



The relationship between Biofuels  
and consumer fuel prices -  
A *Greenergy* perspective

This Perspective responds to suggestions that increased usage of biofuel in the world could lead to higher fuel prices for consumers. It sets out Greenergy's views that increased production and consumption of biofuels is in fact leading to lower worldwide petrol and diesel prices by taking the pressure off oil refinery capacity utilisation.

## Summary

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Greenergy is a significant producer and supplier of petroleum and biofuels into the UK transport fuels market, supplying over 15% of the UK's overall petrol and diesel market and approximately one third of the biofuels market. Greenergy has extensive worldwide sourcing experience, with manufacturing operations in the UK and a blending facility in Rotterdam from which we supply customers across Europe. Greenergy is also a supplier of high percentage biofuel blends the fastest growth area within the biofuels market, in particular B50 for commercial usage and E95 for buses.

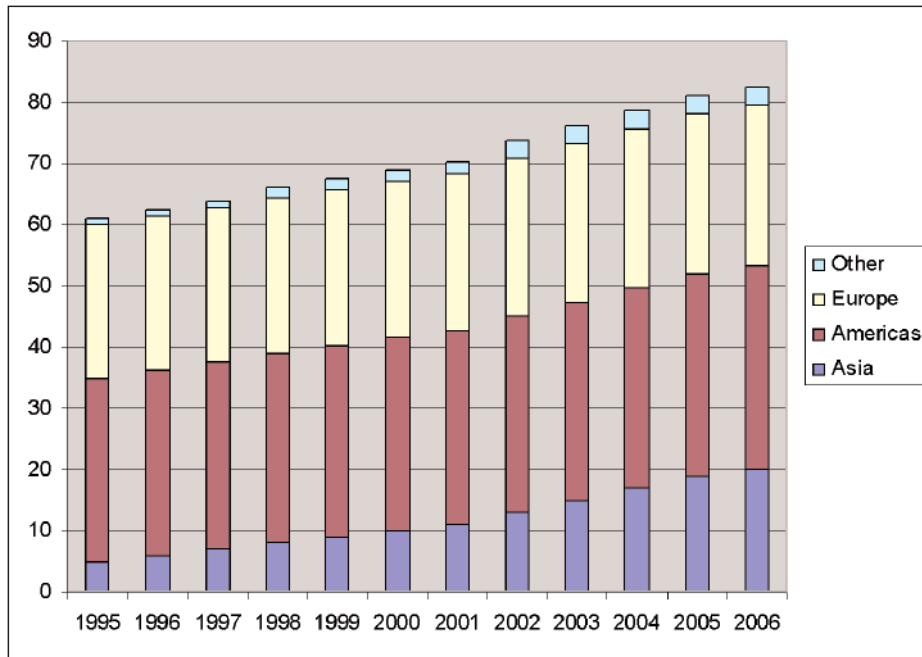
In this Perspective, Greenergy reviews the world fuel market and explains how increased production and consumption of biofuels impacts on diesel demand and price worldwide.

Demand for fuel has increased worldwide over the last 12 months, but there has been no increase in oil refinery capacity. Biodiesel production offers a solution to meet this increased demand without putting further pressure on refining resources. The diesel market is continually affected by the utilisation of refining capacity, so as demand has increased, refining capacity has reached breaking point, which has driven up diesel prices.

Biodiesel does not create a greater demand for diesel, so it must lead to lower use of refinery capacity and therefore lower overall diesel prices - not higher as is sometimes presumed. Petroleum prices are currently much lower than they would be without the existence of biofuels.

# 1 Growth in worldwide petrol and diesel demand

Over the last 12 years demand for fuel (petrol and diesel) has increased substantially worldwide. Most of the growth has come from Asia, especially China and India.



Graph 1. World petrol and diesel consumption by year

During the same period relatively few new oil refineries have been built, so those that already exist have had to operate at higher and higher capacity utilisation rates. Today worldwide, oil refineries are running flat out with no effective spare capacity.

## Perspective

Going forward, either more oil refineries will have to be built or demand choked off to keep supply and demand in balance. A third alternative is the production of biofuels.

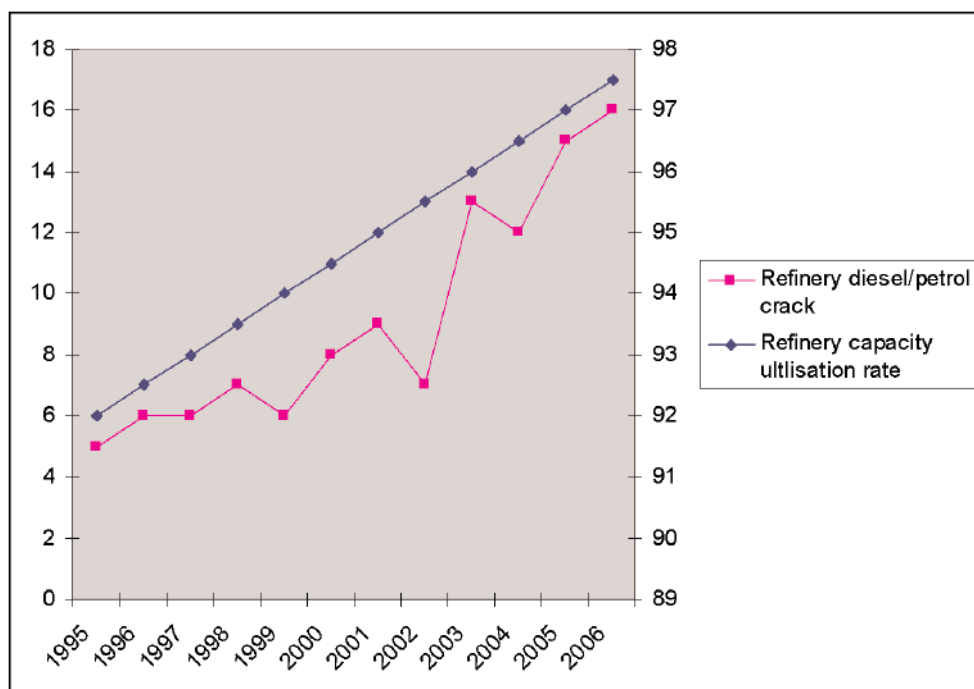


## 2 Relationship between refinery capacity utilisation and oil prices

As graph 2 shows there is a substantial correlation between refinery capacity utilisation and wholesale petrol prices and diesel prices on the forecourt.

Very small changes (as low as 1 or 2%) in relative supply / demand lead to profound changes in market prices. This is because market prices reflect the amount of refinery capacity that is spare, rather than the amount of refinery capacity that is used. For instance, in 2005 refinery

capacity utilisation was 96%, leaving 4% capacity spare. If demand were to increase by only 1% so that 97% of refinery capacity were used, this would reduce spare capacity to 3%.



### Perspective

Thus a 1% increase in demand (or reduction in supply capacity) reduces spare refinery capacity by 25% (from 4% to 3%), which in turn leads to substantial price pressure in the oil markets.

Based on available refinery capacity the worldwide petroleum fuel supply chain is at breaking point, with refinery capacity utilisation at all time highs.

Hurricane Katrina showed us all the effect of relatively small changes in world supply / demand on petroleum prices. When Katrina hit the US Gulf coast in 2005, it led to just a very few % points of worldwide refinery capacity reduction and lower petrol supply, but the effect of this drop in supply led to worldwide petrol price increases of around \$200/tonne overnight - price increases which remained in place until the damaged refineries were recommissioned months later.

At Greenergy we see the same effects in the market (albeit not so dramatically or newsworthy) almost every month where unexpected refinery shutdowns, or interruptions of Russian supply, or unexpected demand in West Africa or New York lead to substantial short term price increases that hold until the situation is resolved.

### 3 Effect of biofuel on oil prices

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Consider that European biodiesel production (and hence consumption) is presently running at 4 million tonnes per year, which is about 2% of total European diesel consumption. This may not sound significant until one considers the effect of oil refinery capacity utilisation. Given that biodiesel does not actually create any additional demand for diesel, the side effect of its use must be lower refinery capacity utilisation and hence lower diesel prices to consumers.

#### **Perspective**

Greenergy is firmly of the view that biofuels are leading to lower overall world and UK fuel prices, not higher as is often claimed.

Consider again the European biodiesel production. If this production was suddenly shut off an additional 4 million tonnes per year of petroleum diesel would have to be found to fill the gap.

It is inconceivable that this could be achieved in the short run, so the loss of such capacity would lead to increases in the diesel price to choke off demand. Our day to day experience, validated by Katrina amongst other things, is that such a reduction in biodiesel supply would lead to price increases in the overall diesel price of 100's \$/tonne.

Today biofuels typically cost 400 \$/tonne more than petroleum and this additional cost is either covered by duty reductions or inclusion laws like the UK RTFO (more information about the RTFO is available in Greenergy's Perspective on this subject).

At the current European biofuels inclusion rate of 2%, the extra cost of biofuels on a petroleum blend is around 8\$/tonne at current prices.

Yet as is explained in our preceding analysis, petroleum prices are much lower than they would otherwise be because of the existence of biofuels.

We have suggested that the elimination of biofuels in Europe would lead to petroleum fuel increases in the range 100's\$/mt.

#### **Perspective**

We suspect biofuels lead to cost saving in the fuel supply chain at least 10 times greater than their up front cost, so 1\$ spend on biofuels saves 10\$ on the overall fuel bill.