J.D. Power and Associates Reports:
Future Global Market Demand for Hybrid and Battery Electric Vehicles May Be Over-Hyped;
Wild Card is China

Regulatory Inconsistencies across Markets; Relatively Stable Oil Prices; and Consumer Concerns about Cost and Ease of Operation Present Challenges for Sales of Hybrid and Electric Vehicles

WESTLAKE VILLAGE, Calif.: 27 October 2010 — Combined global sales of hybrid electric vehicles (HEVs) and battery electric vehicles (BEVs) are expected to total 5.2 million units in 2020, or just 7.3 percent of the 70.9 million passenger vehicles forecasted to be sold worldwide by that year, according to a report issued by J.D. Power and Associates. For comparison, global HEV and BEV sales in 2010 are forecasted to total 954,500 vehicles, or 2.2 percent of the 44.7 million vehicles projected to be sold through the end of 2010.

The report, titled “Drive Green 2020: More Hope than Reality” considers various factors affecting the future potential for “green” vehicles in the world’s largest automotive markets. These factors include market trends, regulatory environment, consumer sentiment and technology development in these markets.

According to the report, it will be difficult to convince large numbers of consumers to switch from conventionally powered passenger vehicles to HEVs and BEVs. A consumer migration to alternative powertrain technologies will most likely require either one of the following scenarios, or some combination of these scenarios:

- A significant increase in the global price of petroleum-based fuels by 2020
- A substantial breakthrough in green technologies that would reduce costs and improve consumer confidence
- A coordinated government policy to encourage consumers to purchase these vehicles.

Based on currently available information, none of these scenarios are believed to be likely during the next 10 years.

“While considerable interest exists among governments, media and environmentalists in promoting HEVs and BEVs, consumers will ultimately decide whether these vehicles are commercially successful or not,” said John Humphrey, senior vice president of automotive operations at J.D. Power and Associates. “Based on our research of consumer attitudes toward these technologies—and barring significant changes to public policy, including tax incentives and higher fuel economy standards—we don’t anticipate a mass migration to green vehicles in the coming decade.”

Consumer Sentiment about HEVs and BEVs
Consumers have a variety of concerns about HEVs and BEVs, including:

- Dislike of their look/design
- Worries about the reliability of new technologies
- Dissatisfaction with overall power and performance
- Anxiety about driving range
- Concern about the time needed to recharge battery packs

More importantly, however, are the personal financial implications of deciding to purchase an alternative-energy vehicle. While many consumers around the world say they are interested in HEVs and BEVs for the expected fuel
savings and positive environmental impact they provide, their interest declines significantly when they learn of the price premium that comes with purchasing these vehicles.

“Many consumers say they are concerned about the environment, but when they find out how much a green vehicle is going to cost, their altruistic inclination declines considerably,” said Humphrey. “For example, among consumers in the U.S. who initially say they are interested in buying a hybrid vehicle, the number declines by some 50 percent when they learn of the extra $5,000, on average, it would cost to acquire the vehicle.”

The overall cost of ownership of HEVs and BEVs over the life of the vehicle is also not entirely clear to consumers, and there is still much confusion about how long one would have to own such a vehicle to realize cost savings on fuel, compared with a vehicle powered by a conventional internal combustion engine (ICE). The resale value of HEVs and BEVs, as well as the cost of replacing depleted battery packs, are other financial considerations that weigh heavily on consumers’ minds.

Finally, it is clear from research in the world’s largest automotive markets that buyers of hybrid and electric vehicles occupy a unique demographic niche. Buyers of HEVs and BEVs are generally older, more highly educated (possessing a postgraduate degree), high-income individuals who have a deep interest in technology, or who like to be among the early adopters of any new technology product. As a result, it is not clear that HEVs and BEVs will appeal to the general population.

Government Regulations
While the governments of the world’s largest automotive-producing nations have schedules in place for improving fuel economy and reducing exhaust emissions, there is little consensus about the timing or manner in which these objectives are to be achieved. Some governments are promoting HEVs, others are focusing on BEVs, and still others are considering additional options.

According to Humphrey, the lack of consistency in regulations across markets is causing global automakers to hedge their options by seeking alliances and technology-sharing agreements. The heavy fixed costs associated with developing multiple powertrain options simultaneously are prohibitively expensive. When combined with the projected lower sales volumes of these products, collaboration between auto companies is almost a necessity to control costs and remain competitive.

One unpredictable aspect of the 2020 outlook is how markets would be affected if more stringent and consistent legislation is adopted that supports specific technologies. In particular, China has the ability to move quickly, invest heavily in the development of one specific propulsion technology, and mandate fuel economy or emissions standards that could favor a particular technology or require a minimum sales penetration level for vehicles with a designated technology. Given the size and growth rate of the Chinese auto market, such a coordinated regulatory environment might allow Chinese companies to achieve economies of scale and drive down the cost of alternative-energy vehicles.
Technology
While HEVs and BEVs offer an interesting alternative for the future, it must be acknowledged that many of the shortcomings that defined battery-based vehicles 100 years ago are still prevalent today. These include limited driving range, extended recharging times, limited support infrastructure, and the high cost of battery packs.

Moreover, while reducing exhaust emissions was not an important factor in the development of battery-based vehicles 100 years ago, it has been a significant driver behind the development of BEVs today. For many governments, the primary goal of transitioning to alternative powertrains is to reduce exhaust emissions, and it is not clear how much of this can be achieved.

“We don’t want to replace tailpipe emissions with the emissions of coal- and oil-fired power plants that produce the electricity used by BEVs,” said Humphrey. “We have to look at the carbon footprint of the entire energy supply chain.”

Breakdown of Global HEV and BEV Sales by 2020
Of the 5.2 million HEVs and BEVs forecasted to be sold worldwide in 2020, some 3.9 million units are expected to be HEVs, according to the J.D. Power and Associates global forecast numbers for the third-quarter of 2010. The leading markets for HEVs are the United States (1.7 million units), Europe (977,000 units), and Japan (875,000 units). China is expected to sell fewer than 100,000 HEVs in 2020.

Of the 1.3 million BEVs projected to be sold worldwide in 2020, sales in Europe will account for 742,000 units; sales in China will account for 332,000 units; and the United States and Japan should each account for sales of approximately 100,000 BEVs in 2020.

To view the “Drive Green 2020: More Hope than Reality” report, click here.

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