



Can hybrids make a difference in the near future?

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I originally wrote this article for [The Hybrid Debate](#).

The Hybrid Debate encourages people to consider how their choice of car affects the world we live in and imagine how mass acceptance of hybrid technology could influence other aspects of our lives.

The aim is to encourage informed analysis and public debate amongst advocates and sceptics of the new technology.

Writers and experts in areas ranging from urban planning to the economy have been asked to kick start the debate by imagining a hybrid future and the implications in their area of expertise.

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The future may be bright for hybrids, but it would have to be a very distant future, judging by the evolution of the car to date, and by the deeply ingrained tendencies of British drivers.

Over the past decade there has been little improvement in the efficiency of the UK car fleet. In 1995, our average car could manage 32 miles per UK gallon (mpg) and by 2005 it could manage just 33mpg [1]. This tiny increase was due entirely to the increased proportion of diesel cars in the fleet. Meanwhile, the growth in size of the fleet (and the corresponding growth in total mileage) actually led to a slight increase in carbon dioxide (CO₂) emissions over the same period.

There have, of course, been improvements in car technology. The engines themselves are more efficient, developing more power from less fuel, and the bodywork is more aerodynamic. However, these improvements have been largely compensated for – some might say squandered – by the increased weight of today’s cars.

So, can hybrid technology really deliver increased fleet efficiency where the natural evolution of traditional cars has failed to deliver?

First of all, it’s important to remember the hybrid is not a new species so much as an evolutionary step. It looks the same, drives the same and uses the same fuel as a traditional car. The addition of batteries and an electric motor simply allows the internal combustion engine to be a little smaller and to be used more efficiently.

As a rule of thumb, today’s hybrid technology can increase the efficiency of a petrol car by around 50%. Coincidentally, this is approximately the same as the difference in efficiency between equivalent petrol and diesel cars. So, whatever today’s petrol-hybrid technology could do for the UK fleet’s CO₂ emissions, the same could be achieved by increasing the number of diesels on the

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road. Only the diesel-hybrid, which has yet to be released, looks likely to raise the bar significantly.

Let's consider some numbers for a moment. According to the Department for Transport there are 27.8 million cars licensed on UK roads today with 2.2 million new cars licensed each year [2]. This means just under 8% of the fleet is replaced each year. Hybrid registrations, meanwhile, totalled just 9,000 in 2006 – just under half of one per cent of new registrations overall [2].

If hybrid technology (applicable to petrol and diesel) became dramatically more available and popular, would it really make much difference to the overall emissions of the fleet?

Let's assume a quarter of the UK's new cars were fitted with hybrid technology. This would be over half a million new hybrids per year, more than twice the current combined UK sales of Toyota and Honda (the only two car companies offering hybrids in the UK) [3]. Let's further assume these hybrids were 50% more efficient than today's fleet average. By multiplying the numbers together we only get a 0.7% fleet-wide improvement in efficiency.

Hybrids are a very long way from the 25% take-up assumed in this quick calculation but perhaps the most sobering statistic is that over the last fourteen years, traffic, as measured in vehicle-miles travelled, has been increasing at a rate of 1.2% [4]. Just as increasing car weight squandered the last decade's engine efficiency improvements, increasing traffic is likely to squander any real efficiency improvements that hybrid technology can deliver.

While hybrids may be able to reduce the rate of increasing emissions, it seems the only way to achieve significant reductions is to drive less.

References:

[1] [Department for Transport, Energy and the Environment](#)

[2] [Department for Transport, Vehicle licensing statistics: 2006](#)

[3] [Total UK Car Sales 2003-2006](#)

[4] [Department for Transport, Traffic in Great Britain](#)



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