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What's Driving the Automotive Industry?

ACMA's Automotive Composites Alliance looks at some of the important trends affecting the automotive industry.

The Dodge Viper that features many composites parts was on display at the Automotive Composites Conference and Exposition in Troy, MI.

By Keith Bihary and Steve Martin

Conventional wisdom portrays the automotive industry as a mature, slow moving, no-growth industry. However, the truth is it's changing by leaps and bounds. If you want proof, just consider industry hot topics such as globalization, private equity investments, hybrids, alternative fuels, electronics, safety and much more.

CAFE

Federal Corporate Average Fuel Economy (CAFE) standards have been in place since the 1970s to force automakers to develop more fuel-efficient vehicles. The current CAFE standards are 27.5 miles per gallon (mpg) for passenger cars and 22.5 mpg for trucks. Now Congress is weighing an increase of up to 40 percent.

Automakers believe these targets are too high and unreachable in the time frames being discussed, not to mention too expensive for both automakers and consumers who must ultimately pay the price. But others, including scientists, believe the standards are reasonable. Lawmakers want to raise CAFE standards, and they expect the automakers to invest in and develop technologies to meet the targets. This battle rages on, and the outcome is still uncertain.

Globalization

U.S. automakers have long produced vehicles abroad, but now they are rushing to emerging markets such

as China and India. Following them to these distant outposts are suppliers, who are expected to be within an arm's length of automakers setting up manufacturing in far away places.

Prime among foreign locations is China. The flourishing market has a new, robust domestic economy, driven by strong demand for consumer goods, including cars. China recently joined the World Trade Organization (WTO) and is now the world's fourth largest economy, behind only the U.S., Japan and Germany. It's expected to continue moving up. China is the second largest automotive market in domestic sales behind Japan and the third largest automotive producer after the U.S. and Japan, though it is expected to leapfrog the U.S. by 2020. With a population of more than 1.3 billion, the possibilities are enormous, and the race to China by major global players is fierce as they establish operations and partnerships in China.

The number of private vehicles owned in China has grown from around 2.5 million in 1995 to more than 18 million in 2005. Sales of new vehicles is increasing approximately 20 percent annually and rose to more than 7 million units in 2006. Currently, China's per capita GDP is slightly more than $2,000, which makes it difficult for the average consumer to purchase a vehicle. Still, personal income is growing rapidly as China's middle class expands.

Right now there are dozens of automotive manufacturers in China, both domestic and foreign, but the industry is expected to consolidate to a manageable few. All major global OEMs are already producing vehicles in China, and automotive suppliers are setting up operations to compete for a piece of the $46 billion automotive components market.

Add to this the growth potential of countries such as India, Thailand, Indonesia and Vietnam, and it is easy to understand what is making the automakers' collective mouths water. A presence on the other side of the world is a must.

Private Equity Investing

Global growth by the automotive industry leads to what some consider a pariah and others a blessing: private equity firms. The chief mission of these firms is to find and purchase underperforming companies with under-valued assets and revamp their organizations. Ultimately, they will sell them off or take them public, bringing big profits into their coffers. Newspapers are filled with headlines about unknown companies buying up long-established companies. For example, Cerberus Capital Management recently acquired Chrysler LLC. (In Greek mythology, Cerberus is a monstrous three-headed dog that guards the gates of Hades.) Private capital also is gobbling up a long list of automotive suppliers.

What motivates these private equity firms? Do they really want to be in the manufacturing business? Or do they simply want to "flip" the business and squeeze all the money possible before selling it off?

Not everyone disparages the private equity model. Laurie Harbour-Felax, managing director, Operational Strategy & Performance Improvement Group at Stout Risius Ross, was quoted in *Automotive Design & Production* magazine, November 2007: "The culture change [going from publicly traded to privately held] may be what the U.S. automakers desperately need to become global, world-class companies, and Chrysler-Cerberus is a benchmark for how the future will evolve. Organizational restructuring and getting the right people on board to make swift decisions and achieve the speed-to-execution is critical in today's market."

$3+ Gasoline Prices

Everyone knows it is critical to reduce our dependence on foreign oil as quickly as possible. With gas at $3+ per gallon and prices continuing to increase, motorists are looking for ways to ease the impact. Drivers may love their trucks and SUVs, but the fuel economy of these heavy vehicles is not acceptable, and it is time for new technologies.

Hybrids, which combine an electric motor with batteries that are recharged by small gas or diesel-powered engines, are coming on strong. These vehicles rely more on electricity than fuel and thus provide higher fuel efficiency and lower emissions. Toyota recently announced it is expanding Camry hybrid production in Georgetown, Ky., with 25 percent of its overall capacity devoted to hybrids. Toyota is study-

ing the possibility of pushing that to 50 percent in the future. Hybrids are catching on, not only in passenger cars, but with SUVs and pickups. They may not be the panacea for the automotive industry, but hybrids are proving to be a viable alternative.

Automakers also are developing advanced battery systems. Plug-in hybrid electric vehicles use lithium-ion batteries to provide high power and high capacity along with longer life and reduced weight compared to traditional nickel metal hydride (NiMH) batteries. Lithium-ion batteries, which have enormous potential for the future of the auto industry, are being developed as a safe, affordable and more environmentally-friendly option. A prime example is the plug-in Chevrolet Volt under development for 2010. It will have a range of 40 miles on electric power alone.

Alternative energy sources such as ethanol, electricity, natural gas and even vegetable oil also are coming into play. Ethanol, which combines gas and corn-based ethanol, is gaining attention because it can reduce fossil energy use by 50 to 60 percent and emissions by more than 35 percent.

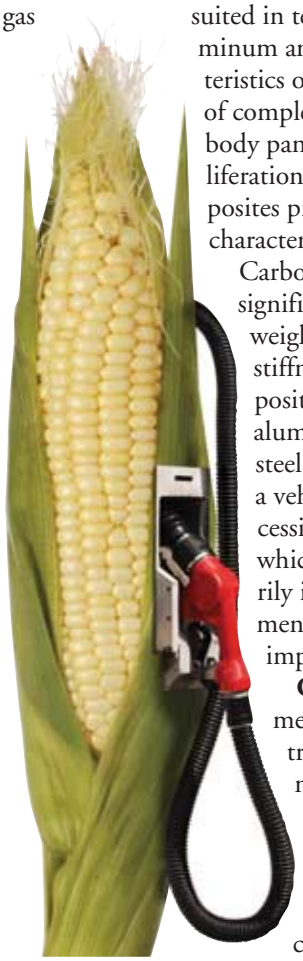
To meet anticipated tougher targets, automakers are looking at myriad new technologies for powertrains to boost fuel economy and emissions.

Fuel cells and advanced diesel engines also are under development. They promise cleaner, quieter and more energy-efficient alternatives to gasoline internal-combustion engines.

What Does This Mean for Composites?

In a word, "opportunity." Changes in the automotive industry benefit the composites industry. Let's look at how some of the industry's hot topics affect the composites industry.

CAFE: To meet anticipated tougher targets, automakers are looking at myriad new technologies for powertrains to boost fuel economy and emissions. They are also considering new materials that reduce weight and provide lighter vehicles to help boost fuel economy. Composites are among the key weight-saving materials for not only exterior and interior applications, but also in the engine. Composites can replace steel in many applications and are better suited in terms of cost when compared to aluminum and magnesium. The inherent characteristics of composites allow the development of complex shapes and smooth surfaces for body panels, which fits perfectly with the proliferation of niche vehicles. In addition, composites provide excellent strength characteristics in collisions.



Carbon fiber reinforced composites offer significant potential for reducing vehicle weight while maintaining strength and stiffness. Research shows that these composites are up to 30 percent lighter than aluminum and 50 percent lighter than steel and can reduce the overall weight of a vehicle up to 10 percent. Cost and processing remain issues for this material, which is used in high-end vehicles primarily in Europe. After further development, it promises to make a significant impact on the industry.

Globalization: Currently, environmental friendliness and emissions control are not overriding concerns in most emerging countries. But this will change as global warming accelerates. This portends well for the development of technologies that help reduce emissions and weight, so the composites industry is poised to be at

the forefront solving these problems. Composites manufacturers already realize the potential and are mobilizing to ensure a presence in emerging markets.

Private equity investing: The composites industry has not been immune from private equity takeovers. The infusion of cash and a new perspective on the industry's direction that private equity firms bring may go a long way toward a much-needed adrenaline lift in the automotive composites industry.

$3 gas prices: Reducing vehicle weight to improve fuel economy is a priority for automakers. Composites are an ideal solution. The entire composites industry is committed to finding new ways to take weight and cost out of vehicles, while increasing fuel economy. In a new advertorial, the ACMA Automotive Composites Alliance (ACA) member companies reveal ways that these savings and improvements with composites could positively impact a hybrid electric vehicle. The advertorial can be found on the new ACA website at *www.autocomposites.org*.

Those clinging to conventional wisdom about the automotive market are grossly misinformed. The industry is re-inventing itself on a daily basis all over the world, and the composites industry is doing the same to ensure it continues playing a significant role. CM

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