



HYBRID OR DIESEL LETTING THE CUSTOMER CHOOSE

By Frank O. Klegon for DaimlerChrysler

This is the third in our series entitled “Transatlantic Business Debate” where we look at significant business, technology and economic concerns of firms on both sides of the Atlantic.

DaimlerChrysler and Volkswagen, members of EABC, the European-American Business Council, present their views and strategies in advanced automotive technologies such as hybrid vehicles.

New technologies continue to represent the automotive industry’s primary path to offering its customers attractive products and to conserving limited natural resources. American consumers are willing to pay for utilities such as space and performance. Automakers can secure the sustainability of their business by ensuring fuel and material resources that are efficiently exploited. We also work to support government conservation policies, encouraging cooperation in the regulatory playing field. To succeed in these endeavors, DaimlerChrysler is investing heavily in technologies to improve fuel economy and exhaust emissions.

DaimlerChrysler’s investment in innovative automotive technologies supports a long-term vision of emission-free driving. Daimler Chrysler’s global fleet of over 100 fuel cell vehicles in active service confirms our engagement in this vision. Since fuel cells will likely take decades to become a prominent technology, other technologies must contribute in the short and medium terms.

DaimlerChrysler recently signed an agreement with General Motors (with BMW also intending to join) for joint development of a hybrid drive system, confirming the intentions of these three companies to bring hybrid technology to market this decade. Diesel technology has a long and proud history at DaimlerChrysler and we are expanding in the U.S. with the recent introduction of Mercedes Benz and Jeep diesel versions. The final technology pillar is that of alternative fuels, which include ethanol, biodiesel and SunDiesel, a synthetic fuel made from biomass. Selecting the appropriate technologies for different vehicle applications will ensure the optimum overall contribution.

Hybrids have received favorable publicity due to the significant fuel savings they offer



in comparison to conventional vehicles as well as their image as a clean technology. They promise excellent fuel economy, especially in stop-start driving, since the system recuperates and recycles the energy normally lost in

braking. The technology is expensive due to the electrical components, its immaturity and currently low production volumes. To achieve the greatest absolute fuel savings and to absorb the high technology costs, hybrids are well-suited to larger vehicles, such as SUVs and urban buses.

Diesel vehicles realize fuel economy gains of about 30% in all modes of driving and offer excellent low-speed torque, attractive to American drivers. Diesel engines also cost more than gasoline engines, but the price premium of this mature and high-volume technology is accepted by about 50% of European car customers. New technology will enable diesel exhaust to be as clean as that from gasoline vehicles. Again, the cost of the technology can be more effectively absorbed in larger vehicles such as SUVs, pickups and large sedans, which are popular diesel segments in Europe.

Since hybrids and diesels each offer particular benefits, both will likely be competing for market share but also complementing each other. As we refine these technologies and reduce costs, our customers will pick their winners and new trends will arise upon the platform we are building. The engineering knowledge gained from developing these technologies will directly benefit research into fuel cells and alternative fuels, helping to secure the future of the automobile. **t**

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TAKING THE HIGH ROAD WITH HYBRID

By Dr.-Ing. Rudolf Krebs for Volkswagen

The beginning of the 21st Century presents the automotive industry with an exciting array of challenges and opportunities. Scientific advancements, environmental challenges, and robust global development will power rapid innovations toward better transportation solutions, a cleaner environment, and a more competitive industry. The achievement of these goals can be aided by sound transatlantic and global dialogue on relevant public policies.

The development and deployment of advanced automotive technologies has been determined largely by local standards, consumer preferences, economic factors, and legislative norms. For example, the high percentage of diesel-powered passenger cars in Europe reflects taxes that discourage fuel consumption, and environmental policies that emphasize reduction of CO₂ emissions. Across the Atlantic, the U.S. market, with lightly taxed fuel and stringent emissions standards, is dominated by gasoline powered cars and light trucks with relatively low fuel economy, but with low emissions of smog-forming pollutants.

Today's regional preferences in automotive technology are evolving as new technologies are developed to fulfill the growing global commitment to reducing greenhouse gas emissions. Hybrid-electric cars, with help from government incentives, have attracted U.S. consumers eager to adopt products considered environmentally favorable. Recent fuel price increases in the U.S. have led to higher mainstream demand for clean, fuel-efficient vehicles of all kinds, especially clean diesels.

Clean, quiet and powerful modern diesel cars have begun to establish their own niche among U.S. consumers seeking "real-world" fuel economy gains together with traditional levels of vehicle capability and convenience. Moreover, the diesel engine is the most efficient and flexible platform for the use of plant-derived renewable fuels that displace petroleum fuels and offset CO₂ emissions.

Volkswagen's comprehensive powertrain and fuels strategy includes ever-cleaner diesel powertrains using



renewable fuels, an advanced, highly efficient gasoline-fueled concept, and a CNG-capable version for selected applications. We have announced the introduction of hybrid-electric vehicles in markets where their benefits can best be realized. We also are offering features such as the Digital

Sequential Gearbox that improve the fuel economy of our conventional products.

To facilitate the introduction of advanced automotive technology, governments must support conditions that encourage innovation, and, like automotive companies, must engage in global collaboration.

First and foremost, policymakers should recognize that technology is developmental, and that the best ideas will be sorted from the rest through vigorous competition. Today's favored technical approach may be overtaken by better technology or better execution. To help, government can maintain a performance-based, technology-neutral approach to regulation.

As globalization accelerates, and as we confront challenges that demand global solutions, policymakers must harmonize government standards wherever possible. In the transatlantic context, there are troubling signs of regulatory disintegration. Inconsistent member-state policies within an enlarged European Union, and legislative and regulatory activity by individual states in the U.S. are serious threats to the industry's efficiency and competitiveness.

With continued and improved transatlantic and global collaboration, and successful development and application of new scientific and engineering knowledge, the automotive industry and the public will experience a rapidly evolving and exciting transportation market that addresses society's needs on a sustainable basis. †

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