

UK Report to the Commission on Biofuels 2004

This report fulfils the UK's obligation to report to the European Commission for 2004, as required by Article 4 of Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport.

The report covers:

- the measures the UK has taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes.
- the national resources allocated to the production of biomass for energy uses other than transport
- the total UK sales of transport fuel and the share of biofuels, pure or blended, and other renewable fuels placed on the market for the preceding year.
- The UK's proposed indicative target for biofuels sales in 2005.

1. UK Measures to Promote Renewable Transport Fuels

1.1 Fuel Duty

The UK has already taken a number of steps to promote the uptake of biofuels. To date, the main support has been through fuel duty incentives, though the UK Government is currently consulting on other measures to support the longer-term growth of the UK Biofuels industry. A 20 pence per litre duty incentive on biodiesel has been in place since July 2002, and a similar duty incentive for bioethanol will be introduced from 1 January 2005. This policy has seen sales of biodiesel increase rapidly since the introduction of the incentive, and sales have increased from 150,000 litres a month in August 2002 to around 2 million litres a month. To a large extent, production is from waste vegetable oil (WVO), since this is currently the cheapest feedstock.

Biodiesel is currently available at over 100 filling stations in the UK, including a number of major supermarket sites. No bioethanol is sold in the UK, though this could change after 1 January 2005 when the 20 pence per litre fuel duty incentive for bioethanol comes into effect.

Budget 2004 provided a guarantee that the current duty incentives would remain in place for at least the next three years - providing greater market certainty for investors. In the UK, duty rates are set by the Chancellor at Budget time and take into consideration social and economic as well as environmental reasons. The current duty incentive for biofuels places primary importance on its environmental benefits but also supports the growth of an UK industry.

Industry has called for a higher level of incentive, but the cost of the current incentive already outweighs the monetised carbon benefit, and biofuels are currently an expensive method of carbon abatement. A more detailed cost-benefit analysis can be found in our consultation document (at www.dft.gov.uk/roads/biofuelsconsultation).

Our economic analysis suggests that greater incentive levels at this time would largely result in imports, including from outside the EU. This would limit the potential benefits to the UK and broader EU agricultural & rural sectors of a new market. In addition, there is strong concern that greater demand from the EU for biofuel feedstocks could lead to further deforestation in South East Asia and South America - thereby undermining the environmental benefit sought through the measure.

1.2 'Input Taxation'

Budget 2004 also confirmed the Government's intention to explore new taxation methods that could enable the direct processing of bio-materials into mainstream conventional refinery processes.

At present, the esterification of rape-seed is an entirely separate process from refining oil for road fuel products. The biodiesel is only blended with conventional diesel at a late stage in the process, which gives rise to inefficiencies in terms of manufacturing, storage and distribution, making the cost disadvantage of biofuel greater than it might otherwise be. At least one oil major has been experimenting with feeding the bio oils - and prospectively, the waxy materials produced from biomass - direct into the conventional refinery - in effect supplementing the crude oil.

The end product is virtually indistinguishable from conventional diesel - hugely advantageous from a fuel quality perspective - but challenging for the current fiscal regime, which focuses on this final product. The industry's suggestion is that the duty concession is linked to the bio input, through a 'bio credit' concept - i.e., a tax credit allowed on approved bio input material, which is redeemed against the full duty which applies to the total final fuel production. One of the advantages of the input focus is that it is easier to handle a range of different input materials, tailoring the level of credit and incentive to the degree of environmental gain.

The UK Government is very interested in such direct processing, as we believe it could enable a significant shift in the scale of biofuel production and facilitate the mainstreaming of biofuel products. There is however much work to be done - both on fully understanding the relative carbon benefits of this process and in exploring adaptations to the tax system that could enable it economically. The UK Government is currently exploring both of these issues, and intends holding stakeholder consultations over the summer.

1.3 Capital Grants

One of the few methods of direct support for industry - allowable under the EU's single market rules - is the use of regional selective assistance (RSA) grants for developments in regions of the EU identified as disadvantaged. This somewhat limits the options in the UK, where the qualifying regions do not necessarily match up with the most suitable areas to build production facilities. A further problem is that RSA's are linked to employment enhancing projects, and biofuels production plants are not very labour intensive.

However, the UK has taken advantage of the Regional Selective Assistance system to help fund the construction of the nation's first large-scale biodiesel production unit. An RSA grant from the Scottish Executive of £1.2 million has helped support the £15 million project. The plant will be built at Argent's Scottish base near Motherwell, through a £10 million deal with Austrian manufacturer BioDiesel International. The plant will convert tallow and waste oils such as used cooking oil produced by the UK's fast food and catering industries and could produce 50,000,000 litres per annum when operating at full productivity levels, currently planned to be by 2005.

The North East Regional Development Agency has also recently given a grant of £1.2million to support the development of a biofuels plant in the region.

1.4 Enhanced Capital Allowances

Capital allowances allow the costs of capital assets to be written off against a business's taxable profits. One hundred percent first-year enhanced capital allowances (ECA) allow a business to write off the whole cost of qualifying capital assets against the taxable profits of the period during which the expenditure is incurred. The accelerated tax relief can provide a cash flow benefit for businesses in profit and a net present value benefit of about five percent. The 2004 Budget announced that the Government will discuss with stakeholders the application of ECAs to support investment in the most environmentally beneficial biofuel processing plant. We intend holding stakeholder discussions on how ECAs might apply to the best biofuel production technologies over the course of the summer.

1.5 Renewable Transport Fuel Obligation

The UK is also seriously considering the possibility of introducing a renewable transport fuel obligation (RTFO) for the road fuel sector, drawing on the experience of the Renewables Obligation that applies to licensed electricity suppliers.

In essence, an obligation would require specified sections of the road transport fuel industry to demonstrate that a specified proportion of their aggregate fuel sales were 'renewable transport fuels'.

The Government considers that an RTFO could provide a mechanism to ensure the gradual substitution of fossil fuels for biofuels - and other renewable fuels - over the long term. Many questions remain as to how such an obligation might work and whether it is the most effective mechanism, and we have therefore invited views in our consultation. In the meantime, we have accepted a clause in the Energy Bill that would give the Government the primary powers to introduce an RTFO, should the Government decide - in light of consultation - to proceed down this route.

1.6 Sponsoring Research & Development

The Government has commissioned and/or otherwise contributed to the funding of a number of research projects in order to inform policy making. These include: -

- *'Liquid biofuels and hydrogen from renewable resources in the UK to 2050: a technical analyses'* carried out by technical consultants E4tech. This study was

undertaken to help the Government assess the implications of achieving ultra-low carbon transport. The Government published its assessment in June.

- *'Evaluation of the comparative energy, global warming and socio-economic costs and benefits of biodiesel'* by the resources research unit of Sheffield Hallam University
- *'Liquid biofuels - prospects and potential impacts on UK agriculture, the farmed environment, landscape and rural economy'*, by the Central Science Laboratory
- *'Fuelling Road Transport - implications for Energy Policy'* by Nick Eyre, Malcolm Ferguson and Richard Mills.
- *'Expert paper on the Global Impacts of Road Transport Biofuels'* a joint initiative involving the NSCA, the Cleaner Transport Forum and the Institute for European Environmental Policy.
- *'The Potential Environmental and Rural impacts of Biofuels Production in the UK'*, a joint initiative involving the NSCA, the Cleaner Transport Forum and the Institute for European Environmental Policy.
- *'Liquid biofuels - industry support, cost of carbon savings and agricultural implications'*, by the Central Science Laboratory.

All of these studies are made publicly available on Government websites

1.7 Bringing forward the Hydrogen Economy

Hydrogen stands alongside biofuels as the other major potential low-carbon transport fuel and could provide both ultra-low carbon and zero-pollution road transport. Hydrogen vehicle and fuel technologies remain at an early stage, and UK support is focussed on research, development and demonstration activities. Since 1992, industrial research funding has been available through the Advanced Fuel Cell programme; hydrogen technologies are also supported through the New and Renewable Fuels programme, and will be priorities for the forthcoming National Energy Research Centre and automotive Centre of Excellence for Low Carbon and Fuel Cell Technologies. As part of the EU Clean Urban Transport for Europe (CUTE) project, three hydrogen fuel cell buses are currently operating on a public bus route in central London, building technical experience, collecting valuable data and raising public awareness of these technologies.

The 2003 Energy White Paper acknowledged renewable hydrogen and biofuels as the two most prominent options for a future ultra-low carbon transport economy and committed the Government to producing an assessment of the overall energy implications of their use on a significant scale. This assessment will be published shortly.

1.8 Government Leading by Example

The UK Government has been leading by example in promoting and using biofuels. The Government Car and Despatch Agency (GCDA), which supplies Ministerial and delivery vehicle services to Central Government, is running its diesel fleet on

biodiesel blends. Additionally, at local Government level, many local authorities (LA's) and police authorities have shown a lot of interest in using biodiesel in their fleets. Currently Dorset County Council and Dorset Police, Tayside Contracts (covering part of 3 Scottish Councils) and Tayside Police as well as London's Metropolitan Police are using biodiesel for part or all of their vehicle fleets.

The Government is actively working to try and further encourage the use of biofuels in the public sector. An event is planned for later this year to encourage both the private and public sectors to consider alternatively fuelled vehicles, and alternative fuels, such as biofuels.

Government Ministers have attended a number of events to promote biofuels. For example, Transport Minister David Jamieson spoke at the launch of a national roll-out of biodiesel blends being sold at a major supermarket's petrol forecourts. The partnership between supermarket chain Tesco, and fuel producer Greenergy, has so far led to over 20 Tesco forecourts offering Greenergy's GlobalDiesel (a 5% carbon certified biodiesel blend).

1.9 Information Provision

The Government has sponsored promotional leaflets, such as "Drive cleaner, drive cheaper", and "The facts on biodiesel and bioethanol". It also provides funding for the TransportEnergy website, which contains information about UK filling stations where biofuels are available.

Our consultation document contains our proposals for introducing a new labelling regime, as required by the Directive, to apply to retail pumps dispensing biofuel blends in excess of 5%.

The Government has also invited comments on whether more information on biofuels should be made available.

2. Biomass for electricity power generation

The UK Government announced in January 2000 a target of 10% UK electricity supply from renewable sources by 2010. This target has been embodied in the Government's Energy White Paper published in February 2003, which also introduces an aspiration of 20% renewable energy supply by 2020.

The Renewables Obligation is the key policy mechanism by which the UK Government is encouraging the growth necessary to reach the UK's renewable energy targets. It requires all licensed electricity suppliers in England and Wales to supply a specific proportion of their electricity from renewables, and provides a number of paths to compliance. Individual suppliers are responsible for demonstrating that compliance to Ofgem through a system of Renewables Obligation Certificates (ROCs). In order to provide a stable and long-term market for renewable energy, the Obligation will remain in place until 2027. Yearly targets have been set up to the 2010/2011 period.

Under the RO, electricity generation plant fired by a fuel supply of 98% or more (by calorific value) biodegradable material is eligible for the Renewable Obligation, regardless of the energy conversion technology used. The conversion of mixed waste into fuel oil or gas by advanced conversion technologies like gasification and pyrolysis is also acceptable under the Obligation, although Renewable Obligation Certificates (ROCs) are only issued to the renewable fraction. Mass burn incineration of mixed waste is excluded from the Renewables Obligation. Eligible biomass fuels are confirmed in the Obligation. Cofiring of biomass with fossil fuels is also eligible under the obligation until 2016, although Renewable Obligation Certificates (ROCs) are only issued to the renewable fraction and a rising proportion of energy crops are required in the biomass from 2009.

In the first year of operation of the RO April 2002-March 2003, the UK produced about 1.8% of its electricity from eligible renewable sources. RO eligible biomass produced about 0.34% of current electricity supply - some 20% of ROCs issued were for biomass (with about 7% of ROCs from co-firing).

The deployment of biomass fuelled heat and electricity projects in the UK is also supported by the £66m Bioenergy Capital Grants scheme, jointly-funded by the Department of Trade and Industry and the National Lottery's New Opportunities Fund, which was launched in April 2002. 21 projects have been offered grants under the scheme, which range from the installation of biomass heat cluster technology and small-scale combined heat and power (CHP) with electrical output less than 1MW to larger scale projects over 20MW deploying state-of-the-art thermal combustion for electricity generation and CHP and advanced conversion technology.

Farmers in England can apply for establishment grants for planting short rotation coppice or miscanthus for electricity and heat generation purposes through the £29 million Energy Crops Scheme run by the Department for Environment, Food and Rural Affairs (Defra). Farmers and landowners in the rest of the UK can apply for more modest grants for the establishment of short rotation coppice through the Woodland Grants Scheme run by the Forestry Commission (Scotland/Wales) and Forest Services (Northern Ireland). Defra is also setting up a new UK-wide £3.5 million Bio-energy Infrastructure Scheme. This will help to develop the supply chain for energy crops and forestry woodfuel, from harvest through to delivery to electricity and heat end-users. Subject to receiving State Aids clearance by the European Commission, the aim is to launch the scheme in Autumn 2004.

The Department of Trade and Industry also supports fundamental research and development over the whole range of renewable energy technologies (solar, wave, tidal, wind, fuel cells and biomass) through a ~£19m pa programme. In the area of biomass the programme has already supported important work in expanding our knowledge on energy crops and advanced conversion technologies like gasification and pyrolysis. In addition to biomass heat/electricity generation the scheme will also support work on next generation biofuels.

3. UK Sales Levels for 2003

The total sales of biofuels in the UK in 2003 was some 19,446,000 litres, whilst total road fuel sales were approximately 48,505 million litres. As a percentage of total road fuel sales therefore, biofuels contributed about 0.04%.

Biofuels sales by month ('000 litres) are set out below and demonstrate a tripling over the course of 2003.

Month	Quantity (litres)
August – 2002	157,000
September	468,000
October	684,000
November	499,000
December	910,000
January - 2003	560,000
February	755,000
March	814,000
April	825,000
May	1,214,000
June	1,651,000
July	2,067,000
August	2,712,000
September	1,823,000
October	2,666,000
November	2,224,000
December	2,135,000
January -2004	1,037,000
February	1,893,000
March	1,308,000
April	1,441,000

Negligible quantities of bioethanol were used in road transport in 2003.

Feedstocks for UK biofuel production include re-cycled cooking oils, agricultural by-products (eg tallow and possibly straw) and mainstream agricultural crops (eg cereals and root crops for bioethanol and oilseed crops for biodiesel). Imports could include straight bioethanol and biodiesel as well as biodiesel feedstocks including tropical products such as palm oil.

Most biodiesel was sold in a blend, the majority at or below the 5% level which is in line with the European road fuel diesel standard EN590.

Our consultation contains details of our projections for biofuels sales in 2004 and 2005.

4. UK Target for 2005

As illustrated above, the UK has already taken a number of steps to promote uptake of biofuels which has stimulated a rapidly expanding market. With these measures in place, and the additional incentives announced in Budget 2004, we estimate that UK biofuel sales could be as much as 12 million litres a month in 2005. This would represent a six-fold increase over today's levels of biofuel sales and a significant expansion of the UK's biofuels industry. Most biodiesel is used in a blend of up to 5 percent, which would mean that as much as 10 percent of all diesel being used in the UK included an element of biofuel

As a percentage of total road fuel sales, this would equate to something like 0.3% biofuels (mainly biodiesel). We recognise that this is some way short of the EU's reference values. However current incentives have only been recently introduced and given the UK's low starting point; the considerable growth this target implies; and the limited time between now and the target period, we feel it represents a challenging but realistic target for the UK. We are currently consulting on this basis, and will confirm our target for 2005 by the end of this year.

5. UK Target for 2010

The Directive does not require Member States to set targets for 2010 until July 2007. Given current levels of uncertainty - for example about the prospects for policy tools such as an obligation and new 'input taxation' methods, we have proposed in our consultation document that we do not intend setting a firm 2010 target at this time.

We have asked for consultee views on what would be an appropriate level of aspiration for the UK now, and whether they agree that we should defer setting a 2010 target until 2007, as the Directive allows.

The UK Government is currently developing a package of measures to support the long-term future of the Biofuels industry that provides for the environmental benefits of the industry and delivers benefits in the most cost-effective manner. We believe that this longer-term approach will allow us to set a more meaningful 2010 target.

6. Conclusion

The UK Government's approach to the promotion of biofuels has, and will continue to be, a measured one, based on a full understanding of the costs and the benefits. We believe that a long-term perspective is required. This suggests that fuels derived from biomass are likely to provide an important element of any low carbon transport system well into the future. It also suggests that we need to consider carefully the most appropriate mechanisms to ensure the greatest carbon savings possible from biofuels and other renewable fuels - and at the lowest cost.

Of course we recognise that the industry must start somewhere, and the current fiscal measures we have put in place demonstrate our resolve. However, we consider that developing the right framework to support renewable fuels into the long term needs to form a central part of our strategy. That is why we are seriously considering such significant steps as major changes to the fiscal regime to enable the direct processing of biofuels, and also whether some form of renewable fuel obligation might be the

right way forward. These steps do not deliver 'quick wins' and will take time to develop and implement. However, we consider that this is time well spent and should allow greater benefits over the long term.