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## BUSINESS

# Battery Executives See Price Drops Ahead

Expensive Lithium-Ion Packs Could Halve by 2020

By **MIKE RAMSEY**

Sept. 17, 2013 2:09 p.m. ET

NOVI, Mich.—Two executives at top automotive battery companies said this week that the cost of lithium-ion batteries used in electric and hybrid vehicles are on a steady decline and are likely to be about half of today's price by 2020.

However, one cautioned the costs of the electronics systems that monitor and control the batteries could remain high because of a lack of standardization among hybrid auto makers.

"We have an internal target to go down by at least a factor of two by 2020," said Prabhakar Patil, chief executive officer of LG Chem Power Inc., a division of one of the world's largest lithium-ion battery makers, LG Chem Ltd. "I am very positive in terms of the slope that I see."

Brian Kessler, the president of Johnson Controls Inc.'s Power Solutions division said cell costs may indeed fall by half, but overall costs of battery packs, which include the control systems that surround the energy source, are unlikely to decline that quickly without standardization across different auto makers.

"The real issue is the cost of the total system," he said. With each auto maker using a customized system to run its electric vehicles, it's unlikely to overall cost of an electric vehicle is likely to decline dramatically.

Both men presented at The Battery Show, a conference on the technology held in Michigan.

The cost of batteries has long been the greatest challenge for electric vehicles. The challenge to reduce costs has been highlighted because Tesla Motors Inc. and General Motors Co. say they intend to develop an electric vehicle that travels 200 miles on an electric charge that can be sold for \$35,000 and about \$30,000, respectively. To get there, both companies will need to greatly lower battery pack costs.

Auto makers and battery makers won't disclose the cost of batteries, but Argonne National Laboratory estimates that the average cost is about \$500 for each kilowatt-hour of energy storage. The Nissan Motor Co. Leaf has a 24 kWh battery pack, which would approximate to \$12,000. Nissan won't say what its costs are, but the Leaf starts at \$28,800 and is built on the same basic engineering as the Nissan Versa hatchback, which starts at \$13,990.

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