Towards a UK Strategy for Biofuels - Public Consultation

Contents

1. Introduction

Road transport is a vital element of the UK economy, and the freedom it brings is a highly valued commodity. But the growth of transport - fuelled almost exclusively from finite reserves of fossil fuels - has significant environmental consequences, particularly with respect to greenhouse gas emissions.

The Government is committed to tackling climate change, and has set in place policies to move us towards a 20 percent reduction in overall UK CO_2 emissions by 2010. In 2003 the Energy White Paper said that the UK should put itself on a path towards a reduction in CO_2 emissions of some 60% from current levels by 2050. It also stated that transport, currently responsible for some 25 percent of the UK's emissions, would need to play a key role in helping to deliver reductions in emissions of CO_2. Improving the efficiency of vehicles and reducing the need to travel will both form an essential part of this strategy, but in order to deliver deep cuts in emissions of carbon from the transport sector, there will need at some point to be a shift to low carbon fuels.

In the longer term, biofuels - fuels made from a variety of sources of biomass - offer the prospect of truly low carbon transport. The White Paper highlighted that biofuels were an important potential route for achieving the goal of zero carbon transport, and suggested that biofuels could account for some 5 percent of road transport fuels by 2020.

Biofuels have also risen to prominence in the wider EU context. In May 2003 the EU's Biofuels Directive came into force, requiring Member States to set indicative targets for biofuels sales in 2005 and 2010. The Directive also included 'reference values' for Member States to take into account in setting their own targets; 2 percent by energy content in 2005, and 5.75 percent by 2010.

This paper seeks views on our plans for implementing the Directive. We are seeking views on the level of a target for 2005 that might be appropriate for the UK, and on our plans to introduce a specific labelling requirement at sales points for biofuel blends in excess of 5 percent. But we are also taking the opportunity to invite views on developing the UK strategy for biofuels to 2010 and beyond; on the extent to which biofuels should contribute to the UK's climate change objectives; and on policy options for delivering this.

The Government is particularly keen to hear views on introducing some form of renewable transport fuels Obligation, and the long term prospects such a mechanism might present not only for biofuels, but also for delivering other renewable, low carbon fuels - such as hydrogen.

The strategy set out in this paper is a UK strategy. Aspects of biofuels policy are the responsibility of the Devolved Administrations. But for the purposes of this consultation paper, the Scottish Executive and the National Assembly for Wales wish to see a co-ordinated UK approach. They will not, therefore, be proposing different targets or strategies for Scotland and Wales. **The Northern Ireland Assembly is currently in suspension. Northern Ireland Departments are considering how to implement the Directive, though it appears likely that a co-ordinated UK approach will be taken.**

The Department for Environment, Food and Rural Affairs is consulting separately on a draft overall strategy for non-food uses of crops. The final version of the strategy, which is expected to be published jointly by Defra and DTI in autumn 2004, will take account of the outcome of this consultation on biofuels. Further information on the non-food crops strategy is available on the Defra website or from hilda.k.clarke@defra.gsi.gov.uk 0207 238 5317.

Correction

There was an error in tables 3 and 10 of the consultation document. Column 3, estimating the cost implications at the pump of implementing a transport fuel obligation with the current duty incentive in place, should have read 0.1p/l; 0.2p/l etc., not 0.01, 0.02p/l etc. This has now been corrected.

2. The EU Biofuels Directive

As part of a wide range of measures to promote sustainable development, and in particular to tackle rising greenhouse gas emissions from transport, Directive 2003/30/EC "the Biofuels Directive" was agreed by the European Council and Parliament on 8 May 2003. The main objectives of the Directive are to reduce life-cycle emissions of carbon dioxide from transport across Europe, and to reduce the EU's future reliance on external energy sources (in this case, oil).

The Directive aims to promote the use of biofuels or other renewable fuels as a substitute for petrol or diesel in the transport sector. It requires Member States to set indicative targets for biofuels sales for 2005 and 2010, and to introduce a specific labelling requirement at sales points for biofuel blends in excess of 5 percent.

The Directive requires Member States to take account of the reference values prescribed in Article 3(1) in setting their national indicative targets.

These reference values are:

- 2 percent, calculated on the basis of energy content, of all petrol and diesel for transport purposes placed on their markets by 31 December 2005.
- 5.75 percent, calculated on the basis of energy content, of all petrol and diesel for transport purposes placed on their markets by 31 December 2010.

Member States must also report to the Commission each year on measures taken to promote the use of biofuels and on levels of biofuel sales. Although the Directive is clear that Member States are free to set their own indicative targets, it specifies that the annual reports to the Commission should justify any differentiation between the proposed national targets and the Directive's reference values.

It should be noted that the reference values are calculated on the basis of energy content. Translating these reference values into equivalent values on the basis of sales by volume or mass is not straightforward. Biodiesel and bioethanol both contain less energy content per unit of volume than fossil fuels, but the difference is more pronounced in respect of bioethanol. Translating the 2 percent and 5.75 percent reference values into percentages of sales by volume will therefore depend, among other things, on the anticipated split between biodiesel and bioethanol sales.

To avoid unnecessary confusion, for the purposes of this consultation paper, targets are considered on a volume of sales basis only. As a result, the costs and carbon savings quoted are somewhat lower than they would be if the sums had been done on the basis of energy content.

The Directive requires Member States to transpose the Directive by the end of this year, but the Commission has asked signatories for an indication of their 2005 targets by the beginning of July 2004. The UK intends writing to the Commission on its intentions by July.

Member States have until July 2007 to set their 2010 targets.

A copy of the Directive is at **Annex A**.

3. Broader policy context - Government climate change policy

Biofuels need to be considered within the context of the UK Climate Change Programme and the Government's broader policy to create a low carbon economy, as set out in the Energy White Paper (EWP) published last year. [1] As both of these documents note, the transport sector has a key role to play in delivering carbon reductions.

The UK Climate Change Programme, which will be reviewed later this year, sets out the Government's plans for reducing emissions of greenhouse gases from all sectors in the period to 2010. It takes a balanced approach, with all sectors and all parts of the UK playing a part. It lists the measures that the Government has put in place to help deliver not only the **UK's target under the Kyoto Protocol to reduce its greenhouse gas emissions by 12.5 percent below 1990 levels by 2008-2012, but also the UK's domestic goal of moving towards a 20% reduction in carbon dioxide emissions by 2010.**

These measures include:

- the climate change levy package;
- a UK-wide emissions trading scheme;
- a target that 10 percent of sales from licensed electricity suppliers will be generated from renewable sources by 2010, subject to the cost to the consumer being acceptable;
- a target to at least double the capacity of combined heat and power by 2010;
- European-level agreements with car manufacturers to improve the fuel efficiency of new cars by at least 25 percent on 1995 levels by 2008-2009;
- a number of transport policy measures as set out in the 10 Year Plan for Transport;
- better energy efficiency in the residential sector;
- improvements to the Building Regulations.

The Energy White Paper sets out the challenges we face - for the environment as global carbon emissions continue to rise, and for security of supply as the UK's indigenous energy supplies decline. And it set out the main routes to achieving the goals of the Government's energy policy. The transport chapter of the Energy White Paper suggests that the carbon efficiency of transport could be improved by up to 10% by 2020, as a result of further vehicle efficiency improvements and increasing use of biofuels.

The Government's **"Powering Future Vehicles" strategy, published in July 2002 and available via the DfT's website, brings together many of the key policy measures which will help deliver a shift to clean, low-carbon transport and fuels. It provides a framework for future decisions and action, aimed at promoting the development, introduction and take-up of low-carbon vehicles and fuels; and at ensuring the full involvement of the UK automotive industries in the new technologies.**

Delivering carbon savings from the transport sector is not straightforward, and the costs of doing so can be relatively high, especially when compared to the costs of similar carbon reductions in other sectors. But the Government believes that the impact of transport on the environment can be reduced through better, cleaner vehicles and fuels and by action to reduce the negative impacts of traffic growth. Biofuels are likely to have an important role to play as

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1 The Energy White Paper is available on the DTI website, at www.dti.gov.uk/energy/publications/whitepapers/index.shtml

part of this overall strategy - and this consultation document seeks views on what that contribution might be, and how the Government might best facilitate it.

4. Biofuels

4.1 Background

Biofuels offer a number of benefits over conventional mineral fuels, which make them attractive as alternatives for the transport sector. The benefits include greenhouse gas reductions which will contribute to domestic and international targets, potential air quality benefits (albeit limited), the diversification of the fuel sector and an additional market for agricultural products.

The Energy White Paper (EWP) identifies liquid biofuels and hydrogen as the most promising candidates for tomorrow's low carbon transport fuels. In the longer term, significant use of biofuels could offer large carbon savings. Biofuels also have the advantage that, unlike other potential future low-carbon transport fuels such as hydrogen, they can be used as direct substitutes for conventional fuels without the need for new vehicles or refuelling infrastructures. They can be used neat in some circumstances, but are more commonly used as a blend (usually up to 5 percent) with conventional fossil fuels.

There are a variety of biofuels potentially available, but the main ones are outlined below.

Biodiesel is the only type of biofuel currently on sale in the UK. It can be used neat, but is generally used as a blend in conventional diesel. It can be produced from a number of sources, including recycled waste vegetable oil and oil crops such as rapeseed and palm.

Bioethanol can be blended into petrol, where it offers air quality as well as carbon benefits. Bioethanol can be produced from a number of crops including sugar beet. Future technologies may allow bioethanol to be produced from a variety of source materials including wood, grass, straw and green waste.

Biogas can be used instead of compressed natural gas to power gas vehicles, offering excellent air quality benefits as well as carbon savings.

4.2 Current policy and the UK Market for Biofuels

The UK has already taken a number of steps to promote the uptake of biofuels. The main support to date has been through fuel duty incentives.

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, and sales are currently running at some 2 million litres a month.[2] To a large extent, production is from waste vegetable oil (WVO), since this is currently the cheapest way of producing biodiesel.

Biodiesel is currently available at over 100 filling stations in the UK, including a number of major supermarket sites.[3] As a percentage of total diesel sales, however, biodiesel sales currently make up less than 0.1 percent, and as a percentage of total petrol and diesel sales, biodiesel sales make up less than 0.05 percent. At the present time 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.

Whilst large scale production of bioethanol looks unlikely in the short term, UK biodiesel sales are forecast to increase steadily through 2004 and more rapidly in 2005. Much of this growth is predicted to be as a direct result of increasing UK biodiesel production.

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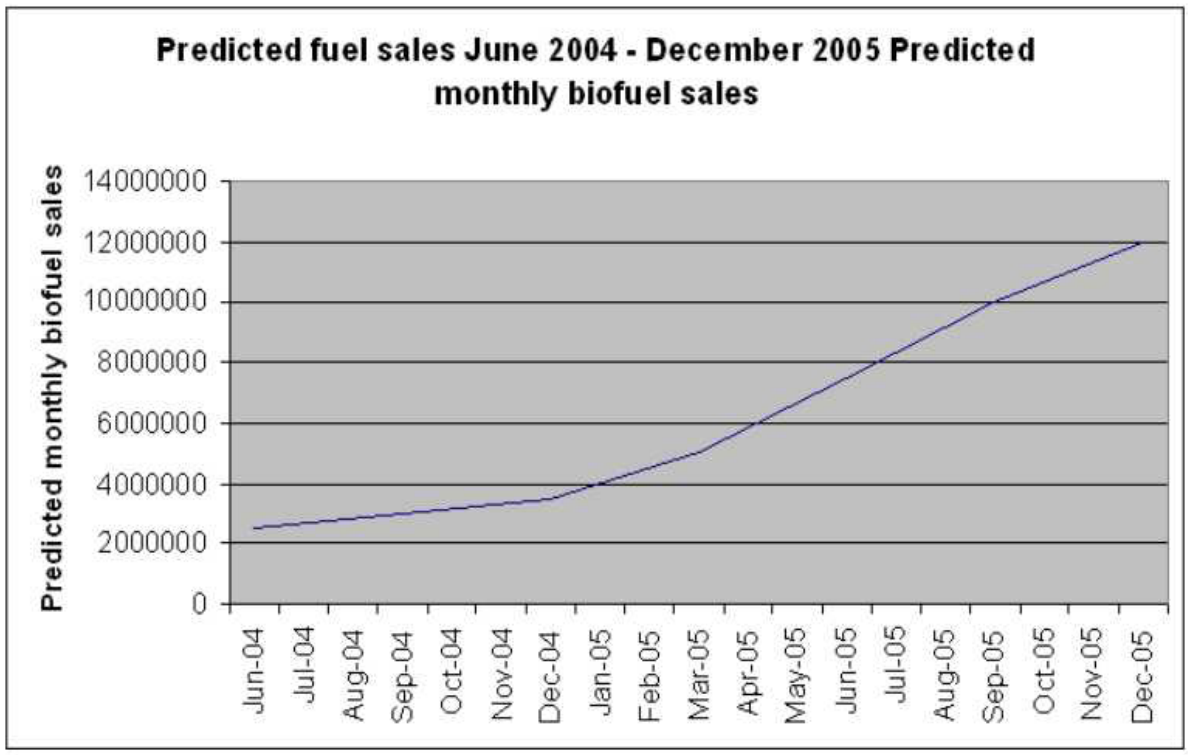
2 Details of monthly sales figures are available via www.uktradeinfo.com.

3 Details of these are available at www.transportenergy.org.uk.

In Scotland, Argent Group's subsidiary Argent Energy, is building the nation's first large-scale biodiesel production unit. A Regional Selective Assistance (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 graph below, based on current and planned biodiesel production, gives an indication of the levels of biodiesel sales we could see in the UK by the end of 2005. As this shows, we could see monthly sales figures increasing to some 12 million litres by the end of 2005, which would represent a six-fold increase over the current position.

Predicted fuel sales June 2004 - December 2005



4.3 Environmental Performance

A number of studies have considered the environmental benefits of biofuels, with particular focus on their carbon savings potential. There is broad agreement that they can deliver substantial carbon reduction compared to fossil fuels, but figures vary quite widely according to feedstocks, processes and methodologies used.

The Government has used a range of between 40 and 57 **percent** in this paper to reflect this, though it is important to note that the range is potentially far wider.[4] For illustrative purposes, this would mean that if biofuels contributed 5 **percent** of the road transport fuel used today, the UK would be saving as

4 The lower number reflects the findings of the recent EUCAR, CONCAWE & JRC report, which is available at http://ies.jrc.cec.eu.int. The higher figure is from the Government-sponsored Sheffield Hallam study. Both numbers reflect conventional biodiesel production. It is possible to achieve much higher savings using modified production methods.

much as 1 million tonnes of carbon (mt/c) per annum - up to 3 percent of overall road transport CO_2 emissions.

Biofuels potentially have some air quality benefits, provided the fuel is of appropriate quality (studies have shown that use of unprocessed vegetable oil can actually lead to considerable increases in emissions).[5] However, advances in engine and fuel technologies in the last decade - in response to strict EU regulations - mean that these benefits are fairly limited in effect.

Whilst biofuels clearly offer a number of environmental benefits, the possible expansion of biomass production could also have other effects that need to be taken into account. These include possible impacts on land-use, landscape, biodiversity and soil structure.

Research to date into some of these impacts has shown that increased biofuel production from a broad mix of arable crop feedstocks would have a broadly neutral effect on the farmed environment.[6] Direct replacement of cereal crops with oilseed rape would have no significant effect. However, replacement of spring grown break crops by an expanding winter oilseed rape or cereal area could have a negative effect on crops diversity and farmland birds. Growing biofuel crops on un-cropped land or replacement of natural-regeneration set-aside with biofuel crops would, on balance, be environmentally detrimental due to increased use of nitrogen and pesticide use and reduction in biodiversity. Environmental damage could be minimised by avoiding large-scale block-cropping and introducing a percentage of non-crops habitat, for example on headlands. As technology improves and sources of feedstocks widens for bioethanol production there would be no significant effect on the farmed environment.

These issues must also be considered from a wider international perspective, because it is likely that greater demand for biofuels in the EU will attract imports. Palm and soya bean oil are already being imported to the UK to produce biodiesel, and the duty incentive for bioethanol being introduced from January 2005 could see imports of bioethanol.

We are not aware of specific research on the broader international environmental impact of supplying bio-fuel feedstocks from outside the EU to meet growing EU demand. However, there are more widespread concerns about deforestation in some countries to meet growing demand for products such as palm oil. For example, although prohibited by Indonesian law, a 2002 WWF report stated that clearing of natural forest for palm oil tree plantations was continuing at an alarming rate, with devastating effects on biodiversity.[7]

Clearly the UK would want to avoid an outcome whereby measures introduced to mitigate one environmental problem simultaneously resulted in significantly contributing to another. However, given the international nature of the problem, it is not clear whether there are real practical measures that might achieve this - at least in the short term.

4.4 Agricultural and Rural Development Issues

The production and transportation of biofuels could potentially provide employment opportunities for UK farmers and other rural businesses. Research has suggested that about 2-5 farming jobs could be created (or sustained where crops substitute for other cultivation) for each 1000 tonnes of biofuel

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5 Details of the report are available on the DfT website at http://www.dft.gov.uk/stellent/groups/dft_roads/documents/page/dft_roads_027622.pdf

6 These are the conclusions of Defra's Central Science Laboratory in the report 'Liquid biofuels – industry suppport, cost of carbon savings and agricultural implications, Turley, D. Ceddia, G. Central Science Laboratory. Bullard, M. ADAS. and Martin, D. Ecofys, August 2003

7 Details of the report are available on the World Wildlife Fund website at www.panda.org/downloads/forests/oilpalmindonesia.pdf

produced. A 100,000 tonne processing plant could therefore create/sustain around 60-80 jobs directly and as many as 550 jobs in agriculture[8].

To what extent home-grown production would result from higher biofuel sales in the UK however is an open question. On the one hand a number of companies have expressed a strong interest in making major investments in production plants, subject to greater levels of Government support. Against this, world market prices for biofuel feedstocks suggest that cheaper imports from abroad would predominate, unless some support could be directed towards UK producers.

4.5 Fuel Security and Diversity of Supply

As a substitute for conventional fossil fuels, biofuels also offer benefits in terms of the UK's fuel security and diversity of supply, issues that will become increasingly important as the UK becomes a net importer of energy over the coming decades. As set out in the EWP, a mix of energy sources is desirable, to ensure that the UK is able to maintain an uninterrupted supply of energy to end users.

4.6 Production Costs

Today's biofuels are more expensive to produce than conventional fossil fuel, although costs vary considerably according to the different feedstocks and production methods used.

Waste vegetable oil (WVO) bio-diesel production benefits from low feedstock prices, making it economic to manufacture in the UK with the current duty incentive. However, limited supplies and fuel quality issues limit the contribution WVO can make.

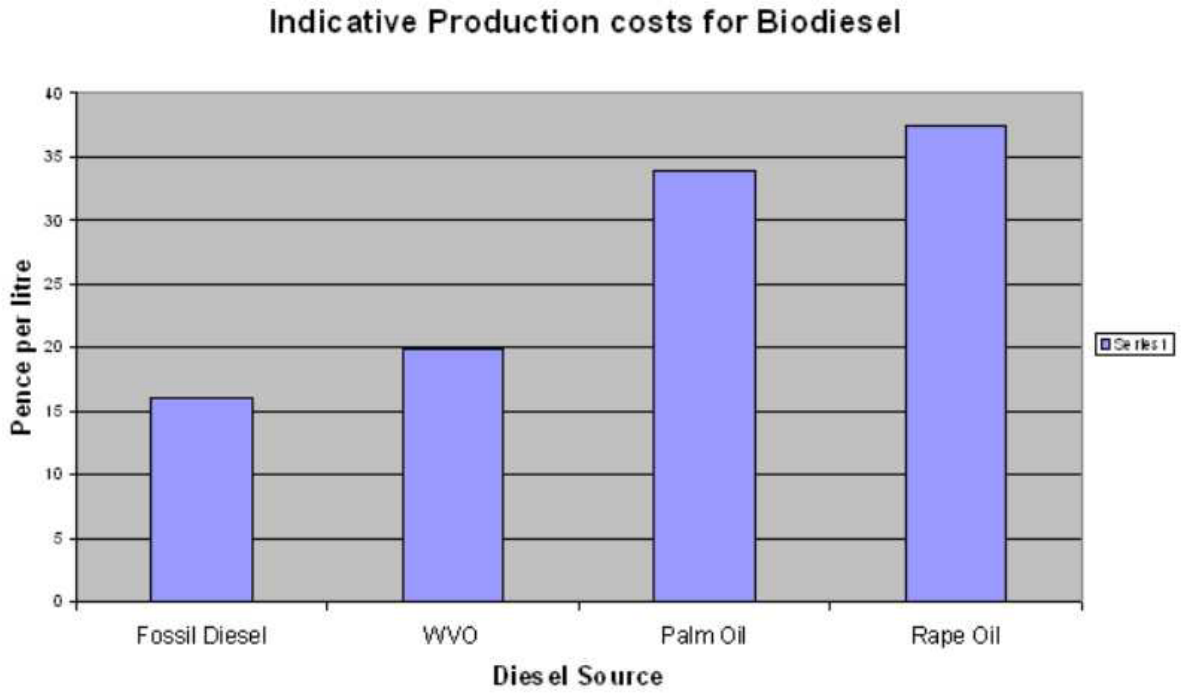
The current incentive has also enabled some limited production of biodiesel from imported palm and soya bean oils, which are generally cheaper than production from domestic crops such as rapeseed. Some biodiesel produced from rape is imported from the continent, though the extra costs (UK prices fluctuate between £350-600 per tonne for virgin rape-seed oil) require the final blended product to be sold at a premium to conventional diesel, which limits demand.

The graph below provides an indication of the production costs of diesel from various sources, illustrating the cost advantage fossil diesel has over biodiesel.[9] It also demonstrates that imported palm oil currently maintains some advantage over domestic production from energy crops.

Indicative Production costs for Biodiesel

8 Research carried out on behalf of the East of England Development Agency (EEDA). Further information available via www.eastofenglandobservatory.org.uk/

9 Data derived from modelling by Teeside Biofuel Consortium



A further issue which adds to the cost of biofuels is their hydroscopic (water-attracting) properties, which can cause problems with storage and distribution. For ethanol in particular, blends with gasoline cannot be stored in conventional floating roof storage tanks, and it is difficult to distribute through the existing pipeline infrastructure due to the potential for contamination of jet fuel. As a consequence, blending tends to be done at the distribution terminals (so called "splash" or "rack" blending). This approach is thought to add at least 1 penny per litre to the effective cost of production of the fuel. Problems with meeting fuel vapour pressure specifications when using biofuels also add costs to the producer.

Other European countries, including France, have mitigated some of the problems associated with bioethanol by using it in ethyl tertiary-butyl ether (ETBE), a petrol extender. This is potentially a promising route, but t**he Government is carrying out further work to ensure that the environmental, health and safety implications of the use of bio-ETBE as a road fuel have been fully addressed.**

5. Future developments

The processing efficiency of conventional biofuels is unlikely to change radically over future years as this is a technology that has been in place for a number of decades, but it is reasonable to expect incremental improvements in efficiency (e.g. 1-5 percent per annum).

Some UK farmers have suggested that crop yields could be considerably increased through improved farming methods and selective breeding. This could potentially reduce the cost advantage of imports and make domestic production competitive.

There are also a number of developments on the processing side that offer the possibility of reducing costs and/or improving environmental benefits.

For example, a number of oil majors are currently exploring the possible use of biomaterials (in the short term rapeseed and other vegetable oils, in the medium to long term other forms of biomaterial) in conventional oil refineries. The product of this process would be conventional diesel or petrol - the only difference would be that the inputs to the process would be a mixture of mineral and bio-products.

Potentially, this could have a number of advantages. It could give a lot of the benefits of conventionally processed biofuels without the cost and complication of separate fuel blending and distribution arrangements. It would avoid the current need for vehicles to be adapted to run safely on higher blends of biofuels; and it would avoid the possible fuel quality concerns associated with small-scale independent production. It would also allow considerable economies of scale.

However, there is work to be done on assessing the viability of this option, including understanding the carbon benefits and how they compare with conventional methods. In parallel, the UK Government is investigating how it might make fiscal arrangements to deal with this production technology should it prove viable.

In the longer term there are prospects for future technological developments to allow the production of cheaper biofuels from low-grade source material including grasses, straws, wood and even organic waste. There is considerable interest in these new technologies, and much exploratory work has been undertaken in different parts of the world.

For example, Shell has made a significant investment in Iogen, a company that is using an enzyme based process to break down low value ligno-cellulosic feedstocks (such as straw) to produce bioethanol. Gasification is a further promising technology that could potentially produce biofuels from a wide variety of wastes - which could have the double benefit of low cost inputs and creating a market for more waste products.

5.1 Longer-term outlook

Looking ahead to 2050 and beyond, the Government's Energy White Paper, published in February 2003, identified the two major possibilities for non-fossil transport energy as renewably-generated hydrogen used in fuel cells, and biomass-based fuels. The White Paper noted that each had major implications for both fuel production and fuel distribution and indicated that the Government would make *'an assessment of the overall energy implications of both a hydrogen economy, and of large scale use of biomass-based fuels...'*

The Government is currently finalising this assessment. Interim results and technical analysis are available via the DTI's website[10]. Among the emerging conclusions are that:

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10 Liquid biofuels and hydrogen from renewable resources in the UK to 2050: a technical analysis, 2003, E4tech (UK) Ltd. This is available on the DTI website at www.dti.gov.uk/energy/sepn/futuretransport.shtml

- In the long term, the large-scale use of biofuels could reduce CO_2 emissions from transport to very low levels. To reach these low levels, very high penetration of the fuel market would have to be achieved.
- Assuming a maximum growing area of 4Mha, indigenous resources could supply a maximum of around 500 peta joules (PJ) of energy; total energy consumption by road transport was around 1700PJ in 2002.
- By 2050, complete substitution of petrol and diesel could require approximately two thirds of total biofuel demand to be met by imports.
- The availability of biomass for transport energy is likely to be limited by competing resource demands from heat and power generation.
- Lowest projected biofuel costs, excluding co-products, are for processes using lignocellulosic crops. It is likely therefore, that these technologies will dominate in the future.

5.2 Connections with hydrogen

Renewable hydrogen is the other major option for a future low-carbon transport economy that will be considered within the Government's assessment. Hydrogen has several advantages as a fuel: it has a diversity of possible renewable production sources; could facilitate the future use of highly efficient fuel cell-powered vehicles; and produces very low emissions of air quality pollutants - zero if used in a fuel cell. To be truly low-carbon, though, the hydrogen must be renewably produced.

The Government's assessment has highlighted the possibility that the most cost-effective source of renewable hydrogen in the medium to long term could be the conversion of biomass energy crops such as short rotation coppice.

5.3 Future prospects for biofuels

If biofuels were to become a significant transport fuel, the Government's assessment suggests that they would most likely be sourced from energy crops and produced via lignocellulosic processes. IN the longer term UK biomass resources could provide the energy necessary to satisfy perhaps one third of demand; beyond this the UK would be reliant on imports, either of biofuels or renewable biomass resources.

If an energy crop and conversion infrastructure were to be developed around lignocellulosic biofuels, it would be applicable to hydrogen technologies, perhaps providing a stepping-stone to a renewable hydrogen economy, should this prove both viable and desirable. A mix of both biofuels and hydrogen technologies could co-exist in any proportion, making use of a partially-shared infrastructure and contributing significantly to reductions in CO_2 emissions.

6. Policy appraisal and EU targets

6.1 Appraisal of Policy and Financing Gaps

The Government's main support for biofuels has, to date, been through fuel duty incentives. Budget 2004 confirmed that the current duty incentives would remain in place for at least the next three years. It also committed the Government to exploring input taxation methods for biofuels that could enable the mainstreaming of production through existing oil refineries, should this emerging technology prove viable. The Budget also announced that the Government would explore the possibility of allowing enhanced capital allowances for production facilities.

As a result of Government policy, the UK market is continuing to grow. With the current measures in place, we estimate that the UK could achieve as much as 12 million litres a month in 2005 - a six-fold increase over current sales.

However, it is not yet certain to what extent these measures will enable UK industry to grow beyond production from limited supplies of WVO, along with some imports which can be sold at a premium. The biofuels industry has consistently made the case that increased Government support would be required to make production from high value crops economic - either through duty incentives of the order of 25-30 pence per litre, or through some form of regulatory obligation.

A key question for this consultation is whether, and if so to what extent, the Government should provide additional support to aid the development of the UK biofuels industry.

Without extra support, industry suggests that Biodiesel sales may stabilise at around 250,000 to 300,000 tonnes annually, less than 1 percent of UK road fuel use.[11] Industry has further suggested that the duty differential rate of 20 pence per litre for bioethanol, due to come into effect in January 2005, is unlikely to be adequate to stimulate UK production. It is not yet known whether the fiscal incentive will result in bio-ethanol imports.

In the shorter term this may well be the case, although it will take some time for the full effects of the Budget announcements to be seen, including the introduction of the bioethanol duty differential next January. The medium term is far more difficult to predict, with new technological options potentially coming on stream as well as the Government's existing commitment to consider new 'input taxation' methods to deal with them. Future crude oil prices are also likely to have an effect on how quickly such technologies are brought on stream.

6.2 Implications for Achieving the EU Targets

For illustrative purposes, the table below sets out our estimates of the costs and carbon benefits of achieving the EU's reference values.

Table 1 - EU Directive Targets 2%-5.75%

11 Figures provided by the British Association for Bio fuels and Oils (BABFO).

	2005	2010
Reference value set out in Directive	2%	5.75%
Forecast total fuel sales (million litres)	47900	47000
Total annual amount of biofuel sales necessary to meet volume targets (million litres)	951	2625
Total annual amount of carbon saved t/C (million)	0.38	1.06
Total annual value of carbon saved (@£70/tC) (million) [12]	£30.9	£77.2
Additional resource cost of biofuels (million)	£160.7	£365.4
Annual net cost of carbon abatement (£70t/C) (million)	£129.8	£288.2
Cost of carbon abatement (£/tC)	£422	£353

Notes: 1. Based on NTM modelling for high travel demand in 2010. 2. Carbon savings are in line with the Sheffield Hallam study findings - 56 percent saving assumed. 3. All costs are based on the mid-cost of production (assumes lowest cost imports) 4. Figures for biofuels sales based on volume rather than energy content - translating the reference values into a volume basis would give higher results for sales and total costs, but a similar figure for the carbon saving cost per tonne.

As the numbers demonstrate, at these sorts of levels biofuels could potentially deliver fairly significant contributions to carbon savings in the transport sector: Almost 1 percent of all transport carbon emissions at 2 percent and around 3 percent at 5.75 **percent** sales.

However, the analysis also demonstrates that the annual costs of carbon abatement using biofuels considerably outweigh the monetised carbon benefits, using the Government's valuation of £70 per tonne of carbon.

6.3 Comparison with Other Carbon Abatement Options

The differences between the cost and carbon emissions of fuel production from fossil and bio-mass resources determines the cost of biofuels as a method of carbon abatement. Our economic analysis demonstrates that carbon abatement from WVO can cost as little as £138 per tonne of carbon at present, whilst the costs for abatement using high value agricultural crops can rise to over £900t/C. Please refer to **Annex B** for further information on the economic analyses.

As a result of the high production cost differences between fossil and biomass derived fuel, biofuels currently present a relatively expensive method of carbon abatement when compared with options in other sectors. It is, of course, possible that the costs of biofuel production may fall in future, particularly if new technologies come on-stream or if there are economies of scale resulting from

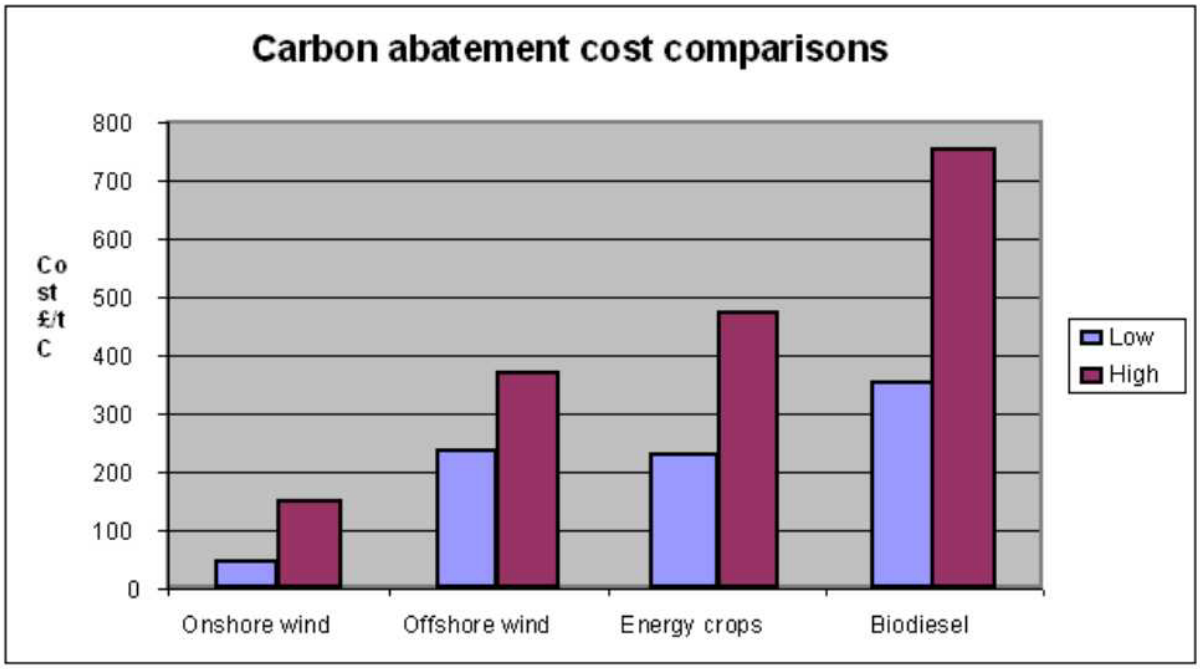
12 In 2004 prices, the benefit of carbon abatement (at £70t/C) is £83t/C discounted, based on the Climate Change Programme.

increased production. But the same also applies to carbon saving options in other sectors. Work carried out for the EWP demonstrated that energy efficiency across the domestic, services and industrial sectors were among the most cost-effective methods of carbon abatement.

Among low carbon generation technologies, onshore wind, waste and landfill gas and offshore wind were considered to be the lowest cost. These were followed by nuclear, marine technologies, energy crops for electricity power generation and carbon capture and storage. The transport options considered, which included hydrogen, were among the more expensive options, exceeded only by photovoltaics. However, within the transport sector, biofuels presented one of the most cost-effective options.

The graph below uses the latest cost information from recent OXERA modelling work carried out for DTI, combined with DfT estimates for road transport biofuels at 2010. They suggest that biofuels for road transport remain relatively expensive when compared to other low carbon technologies, including energy crops for electricity generation.

Carbon abatement cost comparisons



6.4 Energy Crops for Power Generation

As demonstrated above, the analysis carried out for the Government has shown that it can be more cost effective to use energy crops to generate electricity than in transport applications. Although biomass electricity and heat is not competitive with fossil fuels in current markets, the Government is running support programmes to encourage this. Further information on these programmes is available on the DTI website [13].

It has been suggested that biofuels do not maximise the greenhouse gas reduction potential of biomass when compared with use in the electricity generation sector, though there appears to be some conflict

13 Further information on these programmes is available on the DTI website at http://www.dti.gov.uk/energy/renewables/support/index.shtml

in the research.14 As noted in chapter 5, the Government's assessment of the long-term impacts of significant use of hydrogen and/or biofuels as transport fuels has suggested that in the longer term the availability of biomass for transport energy may be limited by competing resource demands from heat and power generation. However, in practice sources other than wind are unlikely to make any significant contribution in the short to medium term.

In addition, while low carbon options within the transport sector are currently limited, renewable electricity and heat can potentially be generated from a wide variety of sources.

GOVERNMENT PROGRAMMES FOR RENEWABLE ENERGY

New and Renewable Energy Research and Development Programme

This is focused on high quality, innovative industrial Research and Development projects. The Programme presently supports industry-led research and development projects in many areas including biofuels.

Bioenergy Capital Grants Scheme

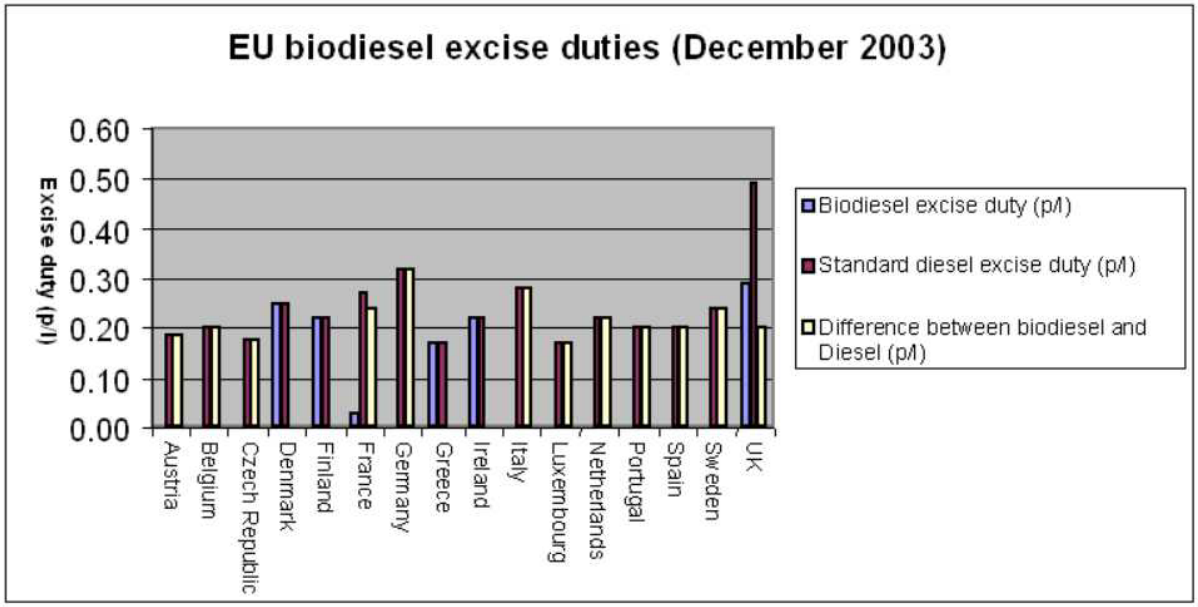
This joint DTI/New Opportunities Fund programme has provided funds to a number of demonstration projects to help both reduce the costs and risks involved in such developments and to maximise the contribution to the Government's renewable electricity and climate change targets. The £66 million of funding available has been allocated to 20 projects at a variety of scales (from several kW (thermal) to 30MW (electrical)) which will generate electricity and/or heat from biomass, particularly energy crops. The programme is currently under review and closed to new applications

6.5 Targets in other Member States

We understand that other Member States are in the process of adopting a range of targets and policy measures in response to the Directive. Like the UK, many countries are positive about the long-term prospects for biofuels, but have concerns about their relatively high cost as a source of CO_2 reduction using currently available technologies. This is reflected in the range of fuel duty differentials provided across Member States, as demonstrated in the graph below. The UK's 20 pence per litre duty incentive is less generous than that offered by some Member States, including Germany. But it is similar in scale to the duty incentives offered by other Member States including Spain, Sweden and the Netherlands.

EU biodiesel excise duties (December 2003)

14 'Fuelling Road Transport' by Eyre et al argue that the carbon benefits of biodiesel and bioethanol are much less than from using a similar area of land for woody biomass for energy. Research produced by Sheffield Hallam suggests that biodiesel from Rape has lower – though similar – greenhouse gas benefits compared to electricity from short rotation coppice.


EU biodiesel excise duties (December 2003)
Excise duty (p/l)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Austria
Belgium
Czech Republic
Denmark
Finland
France
Germany
Greece
Ireland
Italy
Luxembourg
Netherlands
Portugal
Spain
Sweden
UK
Biodiesel excise duty (p/l)
Standard diesel excise duty (p/l)
Difference between biodiesel and Diesel (p/l)

7. Policy options for promoting biofuels

As noted above, the Government is already supporting biofuels by means of fuel duty incentives. There are a number of ways in which the Government could, in theory, offer further support to biofuels in order to deliver future targets, and this consultation paper seeks views on a number of possible support mechanisms.

The two major options are through either fuel duty (as the Government uses presently), or through some form of regulatory mandate or obligation. There are a number of other support mechanisms that could contribute to the policy framework, and these are also discussed briefly, but they do not of themselves appear adequate to bridge the financing gap.

7.1 Fuel Duty

This is perhaps the most widely used method of incentivisation, and many other Member States have taken this option. When set at an appropriate level, experience has shown (e.g. introduction of low-sulphur fuel) that the industry can be very responsive to this economic signal in introducing new fuels.

A substantial increase in the current fuel duty incentive of 20 pence per litre could certainly be expected to boost sales of biofuels in the UK, and could have a rapid impact.

One disadvantage of this approach is that the Government would have little certainty over the amount of its revenue losses to supporting biofuels - which could potentially be very high. As indicated in table two below, if the duty incentive were increased to 30 pence per litre, and if sales of biofuels increased to 5 percent of all road fuel sales, the total annual costs to the Exchequer would be well over half a billion pounds.

A further disadvantage is that increasing the duty incentive further would potentially over-compensate current producers using cheaper WVO inputs.

In addition, the fuel duty regime is fairly indiscriminate in terms of the source or quality of the fuel; imports are as eligible for the duty incentive as domestically produced fuels; and fuels produced to poor environmental standards are just as eligible as those produced to a high standard (provided they meet the necessary fiscal specification). In the shorter-term in particular, higher levels of fuel duty differentials could simply result in cheaper imports.

One option the Government could explore with a view to reducing the long-term costs would be to announce a period of higher duty incentives followed by a period of gradually lowering incentives - a 'stepped approach'. This could potentially provide a helpful boost to the sector, whilst limiting the ultimate cost to the Exchequer. The three-year rolling certainty on fuel duty differentials announced in the PBR 2003 would support such an approach.

For illustrative purposes, the table below sets out the potential revenue foregone if the UK were to achieve the EU's reference value indicative targets. It appears highly improbable that the UK could achieve these targets at the current 20 pence per litre duty differential, so the implications of a 30 pence per litre differential is also modelled.[15]

Table 2: Revenue implications of using fuel duty incentives to meet the EU's reference values

[15] Given the limited time between now and the end of 2005, the 2% reference value does not appear realistic for the UK even with higher duty differentials. For UK production, for example, it would take at least 18 months to build additional production facilities.

Year and % of biofuel sales	Annual total fuel sold (billion litres)*	Annual total carbon saved (Mt/C) (40%)	Annual total carbon saved (Mt/C) (56%)	Annual revenue foregone 20p/l duty differential (£ million)	Annual revenue foregone 30p/l duty differential (£ million)
2004 (1.02%)	48.1	0.14	0.20	98.2	147.2
2005 (2%)	47.9	0.27	0.38	185.3	277.9
2006 (2.75%)	47.8	0.37	0.52	245.2	367.8
2007 (3.5%)	47.6	0.47	0.66	300.4	450.6
2008 (4.25%)	47.4	0.57	0.80	351.1	526.6
2009 (5%)	47.2	0.67	0.93	397.5	596.3
2010 (5.75%)	47.0	0.76	1.06	440.0	660.0

* Based on NTM modelling for high travel demand in 2010

Q1. Do you consider fuel duty as the most effective method of promoting biofuels, and if so why?

7.2 A Renewable Fuels Obligation

It might be possible for the Government to introduce an obligation for the road fuel sector drawing on the experience of the Renewables Obligation that applies in the electricity generation sector.

The obligation might, for example, be placed upon refiners, blenders and importers, and would in essence require them to ensure that over a given period of time a certain percentage of their aggregate fuel sales was bio-fuel. This would allow them to distribute fuels containing higher levels of bio-material at certain times and lower (or zero) levels at other times, depending on availability.

There may be a number of options for operating such a system - from a relatively straight-forward obligation with penalties for non-compliance, to a more complex one providing for trading of certificates. The operation of the Renewables Obligation in the electricity generation sector may provide a useful model for the latter option.

The concept of an obligation has a number of appealing features. For the Government, it would provide a mechanism to deliver a higher level of certainty over meeting any target it sets, both for 2010 and into the future. For industry, an obligation would demonstrate the Government's long-term commitment to biofuels, increasing investor confidence and providing a greater level of long-term market certainty.

For these reasons the Government is particularly keen to hear views on introducing some form of Obligation as a way for bringing renewably produced fuels onto the market.

Introducing an Obligation could be an administratively complex process: the Renewables Obligation in the power generation sector took three consultations and over three years to set up. A renewable transport fuel obligation would have the complication of not having a ready-made industry regulator to operate the system (OFGEM regulates the RO in the power generation sector), but the process would benefit from Government's experience of setting up the Renewables Obligation.

As with fuel duty, an obligation would not automatically discriminate in terms of the source or environmental benefit of the fuel, and cheaper imports of products such as palm oil would be likely to predominate in the shorter term. In theory, it might be possible to introduce a system that could favour

more sustainable options. However, the added administrative cost and complexity, and the potential for conflict with trade rules could make this impractical in the shorter term.

Table 3: Estimates of the cost implications at the pump of implementing an obligation[16]

	With 20 ppl duty differential		Without duty differential	
	Pump price ppl	**Difference in price from conventional fuel ppl**	**Pump price ppl**	**Difference in price from conventional fuel ppl**
1% blend				
Biodiesel	78.85	0.1	79.09	0.24
Bioethanol	77.68	0.1	77.91	0.24
2% blend				
Biodiesel	78.86	0.2	79.33	0.49
Bioethanol	77.69	0.2	78.16	0.49
3% blend				
Biodiesel	78.87	0.3	79.58	0.73
Bioethanol	77.69	0.3	78.40	0.73
4% blend				
Biodiesel	78.88	0.4	79.82	0.98
Bioethanol	77.70	0.4	78.64	0.98
5% blend				
Biodiesel	78.89	0.5	80.07	1.22
Bioethanol	77.71	0.4	78.89	1.22

Note: These prices include all taxes and subsidies, profit and distribution.

Q2. Do you consider some form of renewables obligation as the most effective method for promoting biofuels, and if so why?

Q3. How might obligation be made to work in practice?

Q4. Who should the obligation be placed upon (oil refiners, suppliers, blenders, importers retailers, or others)?

7.3 Voluntary Agreement

It is possible that the complexities of a regulatory obligation could be mitigated if it were done on a voluntary basis, with the oil companies entering into a "voluntary agreement" to sell certain amounts

16 The modelling is based on the mid-resource cost of biofuels.

of biofuels each year. However, due to the extra costs involved in producing biofuels, including substantial investment in production and distribution, a voluntary agreement may not provide adequate certainty for industry. Early consultation with the oil industry has indicated that they do not favour a voluntary approach.

Q5. Should the Government further explore the option of facilitating a voluntary agreement to secure biofuels sales targets?

7.4 Supporting Measures

Regional Capital Grants

Regional Capital Grants offer one of the few methods of direct support for industry allowable under the EU's single market rules. Biofuels processing plants would qualify under the terms of the support framework and could therefore be used to help establish a UK-based biofuels industry. However, there are limitations in terms of the geographical areas eligible for support and in the grant amounts that could be provided.

Enhanced Capital Allowances.

Capital allowances allow the costs of capital assets to be written off against a business's taxable profits. Enhanced capital allowances (ECAs) can allow a greater proportion of an investment to qualify for tax relief against a business's profits of the period during which the investment is made. ECAs have been introduced for energy-saving technologies (2001) and water-saving technologies (2003) and are intended to help address the higher up-front costs that new and nascent technologies can experience before they achieve market penetration. The qualifying technologies are kept under review to ensure that the support is targeted on equipment until it achieves market penetration.

Budget 2004 announced that the Government would hold stakeholder discussions on the possibility of introducing enhanced capital allowances for clean biofuels production processes

Research and Development

All of the approaches outlined above are focused on the promotion of commercially applicable projects. However, a number of the technologies that offer the highest carbon savings (e.g. Fischer-Tropsch biodiesel and gasification-based bioethanol) are still relatively unproven. The uncertainty surrounding these technologies means that they face difficulties raising the necessary finance to develop their ideas further.

Q6. Should the Government do more to support biofuels production through increased regional grants, enhanced capital allowances or research and development?

7.5 Encouraging Best Environmental Practice

As highlighted throughout, a draw-back of further stimulating biofuels sales beyond mainly WVO production is that the environmental and carbon benefits are uncertain and can vary quite widely. Ideally therefore, policies aimed at stimulating the industry would include or be supported by measures to ensure that the greatest environmental benefits are derived.

It has been suggested that some form of environmental certification system could fulfil this brief, providing a mechanism through which minimum standards of environmental benefit (including carbon) would qualify for fiscal support and/or regulatory obligations. In theory, it might even be possible to reward greater carbon saving performance on a sliding scale.

Against this, there are questions about the practical feasibility of creating such a system; the bureaucracy and costs involved in running it; and the potential for conflict with international trade rules. The Government is not, therefore, currently minded to set up a mandatory carbon certification system.

Q7. How significant are the risks of promoting unsustainable production of products such as palm oil to meet increased European demand for biofuels?

Q8. How important is carbon certification to ensure biofuels can fulfil the Government's objectives to reduce road transports carbon emissions?

Q9. Given that biofuels will almost certainly come from imports as well as UK production, could some form of environmental sustainability assurance (perhaps including international carbon certification) scheme realistically operate cost effectively? How?

8. Public information and labelling of biofuels

8.1 Labelling

Only high quality biofuels ensure environmental advantages over conventional fuels. Use of low quality biofuels can not only cause engine damage or complete engine failure, but can also increase emissions of air pollutants.[17] The Government strongly recommends that only biodiesel meeting the quality standards set out in EN 14214 should be used by motorists.

However, even where biofuels are produced to high standards, at higher blends vehicles may need adapting to use them safely. In consequence, many manufacturers only warranty their vehicles to run on blends of up to 5 **percent**. Currently, we are aware of only a limited number of independent retailers selling biodiesel blends in excess of 5 **percent**, and these are mostly sold to dedicated fleets, but as the market develops it is possible that this will increase.

To ensure motorists are aware of these issues, Article 3(5) of the Directive requires a specific labelling at sales points for biodiesel and bioethanol blends in excess of 5 **percent**.

The Government intends to introduce regulations to transpose this article (see Annex D). These would require fuel pumps at retail filling stations containing biodiesel and bioethanol blends in excess of 5 percent to be clearly labelled with the approximate percentage bio-blend contained in the fuel. To allow some flexibility, we propose that the actual percentage of bio-fuel being dispensed from a pump can be within 5 percent of, but must not be higher than, the percentage blend stated on that pump's label (i.e. a pump labelled B85 would need to contain at least an 80 percent, but no more than 85 percent, biodiesel blend).

The regulations also propose colour coding of fuel pump hoses and nozzles to ensure motorists are aware of the 'different' nature of the fuel available. This is to help ensure that motorists do not unwittingly invalidate their vehicle warranties.

The table below sets out the proposed marking scheme.

Fuel type	**Hose and Nozzle Colour**	**Nozzle Marking**	**Minimum Dispenser Marking**
Bioethanol -more than 5 % to 100%	White	Exx*	Exx* Ethanol Petrol Blend
Biodiesel more than 5% to 100% FAME	Orange	Bxx*	Bxx* Biodiesel

*xx = percentage of biofuel in the fuel blend

There is no legal requirement for biodiesel sold to meet the European and British standard for biodiesel BS EN14214. As an additional measure to help ensure a level of quality control and protect the motorist, the labelling regulations could require retailers to make explicit whether or not the fuel met the standard.

Q10. Do you agree that the labelling at retail pump sales points provides adequate protection - or are there other sales points we should consider?

17 The Department for Transport commissioned Ricardo Consulting Engineers to evaluate the emissions performance of vegetable oil fuel on light duty diesel vehicles. This research is available on the DfT website at www.dft.gov.uk/stellent/groups/dft_roads/documents/page/dft_roads_027622.pdf (Link available from the foot of this page).

Q11. Do you agree that 5 percent is a suitable margin for labelling?

Q12. Do you agree colour coding of pump nozzles and hoses is necessary?

Q13. Are the proposed colours appropriate?

Q14. Should the labelling require retailers selling biodiesel not to the standard BS EN14214 to make this explicit on the label? Or should this be left to the market to decide?

8.2 Public Information

Article 3(5) of the Directive also requires Member States to ensure that information is given to the public on the availability of biofuels and other renewable fuels.

The Government has made information on biofuels available to the public in a number of ways, including:

- Through promotional leaflets (such as "Drive cleaner, drive cheaper", available at DfT website)
- Through the TransportEnergy website[18] which lists the filling stations where biofuels are available.

The Government would welcome views on whether further public information campaigns might be appropriate.

Q15. Do you think that the Government should do more to provide information to the public on biofuels and other renewable fuels? What kind of information specifically?

18 At http://www.transportenergy.org.uk

9. Options for UK targets

9.1 2005 Target

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 the UK could achieve 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. Because most biodiesel is used in a blend of up to 5 percent, this would also mean that as much as 10 percent of all diesel being used in the UK included an element of biofuel.

In comparison with the EU's reference values, setting such a figure as a target may seem unambitious. However, 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 realistic target for the UK.

The Government therefore proposes that the biofuels target for 2005 should be based on our best projections of biofuels sales by the end of 2005, based on Government support announced in the recent Budget.

Q16. Do you agree that the basis of our biofuels target for 2005 should be our best estimate of biofuels sales given current levels of support?

Q17. Do you agree with our projections of 12 million litres a month biofuel sales by the end of 2005?

9.2 2010 and Beyond

As this paper has illustrated, there is no question that biofuels could start delivering significant carbon savings by 2010. The UK biofuels sector is confident that, given sufficient support, it could readily produce enough biofuel to achieve a 5 percent sales target by 2010. This in turn could mean carbon savings of close to 1MtC a year, which equates to some 3 percent of total road transport emissions. There would be other benefits too, to the rural economy and in terms of increased fuel security and diversity of supply.

But there are a number of factors which also need to be considered. Achieving the EU's reference values would not be straightforward given that many motor manufacturers do not warrant their vehicles to run on biofuel blends higher than 5%.

And the costs of achieving this level of biofuel sales would be significant. As set out in the EWP, the costs of carbon reductions in the transport sector tend to be higher than the costs of delivering similar carbon savings in other sectors, and the cost of biofuels reflects this. With the exception of biodiesel from WVO, our analysis suggests that the costs of saving a tonne of carbon from biofuels in 2010 would be between £350 and £750. By contrast, the cost of carbon saving from offshore wind, for example, is estimated at between £240 and £380. Energy crops for power generation is estimated at between £220 and £480. This means that there are opportunity costs associated with Government support for biofuels - similar investment in carbon-saving options in other sectors could yield greater results, but there may be limitations to achieving sufficient carbon savings by the use of cheaper options alone.

There are other considerations too. The carbon savings of biofuels can vary considerably according to the processes and feedstocks used, as can the impact on biodiversity. Imports could come from unsustainable sources. And future technologies offer the prospect of far greater carbon savings than today's - if the technology can be developed.

The Government's Alternative Fuels Framework set out in PBR 2003 stated that policy must be environmentally, economically and socially sustainable, and it must be affordable and provide value

for money. Today's biofuels are expensive, and they are likely to remain so to at least 2010. But we cannot ignore the long-term potential of biofuels to deliver significant carbon savings. Our longer-term climate change objectives are likely to require a shift to renewably produced fuels, and investment in today's biofuel industries could be a stepping stone to the development of tomorrow's very low carbon biofuels technologies.

The questions are how much investment is appropriate now and how best we target that investment to deliver the maximum benefit.

The Government intends therefore to focus on developing a framework of policy measures to deliver benefits over the long term.

This document has outlined the main options under consideration, but we also welcome thoughts on other possibilities. We are particularly keen to hear views on the idea of a renewable transport fuels obligation, and the long term prospects such a mechanism might present not only for biofuels, but also for delivering other low carbon fuels - such as hydrogen. Given the range of carbon savings possible from biofuels, we are also keen to hear views on how we might best maximise the carbon benefits over the long term.

The EU 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 do not intend setting a firm 2010 target at this time. We intend to consult again on our indicative 2010 target in due course.

However, despite the fact that we are not at this stage proposing to set a formal 2010 target, we are clear that our aspiration for 2010 should be to get the UK on a path towards at least the levels of biofuels sales envisaged in the EWP for 2020. This would imply biofuels contributing at least 2 and possibly as much as 5 percent of road fuel sales by 2010. We would very much welcome an early indication from consultees on where, within this range, we ought to be aiming, given the considerations outlined above.

Q18. Do you agree that we should defer setting a 2010 target until 2007?

Q19. What are your views on the level that a 2010 target should be set at?

10. Summary of key questions

Methods of support

Q1. Do you consider fuel duty as the most effective method of promoting biofuels, and if so why?

Q2. Do you consider some form of renewables obligation as the most effective method for promoting biofuels, and if so why?

Q3. How might an obligation be made to work in practice?

Q4. Who should the obligation be placed upon (oil refineries, suppliers, retailers or others)?

Q5. Should the Government further explore the option of facilitating a voluntary agreement to secure biofuels sales targets?

Q6. Should the Government do more to support biofuels production through increased regional grants, enhanced capital allowances or research and development?

Encouraging best environmental practice

Q7. How significant are the risks of promoting unsustainable production of products such as palm oil to meet increased European demand for biofuels?

Q8. How important is carbon certification to ensure biofuels can fulfil the Government's objectives to reduce road transports carbon emissions?

Q9. Given that biofuels will almost certainly come from imports as well as UK production, could some form of environmental sustainability assurance (perhaps including international carbon certification) scheme realistically operate cost effectively? How?

Labelling and public information

Q10. Do you agree that the labelling at retail pump sales points provides adequate protection - or are there other sales points we should consider?

Q11. Do you agree that 5 percent is a suitable margin for labelling?

Q12. Do you agree colour coding of pump nozzles and hoses is necessary?

Q13. Are the proposed colours appropriate?

Q14. Should the labelling require retailers selling biodiesel not to the standard BS EN14214 to make this explicit on the label? Or should this be left to the market to decide?

Q15. Do you think that the Government should do more to provide information to the public on biofuels and other renewable fuels? What kind of information specifically?

The targets

Q16. Do you agree that the basis of our biofuels target for 2005 should be our best estimate of biofuels sales given current levels of support?

Q17. Do you agree with our projections of 12 million litres a month biofuel sales by the end of 2005?

Q18. Do you agree that we should defer setting a 2010 target until 2007?

Q19. What are your views on the level that a 2010 target should be set at?

10.1 Responses to the consultation

The Government would welcome views on any, or all, of the issues set out in this consultation paper.

Responses to the consultation paper should be addressed to 'Biofuels Consultation' and sent to Biofuels.consultation@dft.gsi.gov.uk, or 4/19 Great Minster House, 76 Marsham Street, London, SW1P 4DR.

The closing date for the consultation is Friday 16 July.

The Government will use responses to help inform our biofuels policy. A summary of the comments received will be published on the DfT website after the consultation period ends.

The responses, including the names of addresses of respondents, may be made public unless confidentiality is specifically requested. In accordance with the freedom of information legislation, individual responses must be made available to anyone who asks for them, unless one of the exceptions in the legislation applies, for example the information was provided in confidence, or its disclosure would prejudice third parties.

This consultation paper is also available on the DfT website.

Printed copies can be obtained from

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