

UK Report to European Commission
Article 4 of the Biofuels Directive (2003/30/EC)

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Promotion and Use of Biofuels in the United Kingdom

Introduction

This report fulfils the UK's obligation to report to the European Commission by 1 July 2006 on the effectiveness of UK Government support for biofuels during the calendar year 2005, 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:

- in section 1, the measures the UK has taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes;
- in section 2, the measures the UK has put in place to ensure that the environmental benefits of biofuels are fully realised;
- in section 3, the national resources allocated to the production of biomass for energy uses other than transport;
- in section 4, the total UK sales of transport fuel and the share of biofuels, pure or blended, and other renewable fuels placed on the market.

SECTION 1: UK Measures to Promote Renewable Transport Fuels

i. The Renewable Transport Fuel Obligation

The UK Government announced in November 2005 that it will introduce a major new policy to ensure the inclusion of biofuels and, potentially in future, other renewable fuels in UK transport fuel. The "Renewable Transport Fuel Obligation" (RTFO) will place a legal requirement on transport fuel suppliers to ensure that a specified percentage of their overall fuel sales is from a renewable source.

The RTFO will be the UK's primary mechanism to deliver the objectives of the Biofuels Directive. It will give the Government a powerful tool to ensure that policy targets can be met. Without an obligation of this kind, it appears very unlikely that the UK could achieve anything like the reference values set out in the Directive. This is because the level of duty differential in the UK and the length of certainty the mechanism offers has proved insufficient to stimulate the level of investment in production capacity and infrastructure required to meet the Directive's objectives, whilst the Commission has indicated that higher levels of fiscal incentives could give rise to overcompensation. Higher levels of duty incentives would also be very expensive, potentially placing unsustainable pressures on public finances. In contrast the RTFO will provide a long term stable mechanism to ensure that higher levels of support will be provided when industry needs it, without breaching EU State Aid rules which preclude overcompensation.

Level of Targets

The levels of obligation for the years 2008/9 to 2010/11 were set out in Budget 2006 and are as follows:

Financial Year	Level of Obligation
2008/09	2.5%
2009/10	3.75%
2010/11	5%

These targets have been set on a volume basis. The UK Government recognises that the level of obligation for 2010 falls below the 'reference value' set out in the Directive. However, the differentiation was motivated, set following intensive stakeholder discussion and taking into account a number of objective factors including the following.

EU Fuel Quality Standards

Current EU fuel quality standards impose a 5% limit on the amount of biofuel that can be blended into petrol and diesel. Setting a legal obligation on fuel suppliers above the legal limit for ordinary road fuels (and suitable for ordinary vehicles) is inherently problematic. Niche products such as E85 provide the possibility for sales of blends above 5%, but given the current vehicle fleet and refueling infrastructure, relying on such products to make up a significant percentage of total fuel sales (as a 5.75% target by Energy implies) does not appear realistic in the period to 2010. The UK would like to see the current fuel quality standards revised to allow higher biofuel inclusion rates, and welcomes the Commission's recent action in this area as noted in the recent Biofuels Communication.

Sustainability Risks

The UK strongly supports the promotion of good quality biofuels, but acknowledges the serious risk that biomass could be produced from highly unsustainable sources which could potentially undermine the central environmental policy objective. The UK is therefore developing an assurance scheme alongside the Obligation to ensure, as far as possible, biofuels are produced from sustainable sources. This is very much in keeping with the principles underpinning the Directive. The feasibility study indicated that it would take around 18 months to develop a robust sustainability assurance scheme. Environmental groups in the UK are generally supportive of the UK biofuel policy, but their support is contingent upon robust systems of certification and upon reviewing the effects of the policy at 5% before moving to higher inclusion levels.

Time required to build new production capacity

Stakeholders have indicated that it takes at least 18 months, and typically far longer, to bring new capacity on stream. Even before construction can begin, securing investment and obtaining planning permission can both involve lengthy processes. Although it is anticipated that imported biofuels will contribute to UK targets under the RTFO, it appears likely that a UK industry will be required given growing world-wide demand for biofuels. Enhanced UK capacity will also contribute to the UK's security and diversity of fuel supply and benefit the rural economy.

Time to develop supply infrastructure

The inclusion of biofuel in the UK will require time and investment to develop the existing fuel supply infrastructure. This will include new tanks for storage and extensive investment at fuel terminals to cater for bioethanol, which cannot be transported through the existing pipeline network due to its hygroscopic nature.

Time to develop regulatory framework and put administrative infrastructure and procedures in place

A feasibility study published by the Government last year estimated that the earliest an RTFO could be introduced would be April 2008, taking into account factors such as setting up an administrator to run the scheme; the complex secondary legislation required; and developing an IT system and putting new business processes in place.

The RTFO targets are for aggregate renewable fuel sales on a volume basis and do not include separate biodiesel and bioethanol targets. On the basis of stakeholder information, we anticipate that the majority of biofuels used to meet the 2008/9 target will be biodiesel as the fuel is easier to integrate into the supply chain. In terms of energy content, we anticipate the UK RTFO targets will achieve something like 2% of total fuel sales in 2008/9, 2.8% in 2009/10 and 3.5% in 2010/11.

The Government is confident that the RTFO will ensure significant growth of biofuels to 2010-11, while recognising the time required to build production capacity and develop the necessary infrastructure to blend and supply the fuels. It will mean that by 2010 the vast majority of UK forecourts will be supplying renewable fuels in the form of biodiesel and bioethanol.

The UK has also indicated that the target should rise beyond 5 per cent after 2010-11, so long as infrastructural requirements and fuel and vehicle technical standards allow, and subject to the costs being acceptable to the consumer.

Level of Buy-out price

Budget 2006 also set out a fiscal regime under the RTFO to provide industry with further certainty. The 20 pence per litre duty incentive has been extended to 2008/9, and the level of the "buy out" - the price for each litre of fuel that companies must pay if they do not meet their obligation by delivering enough biofuels - is set at 15 pence per litre in the first year of the obligation. This means a total combination of support for biofuels of 35 pence per litre in the first year of the obligation. The 35 pence per litre of support for biofuels will also be available in 2009/10 before reducing to a total of 30 pence per litre in 2010/11. This increased level of support will provide a kick start to the RTFO mechanism in the early years of the obligation and should ensure that biofuels will be delivered to the UK market from day one.

ii. Other support mechanisms for biofuels

Fuel Duty Incentives

Fuel duty incentives remain the UK Government's primary means of support for biofuels ahead of the introduction of the RTFO. The UK Government introduced a 20 pence per litre duty differential on both biodiesel (in 2002) and bioethanol (in 2005). This policy has stimulated a growing market for biofuels in the UK, with sales for the calendar year 2005 year averaging around 10 million litres a month (equivalent to some 0.25% of total transport fuel sales), but has proved insufficient to stimulate a mainstream market. The level of duty incentive is now guaranteed until 2008-09.

Enhanced Capital Allowances

The UK Government announced in December 2005 that, subject to State aid approval, it will introduce an enhanced capital allowance scheme for biofuel processing plants that meet certain qualifying criteria which make a good carbon balance inherent in the design. The scheme will allow 100% of the first year cost of capital assets to be written off against taxable profits. The 2006 Budget Report announced that the Government has now applied for State aids clearance and, subject to that, envisages the scheme being in place early in 2007. Defra will now appoint consultants to consult industry a further time as to the design of the scheme in terms of the qualifying criteria and the biofuel plant equipment list.

Government grant programmes

In July 2005 the UK Government received European state aid approval for a Refuelling Infrastructure grant programme which aims to increase the infrastructure of alternative refuelling stations for road vehicles. The programme was launched in August 2005 and provides grants toward the cost of installing alternative refuelling points including, for example, for hydrogen, electric, bio-ethanol and natural gas / biogas stations. Although not exclusively aimed at biofuels, the grant programme has attracted interest from a range of organisations considering the installation of E85 bioethanol refuelling points.

Regional Selective Assistance Grants

As outlined in last year's report, regional selective assistance grants are one of the few methods of direct support for industry allowable under the EU's single market rules. Options for use of this assistance are limited in the UK, because qualifying regions do not necessarily match up with the most suitable areas for production facilities.

Nonetheless, an RSA helped establish the UK's first major biofuel plant in Scotland, and other Regional Development Agencies have received applications. This includes an application currently before the Scottish Executive seeking Regional grant assistance for establishing a new production facility in Rosyth, Fife.

Support for direct refining of vegetable oils at oil refineries

The UK Government is exploring the option of encouraging through the tax system the direct refining of vegetable oils at oil refineries.

At present, most biofuels are produced by small companies by putting vegetable oils through an esterification process. The current small-scale nature of this process gives rise to some inefficiency in terms of manufacturing, storage and distribution, making the cost disadvantage of biofuel greater than it might otherwise be. There is however the possibility that biomass such as rape seed oils can be mixed with conventional hydrocarbons in a process call 'hydrogenation' with the end product virtually indistinguishable from conventional diesel, though this process has yet to be proven on any significant scale.

In 2005 the Government launched a tendering process inviting bids for a pilot project to examine the potential for using fuel duty incentives to support the use of biomass in conventional fuel production. Two potential bidders have made firm expression of interest, and are expected to submit detailed proposals by the end of the year. These bids will be assessed early next year and a decision will then be taken on which of the proposals will be supported.

iii. Sponsoring Research & Development

The Government has supported a number of projects specifically on the development of advanced production methods for biomass transport fuels in the past year. These include:

- LowCVP work on developing a methodology and tool for calculating the carbon intensity of biofuels.
- LowCVP work on developing an environmental standard for biofuels.
- *'Technology Status review and carbon Abatement Potential for Renewable Transport Fuels in the UK'* - carried out by Imperial College of Science, Technology and Medicine
- *'Hyperthermophilic Proteolytic Fermentation to Generate Ethanol as a Transport Fuel'*, being carried out by BLC Leather Technology Centre Ltd.
- *'Lipase Alcoholysis of Triglycerides to Produce Biodiesel'* also being carried out by BLC Leather Technology Centre Ltd.
- *'Biofuel production from plant biomass derived sugar'*, being carried out by TMO Biotec Ltd
- *UK carbon reduction potential from technologies in the transport sector*, being carried out by E4Tech.

These studies will be made publicly available on Government websites in due course.

iv. Government Leading by Example

The UK Government has been leading by example in promoting and using biofuels. Cars available to ministers have been subject to a review by the Government Car and Dispatch Agency (GCDA) in 2005. In the light of this review, all new Government vehicles added to the fleet will be either hybrids or diesel-engined vehicles which will be run on a 5% biodiesel blend.

The GCDA also uses a 5% biodiesel blend in its London-based delivery vehicles. At local Government level, many local and police authorities are using biodiesel in their fleets. Examples include Dorset County Council and Dorset Police, Easington District Council, Tayside Contracts (covering part of 3 Scottish Councils) and Tayside Police as well as London's Metropolitan Police. A number of local authorities and others in the South West of England (including Somerset County Council, Avon & Somerset Police and some local utilities) have started running their vehicles on E85 as part of a wider European project (the BEST (bioethanol for sustainable transport) initiative. Cheshire county council is currently preparing to run its 250-strong fleet on a biodiesel blend.

v. Support for other renewable fuels: 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.

Following extensive research into the prospects for a hydrogen economy in the last few years, on 15 June 2005, the Government published a "A Strategic Framework for Hydrogen Energy Activity in the UK- the Government's response". This included a funding package from the DTI of £15 million over four years for a UK wide hydrogen and fuel cell demonstration programme. The demonstration scheme is currently in preparation, and will require EC State Aid approval.

In addition, the Engineering and Physical Sciences Research Council (EPSRC), including through the SUPERGEN initiative, support basic research in universities on both fuel cells and hydrogen. The UK Sustainable Hydrogen Energy Consortium (UK SHEC) is a programme under SUPERGEN which has received funding of £2.5 Million. UK SHEC is supporting projects on:

- hydrogen generation;
- hydrogen storage; and
- socio-economic implications for a hydrogen economy.

In addition to SUPERGEN, EPSRC has awarded £1 Million to investigate the potential role of formic acid as a chemical method for the storage of hydrogen. £500 K has been granted to three projects on fundamental science and engineering relevant to the hydrogen economy. EPSRC also contributes to projects through the DTI's Technology Programme. More widely, the research councils EPSRC, ESRC, and NERC have recently established the UK Energy Research Centre.

The Government has also provided support to enable the establishment of a Centre of Excellence (CENEX) for fuel cell and low carbon vehicle research and technology transfer. £6.5 Million has been provided by the Department of Trade and Industry.

SECTION 2: Ensuring that the Environmental Benefits of Biofuels are realised

The potential environmental benefits of biofuels are well recognised, but the extent of the benefits in terms of carbon is variable, and there is substantial and growing concern about potential negative environmental impacts, such as deforestation. Both issues have the potential to undermine the benefits of biofuels and policies in support of them. The UK Government has therefore taken action to address these risks to try and ensure that the environmental benefits of biofuels can be fully realised.

In 2005, as part of the RTFO feasibility study, the UK Government commissioned a study through the Government and industry-sponsored Low Carbon Vehicle Partnership (LowCVP) to establish the feasibility of developing Carbon and Sustainability Assurance schemes for renewable road fuels. The report is available at:
http://www.dft.gov.uk/stellent/groups/dft_roads/documents/divisionhomepage/610328.hcsp

Following a positive outcome from this study, work has been undertaken through the LowCVP to develop useable tools for companies to measure and manage the environmental performance of their biofuels, including:

- A methodology and tool for calculating the carbon intensity of biofuels; and
- The development of a draft environmental standard for biofuels.

The Government will be establishing a Biofuels Sustainability Unit to take forward this work with the LowCVP. The unit will be specifically responsible for developing the sustainability and carbon certification reporting frameworks to accompany the RTFO.

SECTION 3: Biomass for Electricity Power Generation

The UK Government announced in January 2000 a target that 10% of the electricity supplied in the UK would be generated from renewable energy sources by 2010. This target has been embodied in the Government's Energy White Paper published in February 2003, which also introduced an aspiration to achieve a renewable electricity penetration of 20% of all electricity power generation by 2020.

The primary policy mechanism for delivering the UK's renewable target is the Renewables Obligation (RO). The Renewables Obligation came into force on 1 April 2002 and applies until end March 2027. It requires electricity suppliers in Great Britain to supply an increasing amount of their electricity, year on year, from renewables until 2016/17 - although the RO will remain in place until 2027.

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. Support is targeted in four areas, smaller heat and CHP, medium scale CHP and electricity generation, large-scale electricity generation and CHP, and advanced electricity generation. This scheme has supported the construction of power stations at Lockerbie (43MW) and Wilton (30MW) which should commission in 2007.

In 2004, the United Kingdom produced about 3.58% of its electricity from eligible renewable sources compared to 2.67% in 2003. Renewable Obligation eligible biomass produced about 1.85% of current electricity supply in 2004 compared to 1.54 in 2003. Figures for 2005 are not yet released, but will be available shortly through the DTI website. A detailed overview of the development of renewable technologies in the UK, including its impact on the environment may be found in the DTI's Digest of UK Energy Statistics (DUKES) at www.dti.gsi.gov.uk.

Recognising the great potential for biomass growth in the UK, and the current utilisation of this important energy source, the Biomass Task Force was established to 'assist Government & Industry in optimising the contribution of biomass energy to renewable energy targets and to sustainable forestry and farming and rural objectives'. The Biomass Task Force reported to Government in October 2005. A full report is available at

<http://www.defra.gov.uk/farm/acu/energy/biomass-taskforce/btf-finalreport.pdf>

Support for co-firing of Biomass is also being considered as part of the UK Energy Review currently underway.

An action plan in response to the Task Force Report was published by the UK Government on 27 April 2006. The plan accepts that energy from crops, trees and waste can make a strong contribution to reducing greenhouse gas emissions and sets out eleven key ways to make this happen. The main argument of the Task Force Report - that biomass is particularly suited for generating heat - was accepted by the Government, though the action plan makes clear that electricity generated from biomass and combined heat and power (CHP) are also important parts of its future.

Measures introduced include a capital grant scheme for biomass boilers; the establishment of a new Biomass Energy Centre to provide expert information and advice, along with further grant support for energy crops and a commitment to consider using biomass heating, wherever possible, in Government buildings.

The action plan is primarily for England. However the Devolved Administrations of Northern Ireland, Scotland and Wales have helped in its development and it will also contribute to a UK Biomass Strategy, which will be published in the next year.

Key points in the action plan are:

- A new five year capital grant scheme for biomass boilers, with funding of £10 - £15 million over the first two years and a second round of the Bio-energy Infrastructure Scheme (*announced in the Climate Change Programme Review*); (Capital grant support for biomass development in the UK was provided previously through the Bio-energy Capital Grants Scheme, the Community Energy programme and the Clear Skies Initiative.)
- Agreement in principle to support for energy crops under the new England Rural Development Programme to be introduced in 2007, closely integrated with bioenergy market development;
- Announcement of the Forestry Commission's new Biomass Energy Centre as a major new hub for bioenergy advice and best practice for industry and the public;
- Further measures to integrate environmental assessment in the planning of energy crop development;
- Government leadership through public procurement, including the commitment to carry out a mapping exercise of the potential use of biomass across the main procuring departments of the Government estate;
- Working with regional authorities in England and other organisations to ensure effective, coordinated mechanisms for delivery of policy and advice;
- Action already taken, since publication of the Task Force report, to improve the Renewables Obligation and implementation of the associated procedures;
- Use of the planning system to stimulate renewables development, including support for planning authorities applying a minimum percentage of renewable energy in new developments;
- Action to address regulatory barriers identified by the Task Force and to develop standards to improve understanding of, and confidence in, biomass;
- Government thinking on the use of energy from waste, subject to conclusions from the current review of Waste Strategy and the Energy Review; and
- Support for the EU Biomass Action Plan and agreement on UK membership of the Global Bioenergy Partnership from its launch in May 2006.

The full UK Government Response to the report of the biomass task force can be found at:
http://www.dti.gov.uk/renewables/renew_responsetothebiomasstaskforce.htm

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). 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.

SECTION 4: UK Production, Sales and Availability

UK Sales for 2005

The total sales of biofuels in the UK in 2005 were some 118 million litres, whilst total road fuel sales were approximately 49,000 million litres. As a percentage of total road fuel sales, biofuels contributed about 0.24%.

Biofuels sold in 2005 and the first few months of 2006 are set out below:

Month	Biodiesel (million litres)	Bioethanol (million litres)	Total diesel Sales† (million litre) *	Total Petrol Sales (million litres) *
January 2005	1	5	1,703	2,050
February	2	5	1,961	2,181
March	2	4	1,717	1,900
April	2	7	2,046	2,234
May	3	8	1,862	2,197
June	3	8	1,944	2,223
July	3	4	1,944	2,166
August	3	12	1,932	2,146
September	4	7	2,015	2,261
October	3	8	1,943	2,102
November	4	13	2,013	2,092
December	3	6	2,103	2,143
Total for 2005	33	85	23,233	25,693
January 2006	5	2	1,781	2,079
February	7	9	2,002	2,070
March	8	8	1,864	1,830
April	8	6	2,117	2,170
May	11	7	1,926	2,036

Notes

P- for April and May 2006, figures are still provisional.

*Total diesel and petrol sales figures include all biodiesel and bioethanol sales.

† Total diesel sales include all diesel sold for road transport, but do not include diesel sold for other purposes, such as for use in non-road mobile machinery or for domestic heating.

Totals may not sum due to rounding.

Further details on UK fuel sales are available at
<http://www.uktradeinfo.com/index.cfm?task=bullhydro>.

Converting these biofuels sales figures into percentages gives the following results for the calendar year 2005 as a whole:

	Total Sales in 2005 (million litres)	As a percentage by volume of Total Fuel Sales	As a percentage by energy content of Total Fuel Sales
Biodiesel	33	0.07%	0.06%
Bioethanol	85	0.17%	0.12%
Total Biofuels	118	0.24%	0.18%

*assuming the following conversion factors:

- bioethanol 68% of petrol energy content by volume
- biodiesel 92% of diesel energy content by volume

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

Most biofuels were sold in blends, the vast majority at or below the 5% level which is in line with European road fuel standards EN590 and EN228.

UK Production Capacity

UK policies, including the RTFO announcement in November 2005, have helped to stimulate capital investment in major biofuel production plants. British Sugar, for example, has already committed to the construction of a bioethanol plant at its Wisington site that will manufacture 55,000 tonnes of fuel each year. There are several other large biofuel plants, including Greenergy International Ltd, Wessex Grain and Global Commodities UK Ltd which are at the planning and development stage.

A major biodiesel production facility, the Argent plant in Scotland, came on stream in March 2005 and currently has capacity of 50 million litres of biodiesel per year.

Availability

The availability of biofuels to the UK public has increased considerably over the past 12 months.

Biodiesel is currently available at well over 138 filling stations in the UK, generally as a 5% blend. Petrol containing 5% bioethanol as standard is also being sold at 185 forecourts in the South East and North West of England. In addition, the UK has opened 11 new forecourts selling E85 in the East and South West of England.

SECTION 5: Conclusion

The UK Government is fully committed to the promotion of biofuels in the transport sector, and over the past 12 months has developed and set out a comprehensive policy framework to ensure that its ambitious policy objectives can be met.

Biofuels sales, production and availability have grown substantially during 2005, and the UK was very close to meeting its indicative target. However, the past 12 months have also further emphasised that additional measures will be needed to ensure a mainstream biofuel market in the UK.

The announcement in November 2005 that the UK will introduce a Renewable Transport Fuels Obligation (RTFO) represents a major step forward in UK biofuels policy. The level of obligation for 2010/11 is, at 5%, the highest inclusion rate allowable under EU fuel quality standards, and will move the UK biofuel market from a minor niche market to the mainstream in the shortest practicable timeframe.

The UK has also stated its intention to move beyond 5% in the future, so long as infrastructural requirements and fuel and vehicle technical standards allow, and subject to the costs being acceptable to the consumer. This mechanism will provide a high degree of certainty that the UK will achieve its targets.

We are also developing innovative ways of ensuring that the carbon and wider environmental aspects of biofuel production are properly addressed. We have commissioned the UK's Low Carbon Vehicle Partnership to develop a robust and user-friendly carbon saving calculation methodology for different biofuel production chains, and a biofuel standard to ensure biofuels are sourced sustainably.

The Government has also announced that it will introduce Enhance Capital Allowances (subject to State Aid clearance) as a way of encouraging the development of the most environmentally beneficial forms of biofuel production in the UK.

The combination of these measures should ensure that the UK market for biofuels will be amongst the strongest in Europe by 2010/11, providing a strong contribution to the Biofuels Directive's objectives of reducing greenhouse gas emissions, promoting security and diversity of supply and supporting rural economies.

UK Department for Transport

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