OLIVER WYMAN

**This article was published in the automotivemanager 2/2008.
http://www.oliverwyman.com/ow/
pdf_files/automotivemanager_2009_en.pdf**

Get to know our Automotive Team.
Oliver Wyman's automotive experts have broad industry experience and a commanding track record of successful consulting projects for leading automotive OEMs and suppliers in Europe, America and Asia. We offer consulting services along the entire value chain of the auto industry: R&D, purchasing, manufacturing, sales and channel management, after sales and financial services. Oliver Wyman's global Automotive Practice supports clients with strategic topics like brand management, customer orientation, corporate and business strategies, market, competitive, and technology analyses, product development, innovation management, sales strategies and after sales programs. Operational optimization includes purchasing, production optimization, efficiency improvement programs, reengineering, turnaround management and restructuring. In addition, Oliver Wyman offers the whole range of mergers & acquisitions consulting services, from partner search to evaluation, transaction support, and post-merger integration.

E-Drive fascinates

E-Drive: Hype and Reality

Electric cars are all the rage. In the race to find the first alternative drive system capable of being mass marketed, a few players are starting to emerge from the pack. Manufacturers are now working with energy providers, oil companies, suppliers, and even governments to develop the necessary infrastructure. Yet despite the euphoria, it's likely that alternative drive systems will remain a niche market over the next decade.

Jan Dannenberg,
Jan Burgard

Cars powered by electricity, fuel cells, or hydrogen are making headlines alongside the industry's sales crisis. For instance, during the span of just a few weeks in mid-2008, Renault Nissan signed partnership contracts and government agreements to develop a network of recharging stations in Israel, Denmark, and Portugal. By 2010, the company intends to develop cars powered exclusively by electricity for these markets. Innovative Honda, meanwhile, is concentrating on hydrogen drive systems and intends to have them ready for serial production within ten years.

Consumer enthusiasm dictates a presence

The public's enthusiasm for rechargeable vehicles has now reached such heights that, for image reasons alone, automakers cannot afford to ignore the technology. With its hesitant approach to hybrid drive systems, the German automotive industry now must worry about the possibility of falling behind in research on a popular, environmentally friendly technology for the second consecutive time. To prevent this from happening, BMW will be testing how more than 100 Minis outfitted with electric-drive systems perform under everyday driving conditions. Daimler is launching the Electro Smart and can determine over the next two years whether e-vehicles are fleeting or here to stay. Research on electric drive systems is also being propelled by the growing number of local regulations being introduced around the world to combat particulate matter. Like London, other European cities could soon introduce municipal "congestion charges" to promote zero-emission vehicles. Consumers generally favor such pollutant-free mobility schemes, at least for now.

The facts must temper that presence

Engineers argue that, in the end, battery-driven vehicles consume more energy than do gasoline-powered vehicles. Supporters of electric cars counter by pointing out that more electricity in the future will come from renewable energy sources. In any case, the

The future of drive technologies

1 If fuel-cell drives can be developed, they could someday squeeze all other systems from the market, as no other system can match their efficiency. It's not clear when affordable fuel cells capable of daily use will be introduced, but widespread adoption should not be expected before 2020.

2 Pure electric drive systems will succeed as emission-free, short-distance vehicles primarily in dense cities, driven primarily by more affluent consumers.

3 Hybrid-drive systems are an interim solution that can save a maximum 30 percent of energy. But they remain viable for a mass market as long as batteries or fuel cells remain relatively expensive.

high efficiency level (nearly 90 percent) achieved by the latest electric drive systems nearly offsets the increased primary-energy need for electricity production and transmission. Still, the electric motor does not reach the efficiency level of a modern diesel drive system without a hybrid engine.

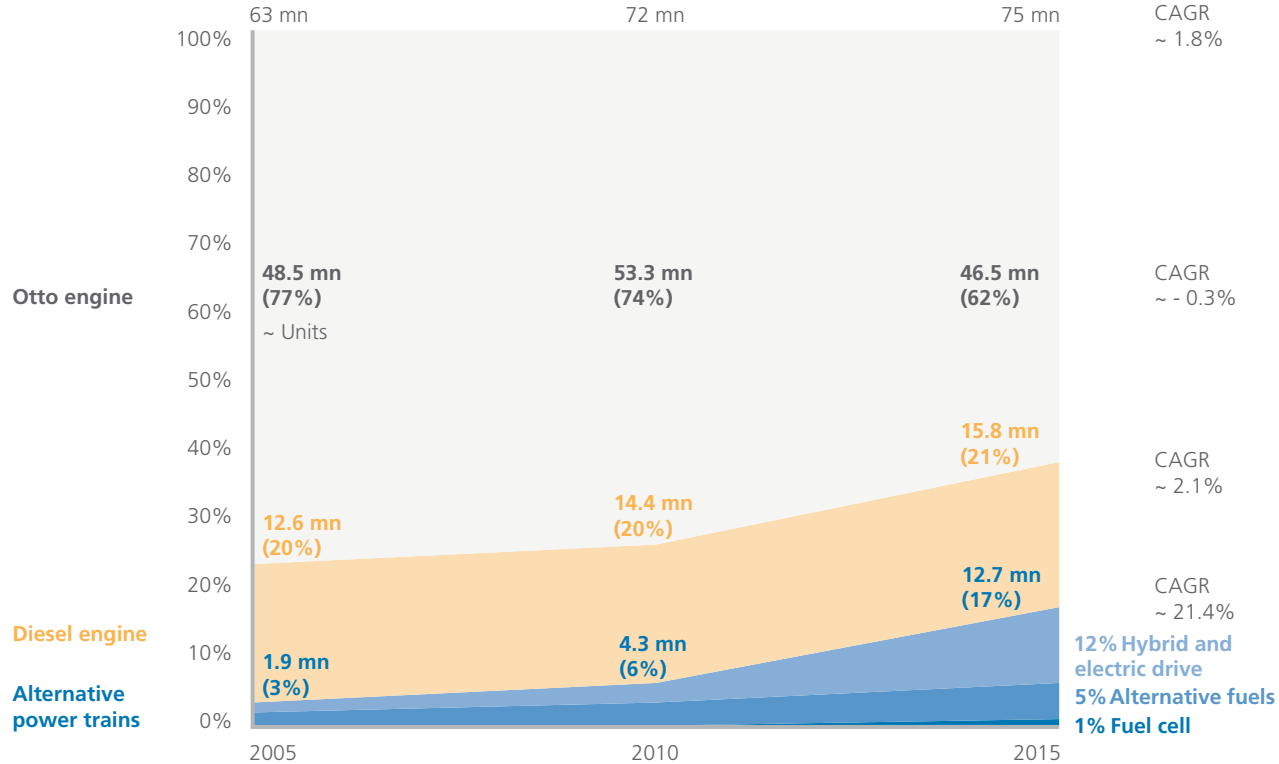
Another issue is that batteries are relatively expensive, their disposal poses an environmental threat, and they can be used for only a limited time. Makers of electric vehicles will also experience high system costs associated with the exchange of empty batteries for fully charged ones. In the Norwegian electric auto "Think City," such a concept costs 200 euros a month. Higher costs and lower efficiency indicate that the enormous development costs of a pure electric vehicle will wind up serving a relatively small niche market.

However, it makes sense to develop a pure electric drive system for two reasons. First, consumers are very interested in the work on clean vehicles, so this research has a positive impact on the manufacturer's image. Second, automakers must prepare for situations in which electric autos are more attractive than conventionally powered vehicles as a result of government efforts, like those in London.

"Double betting" is a logical strategy

Public subsidies, new consumer priorities, and technical progress make it difficult to forecast the share of conventional and alternative drive concepts in the next ten years. According to current estimates, alternative drive systems could have a share of 17 percent in the world market by 2015. To prepare for all market eventualities, automakers must consider investing in a range of technologies, both conventional and alternative. Their greatest challenge is to develop a new electro-drive platform that largely eliminates such traditional components as the drive train and brakes in order to save on weight and cost. Such a platform could be used for both a battery and a fuel-cell car.

Development of drive-system technologies Share of global production of passenger and light commercial vehicles (2005-2015)



CAGR = Compound Annual Growth Rate

Source: Industry database, Desk research, Interviews with experts, Oliver Wyman analysis