

Greener Cars for the Future

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The biggest single technical challenge facing the automotive industry is making cars that use less fuel. Lots of solutions have been mentioned in the press. However, a new report from IMS Research entitled "The Green Car" finds that in the next ten years, one solution alone is unlikely to be the answer. Instead, a range of technologies will be employed.

Improving fuel economy is driven by rising fuel prices, environmental considerations and a desire to reduce dependency on foreign oil. According to report author, Jon Cropley, "These issues are political hot potatoes. Car manufacturers won't be merely asked to improve fuel efficiency: they will be forced to by legislation".

Manufacturers in the U.S. must already follow standards for fuel economy based on CAFE (Corporate Average Fuel Economy). This is the weighted average fuel economy in miles per gallon (mpg) of a manufacturer's fleet of cars. CAFE for model year 2007 is 27.5 mpg. Proposals are being considered to raise this to 35 mpg by 2020.

It isn't just American auto execs that are facing the heat. Similar legislation is being proposed elsewhere. For example, the EU is currently debating a higher target of 120g of CO2 per km by 2012. As CO2 is directly linked to fuel consumption this equates to above 40 mpg on average for new gasoline cars.

If proposed fuel economy legislation isn't enough of a challenge, legislation on car emissions is also getting tougher. The EU has already proposed a new set of standards called Euro V which is scheduled to apply from September 2009. These are substantially more demanding than the current Euro IV standards. The U.S., Japan, China and many other countries are also planning to introduce stricter standards.

What can car makers do? Well, electric cars, plug-in hybrids and cars powered by hydrogen have all been receiving lots of attention in the press. However, the report finds these are likely to be longer-term solutions. In the next ten years, technologies that are likely to be increasingly used include cylinder deactivation, variable valve timing, diesel engines, turbochargers, piezo diesel injection, gasoline direct injection, hybrid engines, stop-start systems and flex-fuel engines.

Different approaches will be taken in different regions: cylinder deactivation is forecast to have a higher fitment rate in North America; hybrid engines in Japan; diesel engines in Western Europe. However, all regions will employ a variety of the advanced engine technologies analysed in the report.

How can manufacturers make cars that use less fuel? Well, there is no single perfect solution. Instead, there is a range of valuable solutions. Which of them are used largely depends on the type of car and where it is made.

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