

Alternative fuels essay



**ASSIGN
BUSTER**

We know fossil fuels are a finite resource, and burning them is harmful to the environment, yet we don't want to give up our cars. So what does the future hold? The car has become so entrenched in our society that it is unlikely to go away, but it will need to change dramatically to embrace new propulsion technology. While fully electric cars offering performance equal to current cars are somewhat off, petrol-hybrid cars like Toyota's Prius, Honda's Insight and new Civic Hybrid debut new thinking. The principal behind them is, simply, the combination of a small efficient petrol engine and a powerful electric motor. Combined they offer an impressive output with 60mpg+ easily achievable, the batteries for the electric motors cleverly store re-generated energy produced when the car brakes.

In reality, modern 'common-rail' diesels have the edge over such hybrids. More powerful and cheaper to produce, they are currently proving to be the most worthwhile 'alternative fuel' cars. Common-rail technology has slashed diesel emissions, while returning excellent mpg. Such direct-injection technology is slowly being introduced to petrol engines too, with similar enhancements in fuel economy and emissions.

Although the long-term future of the conventional petrol/diesel engine may be bleak, such efficiency gains limit their impact on natural resources and the environment until replacement technology can be introduced. Another route to fewer emissions is gas. Offered as a factory-fitted option by Vauxhall (Dualfuel), Volvo (Bi-Fuel) and many others, Liquid Petroleum Gas (LPG) is cleaner than petrol, far cheaper and ever easier to obtain. Meanwhile Compressed Natural Gas (CNG), although requiring heavy pressurised storage containers, is not reliant on crude oil, is readily available in the UK's

(it's the same as domestic gas) and is again clean and environmentally-friendly. It's an easy way to make a difference.

None of these alternatives really solve the problems of reducing fossil fuel stocks, although Bio-Diesels, produced from harvested crops, may ensure that diesel engines outlive their petrol counterparts. To look further ahead we need to take a look at manufacture's laboratories – where we'll almost certainly see a 'fuel cell' car under development. Typified by Toyota's FCHV-4, they're powered by hydrogen. This hydrogen is passed through a 'fuel cell', where it undergoes 'reverse electrolysis', combining with oxygen. This process generates electricity; with the only by-product being water. The result? Zero emissions, no limited range and performance on a par with ordinary cars.

Fuel cell cars are twice as efficient as 'regular cars' and ever improving packaging means they're barely any less practical, either. Hydrogen is also fuelling BMW's future plans; however, a different route has been taken. The German giant favours hydrogen-powered combustion engines, just like today's cars use, but with one major difference; the only thing coming out of the tail pipe, as with a fuel cell car, will be water. This has been made possible by hydrogen's combustion characteristics, which are not dissimilar to those of petrol. The main stumbling block is availability of liquid hydrogen. It's so volatile; it has to be stored very carefully, meaning a huge investment will have to be undertaken before technology is viable.

But, so long as hydrogen is produced using 'renewable' resources such as wind or solar power, we really will finally have 'environmentally-neutral'

cars. The car is no dead yet, thanks to the huge efforts of major manufactures are putting into developing alternative fuels. As yet we can't be certain which of the above technologies, if indeed any, will dominate, but with increasing concern over the limited supply of fossil fuels, and the environment, one thing is for certain the car, as we know it is changing - for the better.