 1. Transition and Forecast of Global Automotive LiB Market size**



xEV Type/Year	2012	2013	2014	2015	2016 (Prospect)	2017 (Forecast)	2018 (Forecast)	2019 (Forecast)	2020 (Forecast)
HEV	263	362	427	438	537	652	815	1,058	1,788
Y-o-Y	-	137.6%	118.0%	102.6%	122.6%	121.4%	125.0%	129.8%	169.0%
PHEV	911	1,297	1,854	3,303	5,200	8,033	13,057	18,587	28,218
Y-o-Y	-	142.4%	142.9%	178.2%	157.4%	154.5%	162.5%	142.4%	151.8%
EV	2,385	4,996	10,974	24,112	33,612	47,832	63,024	89,532	125,424
Y-o-Y	-	209.5%	219.7%	219.7%	139.4%	142.3%	131.8%	142.1%	140.1%
Total	3,559	6,655	13,255	27,853	39,349	56,517	76,896	109,177	155,430
Y-o-Y	-	187.0%	199.2%	210.1%	141.3%	143.6%	136.1%	142.0%	142.4%

Surveyed by Yano Research Institute

Notes:

1. The market size is based on the production of xEVs (48V mild HEVs, strong HEVs, PHEVs, and EVs) using LiBs.
2. The figures of 2016 are prospect values and those of 2017 and beyond are forecast.
3. LiBs included in the market size indicate those installed in passenger cars and so are those in the electric buses (PHEV and EV) in China.