

# Save the planet - by taking your car on an alcohol-fuelled jaunt

Some British cars will soon fill up with 'petrol' made from sugar cane. It's a modest first step on the road to cutting carbon emissions, writes Robin McKie

**Sunday February 26, 2006**  
[The Observer](#)

In a few weeks, in Somerset, motorists will take part in one of the country's strangest transport experiments. They will be able to fill up their cars with fuel that is made up almost entirely of ethanol fermented from sugar cane in Brazil.

Their cars will then cruise the county's lanes and roads - using alcohol. For drivers, this offers a simple advantage: their vehicles will pump out greatly reduced amounts of fossil-derived carbon dioxide into the atmosphere.

Scientists estimate bioethanol fuelled cars produce at least 60 per cent less climate-altering gases than standard vehicles. Even better, these vehicles actually perform better - albeit only slightly - on their alcohol-rich diet.

There is a snag, of course. Only a handful of cars available in Britain can run on fuel rich in ethanol. There is the Saab 9-5 BioPower, which arrived in showrooms last month, and a version of Ford's Focus range. And that is about it.

Not much to go on, you might think. However, for many engineers and green campaigners the experiment represents the tip of a very promising iceberg. According to some analysts, Europe has the potential to provide 40 per cent of the fuel it needs for transport from ethanol fermented from crops and biodegradable waste, suggesting a massive opportunity for nations to reduce outputs of global warming gases.

It is not that ethanol-based fuels produce no carbon dioxide, of course. The crucial point is that their emissions merely involve recycling the gas.

Plants breathe in carbon dioxide. Then they are fermented to make ethanol. In turn, this alcohol is burned in a car engine and the carbon dioxide is returned to the atmosphere. There is no overall addition to atmospheric levels of the gas. By contrast, petrol and diesel are pumped from reservoirs laid down millions of years ago. Burning them adds to atmospheric carbon dioxide levels.

A move to ethanol-based fuels therefore offers a superb chance to make major inroads into carbon dioxide production. Recent figures show that passenger cars accounted for 13 per cent of emissions in Britain in 2003 (compared with 15 per cent for residential emissions, 15.7 per cent for manufacturing industries and 38.1 per cent for the energy industries).

But although moving to greater reliance on biofuels has considerable promise, it will not come overnight. For a start, there is the issue of engine specifications. Cars on the roads of Britain (and most of the rest of Europe) are designed to burn petrol with a maximum bioethanol addition of 5 per cent. A standard petrol engine ticks over nicely on such a modest alcoholic addition and in burning this fuel, called E5, you are doing your bit to slow global warming.

Finding a forecourt that sells it is a different matter. Only Tesco sells E5 petrol. (The 'e' is for ethanol, by the way, and the 5 for 5 per cent.) Other firms say they have E5 plans, though Tesco remains a clear leader in the field. The company introduced E5 in April and now sells it, as Tesco's standard unleaded petrol, at 185 of its forecourts, mainly in London, the south east and the north west.

'Bio-ethanol costs - roughly - 20p more a litre than petrol at present,' said a Tesco spokesman. 'However that rise is balanced by the recent cut made by Chancellor Gordon Brown on the duty for bioethanol fuel. So the price of our fuel is the same whether or not it has E5 in it or not.'

The alcohol for Tesco's unleaded is imported from Brazil, which has a major market in bioethanol fermented from the nation's sugar cane. Most Brazilian cars run on it. So when will Britain start making its own ethanol supplements? The answer is straightforward: very soon.

British Sugar is building a £20m plant in Wissington, Norfolk. It will convert low-grade sugar extracted from beet into ethanol and will have an output of 70 million litres. Much of its bioethanol will be taken by British company Greenergy, the supplier of Tesco's E5 petrol. In addition, Green Spirit Fuels, based in Henstridge, Somerset, has planning permission to build a bioethanol plant to convert 340,000 tonnes of wheat into 131 million litres of bioethanol.

In short, the country will soon be awash with the stuff. And not before time, say campaigners. The government has indicated that it expects 5 per cent of all motor fuel in the UK to come from renewable sources by 2010, a move that would have the environmental impact of taking a million cars off the road. Expect a future of flexible fermented fuels.

But adding a mere 5 per cent alcohol to petrol is a fairly modest step to cutting carbon emissions. Bigger reductions will be needed if the world is to avoid desperate overheating and, not surprisingly, these cuts will require more radical technological fixes. And that takes us back to the leafy lanes of Somerset. When its bioethanol fuel goes on sale in a few days, it will have an alcohol content of 85 per cent, a truly eco-friendly brew.

Your standard Nissan or VW would choke on the stuff, of course. But not Ford's new 1.8 Focus. It will lap it up. 'The great thing about flexible fuel vehicles like ours is that they run on standard petrol or E85 fuel with equal ease,' says Andy Taylor, director of sustainability at Ford. 'You can add one to the other in your tank with no performance loss.'

The E85 - which will be sold at selected Somerset forecourts - will cost the same as standard unleaded and will be used in a growing number of official county vehicles, such as police cars and ambulances. 'FFVs - flexi-fuel vehicles - have only just come on the market in the UK, but sales in other countries have been explosive,' said Dr Jeremy Woods, a bio-fuel expert at Imperial College, London. 'All major motor manufacturers are now designing their own versions.'

The particular attraction of FFVs, compared with hybrid petrol-electric cars, is price. A Ford FFV 1.8 Focus costs only £350 more than the 1.6 version that runs on standard petrol.

A move to a private transport system based on FFVs will take decades, however. Manufacturers have to introduce new ranges, the public has to start buying them, oil companies have to co-operate on fuel production, and owners of existing cars have to start weaning themselves of old technologies and fuels. Nevertheless, the potential is clear, though the benefits are not universal.

For a start, even if Britain could convert its entire 3.5 million-tonne wheat surplus into bioethanol, that still won't be enough for the country to meet its carbon commitments. One course will involve more imports - and attendant ethical issues. In many bioethanol producing countries there are, for example, serious concerns about the use of child labour in growing crops.

The other approach involves more efficient forms of fermentation and swapping sugar-rich crops (which have high ethanol yields when fermented) for agricultural waste, which has a high cellulose content, and is therefore not so good as an ethanol source.

'The technology is developing, however,' adds Woods. 'We may not be there yet, but the signs are hopeful.'

## **Human Traffic**

### **Total vehicles on the world's roads**

#### **- UK**

29.4 million cars

3.8 million commercial vehicles

#### **- Europe (including UK)**

271.4 million cars

44.5 million commercial vehicles

#### **- North and south America**

202.1 million cars

114.4 million commercial vehicles

#### **- Asia**

119.8 million cars

60.1 million commercial vehicles

**- Africa**

13.6 million cars

6.9 million commercial vehicles

**- Oceania**

13.5 million cars

3.1 million commercial vehicles

**- World**

620.6 million cars

229.1 million commercial vehicles

Society of Motor Manufacturers and Traders, 2004