

HOUSE OF LORDS

European Union Committee

47th Report of Session 2005–06

The EU Strategy on Biofuels: from field to fuel

Volume I: Report

Ordered to be printed 7 November 2006 and published 20 November 2006

Published by the Authority of the House of Lords

London : The Stationery Office Limited
£price

HL Paper 267-I

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NOTE:

The Report of the Committee is published in Volume I (HL Paper 267-I)
The Evidence of the Committee is published in Volume II (HL Paper 267-II)

References in the text of the Report are as follows:

(Q) refers to a question in oral evidence

(p) refers to a page of written evidence.

FOREWORD—What this Report is about

In this report, we consider whether the EU Biofuels Directive is proving effective as a means of increasing the biofuels content of road transport energy. In preparing our report, we have noted the report published on 18 September 2006 by the House of Commons Environment, Food and Rural Affairs Committee¹ entitled “Climate Change: The Role of Bioenergy”. While this latter report covers a rather broader spectrum, it contains much that is relevant to our own inquiry and we have drawn on it where appropriate. We welcome also Sir Nicholas Stern’s Review on the Economics of Climate Change² and hope that our Report will contribute to the ensuing debate.

We believe that the development of biofuels in the European Union can both reduce carbon dioxide emissions and improve energy security. While we are aware that there are a number of options for reducing carbon dioxide from power generation, biofuels represent the most significant and currently available fuelling method for reductions in the road transport sector. Also, a high price of oil (resulting from declining proven supplies in relation to demand) increases the strength of the case for biofuels as an alternative to fossil fuels. On both counts, therefore, it is sensible that there should be a viable biofuels industry in the EU with the capability to meet growing demand.

However, biofuels are only part of the solution to the EU’s environmental and economic challenges and should be considered as only one element in a wider range of measures needed. Indeed, across the EU different Member States will rightly determine what role biofuels should play in contributing to their national strategies. The extent to which biofuels can realistically contribute to environmental and economic objectives will vary according to national circumstances and judgements as to their validity should remain the preserve of Member States.

Though some Member States have gone further and been more successful than others in promoting biofuel use, current EU targets are not being met and greater and more innovative efforts will be required if biofuels are to achieve a serious impact. We welcome the substantial improvements already made and continuing in engine technology, which are complementary to and compatible with biofuels development. We believe there is scope for second generation biofuels to become increasingly important and to bring greater economic and environmental advantages than currently provided by the present sources of biodiesel and bioethanol.

¹ HC 965

² Sir Nicholas Stern, “The Economics of Climate Change”, 30 October 2006

The EU Strategy on Biofuels: from field to fuel

CHAPTER 1: FROM FIELD TO FUEL

1. A variety of policy goals, including the reduction of greenhouse gas emissions, the diversification of fuel supply sources, and the expansion of agricultural economies, have motivated the European Union (EU) to promote the production and use of biofuels (transport fuels produced from renewable organic materials).
2. The EU's production of biofuels amounted to 2.4 million tonnes in 2004, which is equivalent to 0.8 per cent of EU petrol and diesel consumption. This is an increase of 26.6 per cent on the previous year and production capacities are increasing rapidly.

BOX 1

What are Biofuels?

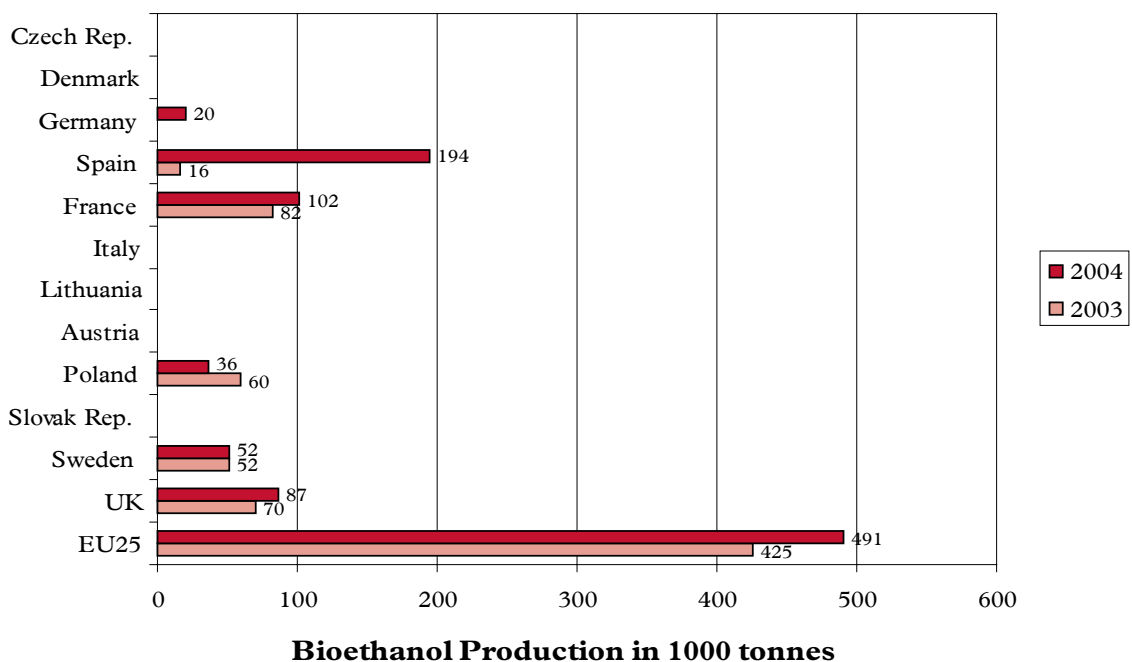
Biofuels are a form of “bioenergy” produced from “biomass” feedstocks. At the moment, the types of biomass used to produce biofuels are energy crops such as sugar cane, sugar beet, wheat, barley, maize and oilseed rape. In the future, other forms of biomass (the generic term for all plant and animal matter) may be used for the production of biofuels. At present, three biofuels account for almost all consumption in the transport sector world-wide: ethanol, biodiesel and biogas. Today, bioethanol is the world's main biofuel. Biodiesel production is expanding, but biogas production has so far made a breakthrough only in Sweden.

Source: *Biofuels Strategy: Background Memo/06/65, Brussels, 8 February 2006.*

Bioethanol sector

FIGURE 1

EU Bioethanol Production



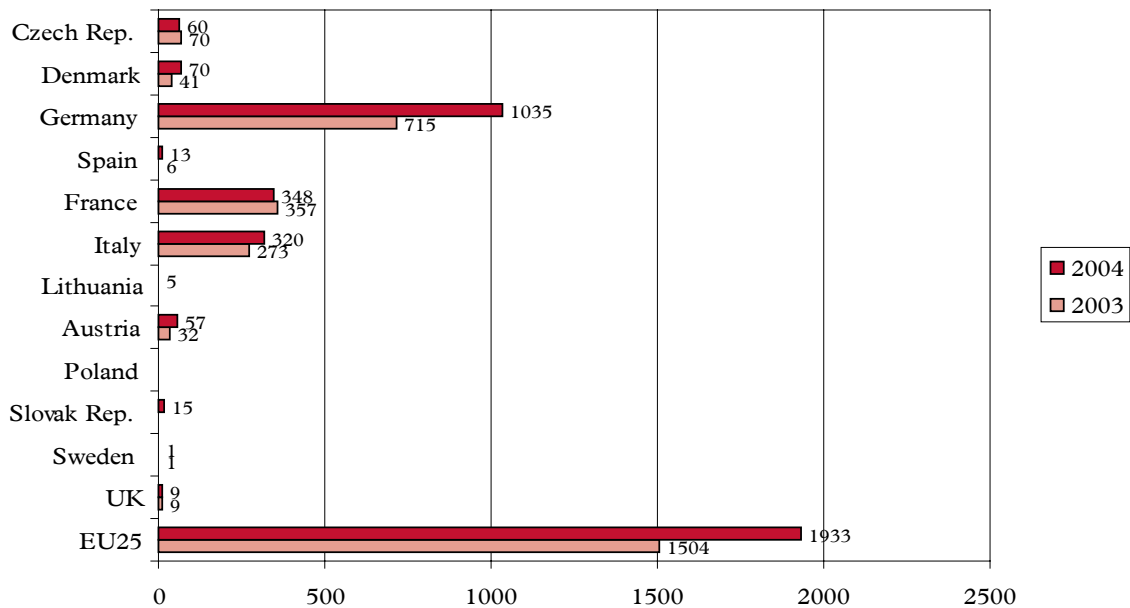
Source: *Biofuels Strategy: Background Memo/06/65, Brussels, 8 February 2006.*

3. EU bioethanol production intended for vehicle use amounted to almost 500,000 tonnes in 2004, an increase of 15.6 per cent on 2003 production (see Figure 1). Spain is the leading bioethanol producer, a success which can be explained in part by the Spanish government's decision not to collect tax on bioethanol.

Biodiesel sector

FIGURE 2

EU Biodiesel Production



Biodiesel Production in 1000 tonnes

Source: *Biofuels Strategy: Background Memo/06/65, Brussels, 8 February 2006.*

4. Biodiesel accounted for nearly 80 per cent of EU biofuel production in 2004. Production was close to 2 million tonnes compared with 1.5 million tonnes in 2003—a 29.6 per cent growth in a single year. Germany produced over half of the EU's biodiesel, with production above one million tonnes for the first time. This can be explained by very favourable legislation that permits a total tax exemption for biofuels whether they be pure or mixed with fossil fuels. Among the new Member States, the Czech Republic is the biggest biodiesel producer.

Current legislation

5. In 2003 the European Commission adopted a Directive aimed at promoting the use of biofuels and other renewable fuels in the transport sector.³ The 'Biofuels Directive' is designed to promote "the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes in each Member State, with a view to contributing to objectives such as meeting climate change commitments, environmentally friendly security of supply and promoting renewable energy sources". Under Article 3 of the Biofuels Directive, Member States must ensure that a minimum proportion of biofuels and other renewable fuels are placed on

³ Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport, O.J. L123, 17/05/2003.

their markets, and that national indicative targets are set to achieve that effect. The EU therefore recommends a “reference value” for these targets calculated on the basis of energy content, for all petrol and diesel used in the transport sector. These reference values are set at 2 per cent by 31 December 2005 and 5.75 per cent by 31 December 2010. As Table 1 shows, 12 EU countries, including the UK, have not yet set targets equivalent to the EU “reference values”.

TABLE 1
Member State Biofuels Targets

EU MEMBER STATE	2005 Target (%)	2010 Target (%)
<i>EU Target</i>	2	5.75
Austria	2.5	5.75
Belgium	2	5.75
Cyprus	1	5.75
Czech Republic	3.7 (2006)	5.55
Denmark	0	Not Available
Estonia	2	Not Available
Finland	0.1	Not Available
France	2	5.75
Germany	2	5.75
Greece	0.7	5.75
Hungary	0.4–0.6	Not Available
Ireland	0.06	Not Available
Italy	1	2.5
Latvia	2	5.75
Lithuania	2	5.75
Luxembourg	Not Available	5.75
Malta	0.3	Not Available
Netherlands	2 (2006)	5.75
Poland	0.5	5.75
Portugal	2	Not Available
Slovakia	2	5.75
Slovenia	0.65	5
Spain	2	Not Available
Sweden	3	5.75
United Kingdom	0.3	3.5

Source: European Commission (2006) Presentation by Paul Hodson (DG Energy and Transport) to Conference “A sustainable path for biofuels”, 7 June 2006. Organised by Birdlife International, EEB and T&E.

New Biomass and Biofuels Strategies

6. In December 2005, the EU adopted a Biomass Action Plan⁴ aimed at increasing the use of energy from forestry, agriculture and waste materials. Andris Piebalgs, the Commissioner for Energy, said that “this plan will cut greenhouse gas emissions, protect jobs in agricultural areas and reduce Europe’s dependence on imported energy. The measures in favour of transport biofuels, in particular, are a practical response to the problem of high oil prices”.⁵
7. The Biomass Action Plan was followed in February 2006 by the Commission’s EU Strategy for Biofuels⁶. This sets out clearly the Commission’s view that there must be a coherent approach to the reduction of the EU’s dependency on imported oil and gas. Indeed, it goes as far as to suggest that biofuels “are a direct substitute for fossil fuels in transport and can readily be integrated into fuel supply systems”⁷.
8. At the launch of the Biofuels Strategy, Mariann Fischer Boel, the Commissioner for Agriculture and Rural Development, made her feelings clear as to the highly ambitious benefits biofuel production could bring the EU:

“There has never been a better moment to push the case for biofuels...Crude oil prices remain high. We face stringent targets under the Kyoto Protocol. And the recent controversy over imports of Russian gas has underlined the importance of increasing Europe’s energy self-sufficiency. Raw materials for biofuel production also provide a potential new outlet for Europe’s farmers, who have been freed by CAP reform to become true entrepreneurs.”⁸
9. These are visionary objectives for a transport fuel strategy, and they highlight the multiple branches of EU policy that a successful EU biofuels industry is meant to support; among them, energy, environment, agriculture, trade and transport. Yet the biofuels target of two per cent market share by 2005 set by the Biofuels Directive was not achieved. Instead, biofuels attained an EU-wide share of only 1.4 per cent of transport fuels.
10. It seems highly unlikely that the Biofuels Directive in its current form can provide the necessary impetus for the EU to reach the 2010 target of 5.75 per cent market share. The European Commission is currently undertaking a review of the Biofuels Directive.⁹ Among other questions, it will assess whether the 2010 target will be met, and consider whether targets for Member States should be made mandatory.

What our report seeks to achieve

11. We started this inquiry with the following questions in mind:

Why are some Member States more successful at developing the use of biofuels than others?

What steps should the Commission and Member State Governments take within the context of the EU Strategy for Biofuels to enable a viable and competitive EU biofuels industry to grow?

⁴ European Commission 07.12.2005 COM(2005) 628 final.

⁵ European Commission 07.12.2005 Press Release IP/05/1546

⁶ European Commission 08.02.2006 COM(2006) 34 final.

⁷ European Commission 08.02.2006 COM(2006) 34 final. Page 3

⁸ European Commission 08.02.2006 Press Release IP/06/135

⁹ http://ec.europa.eu/agriculture/biomass/biofuel/index_en.htm

12. This report will set the current biofuels debate in context; scrutinise the efforts of national governments to implement the Biofuels Directive; examine the merits of the EU Strategy for Biofuels; analyse the potential for fiscal and other policy incentives to contribute to the growth of the biofuel industry; and comment on what further action the EU and national governments should take in this area.
13. We make this Report to the House for debate. Coming shortly after publication of Sir Nicholas Stern's Review on the Economics of Climate Change, we hope that our Report will make a helpful contribution to debate on this important issue.

CHAPTER 2: STIMULATING DEMAND FOR BIOFUELS

14. Although the production and consumption of biofuels in the EU has increased considerably over the past 15 years, it still provides only a tiny fraction of the EU's overall energy needs. The European Commission admits that biofuels "have achieved a very limited market penetration"¹⁰, and the latest figures show biofuel consumption at 1.4 per cent of total fuel consumption. This is despite the fact that most vehicles in the EU are capable of using low-blend biofuel (typically between five and 10 per cent of the fuel mix) without requiring technical adaptations.

BOX 2

Why use Biofuels?

The European Commission promotes the use of biofuels for the following three main reasons:

To strengthen energy security

The road transport sector accounts for 30 per cent of energy consumed in the EU. The sector is heavily dependent on oil (98 per cent), a significant proportion of which is imported from outside the EU. In 2005, the EU's net imports of crude oil amounted to over 560 million tonnes. Using more 'home-grown' biofuels as transport fuel would decrease the volume of oil the EU needs to import.

To capture environmental benefits

Burning biofuels produces CO₂ which is a greenhouse gas. However, the carbon released is carbon that has been absorbed recently during the growth of the plant from which the biofuel is being produced. Using biofuels therefore does not add new quantities of CO₂ to the atmosphere—unlike the burning of fossil fuels, which releases carbon which has been stored within the earth for millions of years. Using biofuels rather than fossil fuels in the road transport sector can therefore reduce CO₂ emissions.

To develop agricultural economies

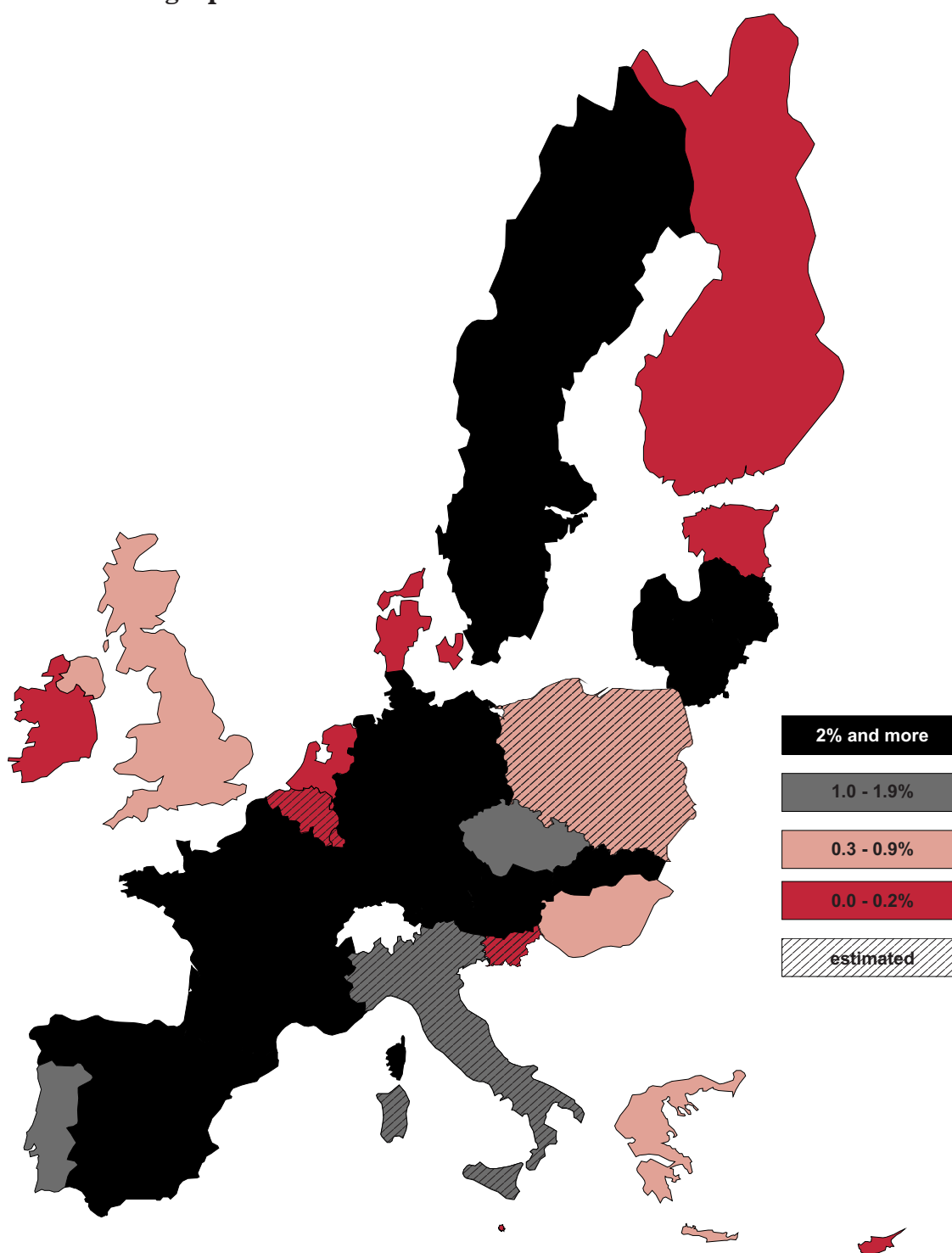
The EU's Common Agricultural Policy (CAP) was reformed in 2003, changing the way EU farmers are supported financially. The reform aims to cut the link between production and subsidy, in order to encourage farmers to produce to market demand rather than set quota. The emergence of an EU biofuels market is perceived as a possible route through which farmers can enter this new, competitively-focused, agricultural landscape.

Mixed success across the EU

15. Although the Biofuels Directive sets targets for the EU as a whole, the extent to which individual Member States use and produce biofuels varies to a great degree. We wanted to uncover why this has been the case, and examine whether the drivers behind the European Commission's endorsement of biofuels match the priorities of national governments.

¹⁰ European Commission 08.02.2006 SEC(2006) 142 (Impact Assessment for Biofuels Action Plan)

FIGURE 3
Geographical overview of EU biofuels use in 2005



Source: Overview and analysis of national reports of the EU Biofuel Directive, E. P. Deurwaarder, ECN-C-05-042, p. 28, May 2005.

Why are Member States failing to reach the targets?

16. Less than half of the 25 Member States set targets for 2005 that were equal to, or above, the 2 per cent indicative level set by the European Commission. Paul Hodson, Policy Officer, Directorate General for Transport and Energy, European Commission, considered that this underperformance was a product of how the Directive had been drafted. It was agreed, he said, that

Member States “would have a wide range of discretion around what targets they would set, so it cannot have been a surprise to them that more of those targets were below the reference value than were above” (Q 509).

17. The United Kingdom set a target of only 0.3 per cent for 2005. This is well below the European average of 1.4 per cent, and indeed was described by Lord Rooker, Minister of State at the Department for Environment, Food and Rural Affairs with responsibility for Sustainable Farming and Food, as being “miles behind” (Q 46). However, the low target reflects the fact that the United Kingdom has a low market share in biofuels. The European Commission assessed the United Kingdom’s position in the following terms: “If you look at the data for market share in 2003, the United Kingdom had a very low market share for biofuels, but that is true not only of the United Kingdom but of the majority of Member States. In 2003 a minority of Member States had already started to achieve significant shares of biofuels, so I do not think it is appropriate to single out the United Kingdom as one of the very worst performers in this respect” (Q 515).
18. Rob Vierhout, Secretary of the European Bioethanol Fuel Association, predicted: “If you look at the targets being set at a national level, a great number of Member States have said they want to achieve the 5.75 per cent by 2010. Of course, there is still a huge gap, but at least there is a clear political understanding that we want to do something” (Q 258). There was general agreement within the industry on the feasibility of achieving this goal. For instance, Sean Sutcliffe, Vice-Chairman of the Renewable Transport Fuels Group at the Renewable Energy Association (REA), estimated that the EU target of 5.75 per cent by energy would translate into approximately seven or eight per cent by volume for bioethanol and considered this a “level which we thought was appropriate for 2010” (Q 179).

Do the Targets Matter?

19. Paul Hodson told us that in 2000, the biofuels market share of the transport fuel sector amounted to approximately 0.2 per cent. This rose to 0.5 per cent when the Biofuels Directive was adopted in 2003, and Mr Hodson predicted that the figure for 2005 would be somewhere between one and 1.4 per cent.
20. There was a diverse range of opinions expressed by our witnesses on whether the Biofuels Directive, and the targets set by it, had contributed to the growth of an EU biofuels industry. Rob Vierhout said: “If there had not been this Directive, I am quite sure we would not have had the market as it is showing now. The real growth came about as soon as we had the Directive in place. The Biofuels Directive is very important for the industry because it gives it certain confidence that there will be a growing market that will be credible” (Q 257). He was supported in this assessment by Raffaello Garofalo, Secretary General, European Biodiesel Board, who described the Biofuels Directive as a “visionary policy” (Q 256).
21. The Renewable Energy Association believed, however, that “attainment of an often somewhat arbitrary national target cannot, in itself, be interpreted as a measure of success in increasing the market penetration of biofuels”¹¹. Martin Rahm, First Secretary of the Embassy of Sweden, was also sceptical. “The Directive itself”, he said, “has not really provided any new instruments

¹¹ Volume II, Page 34

or measures for that matter...We have the reference value of two per cent, which gives you an indication of where we are heading. Apart from that, it has mainly been national policies that we have pursued” (Q 4).

22. Malcolm Watson, Technical Director, United Kingdom Petroleum Industry Association, accepted that the Biofuels Directive gave “a clear indication, a clear signal of what the intention is, and...will have an impact on the future”, but he conceded that “to date I am not convinced its impact has been very great” (Q 208). Sean Sutcliffe said that “a number of Member States have seen merit in pursuing a biofuels policy and have probably acted ahead of the curve in terms of implementing their own policies, whereas others have been extremely laggard” (Q 71). He continued:

“The targets set by the present EU Directive are reference targets and non-mandatory and what we are seeing is that they have had limited impact. We had a two per cent non-mandatory target for 2005 which has been woefully missed by many Member States” (Q 181).

23. **We welcome the initiative shown by the EU in adopting reference value targets under the Biofuels Directive. It is undoubtedly helpful for common targets to have been established to which Member States have agreed to aspire, even though without binding commitment. The Directive provides the Commission with a useful policy instrument through which pressure may be brought to bear on Member States to increase biofuels production.**
24. **We consider that in some measure the targets set within the Biofuels Directives are responsible for the increased use of biofuels in the EU in recent years. But the current Directive has failed to enable the EU to reach the 2005 target of a two per cent market share for biofuels and additional measures will need to be established if the higher target of 5.75 per cent market share is to be reached by 2010.**

CHAPTER 3: ECONOMIC FACTORS IN THE SUCCESS OF FRANCE, GERMANY AND SWEDEN

25. Some Member States, especially France, Germany and Sweden, have attained relatively high volumes of biofuels use. The key tools which have been used successfully by these Member States are fiscal measures.
26. Sean Sutcliffe informed us that, because market support measures in the United Kingdom “were introduced later and at a much less progressive level than elsewhere, so Germany and France in particular and to some extent Italy and Spain have been much more progressive in terms of looking to stimulate this market quickly” (Q 175).

Duty Reduction in the United Kingdom

27. In 2005 the United Kingdom adopted a duty reduction rate of 20 pence per litre on bioethanol used for road transport, a rate which the domestic biofuels industry does not generally consider to be financially viable. Peter Smith, Commercial Manager of Cargill, pointed out that the United Kingdom had produced in 2005 only “51,000 tonnes of biodiesel versus 1.7 million tonnes in Germany, half a million tonnes in France, even almost 140,000 tonnes in the Czech Republic” (Q 75). Mr Smith conceded that “the numbers did not add up. If you could produce in Germany and sell with a 30 pence plus derogation, then why invest in the United Kingdom?...It was inevitable that companies...would place that investment in the areas in the EU where it was profitable to do so, and that was in Germany and in France” (Q 77).
28. Rory Clarke, Director, Rix Biodiesel, told us that “20 pence is not sufficient to act as encouragement for anything other than used cooking oil or tallow...20 pence is not enough for it to compete on a level playing field with conventional fossil diesel” (Q 133). British Sugar stated: “It can be seen that only Germany and Sweden had sales in 2004 approaching the level of their 2005 target. We believe this has been achieved because these countries were at the outset the ones that adopted the most ambitious policies to support biofuels”.

Other Forms of Tax Exemption

29. A dual policy of promoting both low- and high-blend biofuels has been pursued successfully in Germany and Sweden. The REA stated that in Germany “initially supplies of 100 per cent biodiesel only qualified for full detaxation, which had a powerful impact in driving sales of this product into a large but niche market. Subsequently this detaxation was extended to the bio-component of blends, so stimulating sales of mass market B5 [5 per cent biodiesel] blends”¹². In 1999 the German Government introduced a Green Tax on fossil-based diesel to complement pure biodiesel’s exemption from taxation. This exemption was then expanded in January 2004 to cover the biofuel component of blended petrol and diesel until 2009.
30. Martin Rahm referred to Sweden’s tax strategy for alternative fuels, which was introduced in 2002 and in which CO₂-neutral fuels are exempt from both CO₂ tax and energy tax. “That”, he said, “is the main tax incentive” (Q 7). In British Sugar’s assessment, “Sweden has gone on to introduce

¹² Volume II, Page 34

other policies such as free parking, exemption from congestion charging, and tax breaks for both drivers and companies, which has resulted in a rapidly growing consumer demand for flexi fuel cars and the E85 fuel¹³. By the beginning of [2006] flexi fuel cars had reached a market share of 12 per cent of new cars sold in Sweden”¹⁴.

31. Paul Hodson estimated that the biofuels market share in Germany and Sweden had grown to 1.7 and 2.3 per cent respectively by 2004. He believed that this had been achieved because “they have both used a range of measures rather than a single measure to achieve that. They have both promoted high blends as a starting point, 100 per cent biodiesel use in the case of Germany and 85 per cent or 95 per cent ethanol use in the case of Sweden, but then they both accompanied that with measures to support low blends” (Q 514).
32. **The governments of Germany and Sweden are to be commended for the initiative and originality they have demonstrated in the incentives and exemptions introduced to encourage the use of biofuels. Implementing a strategy flexible enough to accommodate both high and low level biofuel blends has produced significant biofuels market growth in these Member States.**

Grants and Allowances

33. In addition to duty reductions, government support to establish the necessary infrastructure, whether for crushing, blending or distribution, is another vital form of state aid. Rory Clarke concluded that “when you look at the market in Germany, not only is the incentive on the fuel significantly greater at approximately 35 pence per litre, but there have been a lot of biodiesel factories built there with up to 50 per cent subsidies for the construction of the factories” (Q 133).
34. We were also told that that the timescale of securing planning approvals for new plant and for writing capital off varied between Member States. Doug Ward, Managing Director, Argent Energy, said that “it took us 19 months to acquire the correct environmental licensing so that we could build our plant. Colleagues in Germany, allegedly working under the same legislation, took three months” (Q 134, 145).
35. Given the United Kingdom’s poor history in biofuels use, we welcomed comments made by Lord Rooker that “there are some incentives [see Box below] coming along for constructions of plant in terms of capital allowance arrangements” (Q 57).

BOX 3

Enhanced Capital Allowances

Enhanced Capital Allowances will be implemented in early 2007 and will enable a business to claim 100 per cent first-year capital allowances on their spending on qualifying plant and machinery. It will be available to those biofuel plants which can demonstrate significant carbon dioxide emission savings.

¹³ E85 is the term for motor fuel blends of 85 percent ethanol

¹⁴ Volume II, Page 68

36. The introduction of Enhanced Capital Allowances was greeted tentatively by British Sugar, which said that “while this is a welcome development, its ability to instigate significant change should not be over-estimated.”¹⁵
37. **We welcome the Government’s plan to introduce Enhanced Capital Allowances to enable those biofuel plants which can demonstrate significant carbon dioxide emission savings to claim 100 per cent first-year capital allowances on their spending on qualifying plant and machinery. This is an innovative and important step towards boosting the growth of the biofuels industry within the United Kingdom.**

Creating Stable Markets

38. Tax concessions can be successfully used to promote biofuels use but they must be used in the medium to long-term if they are to be most effective. As Peter Smith said, “policies must give us some stability for investment, not short-term incentives” (Q 72). The chemical company, Lyondell, stated that, in respect of Germany, “the state of relative market maturity, and the familiar administration and regulation associated with it, has eased the introduction of programmes in support of EU Directive policy and targets”¹⁶.
39. Although many of the Member States most successful in promoting biofuels use have different support structures, a common feature is that government guarantees to the market are put in place for a substantial period of time. Clear political signals to the market place are a valuable and influential commodity for both the biofuels industry and investors. Sweden has set an above-average target of 3 per cent for biofuels market share; and, to support this, from 2004 to 2009 all carbon dioxide-neutral fuels will be exempt from carbon and energy taxes. Similarly, Spain has exempted all biofuels from excise duty until 2012.
40. **Long-term tax concessions are an effective method of supporting the entry of new biofuels producers. Legal guarantees on the duration of duty exemptions give certainty and predictability to investors in the energy market, thus providing for significant investment and growth. We recommend that the Government should take note of this and consider what further incentives can be given within the United Kingdom.**

Joined-up thinking: Government Partnerships

41. A key element of the success of some Member States to increase biofuels use has been effective partnership between government and industry. Oliver Harwood, Chief Surveyor at the Country Land and Business Association, told us that “the joining-up of policy and delivery is much better and much closer both in Sweden and in Germany. [In Sweden] the national government leans very heavily on its own indigenous motor manufacturer, SAAB, in order to design and build E85 [biofuel compatible cars]” (Q 429).
42. Martin Rahm also identified the Swedish government’s partnership with the car industry as a major contributing factor to the success of biofuels development in Sweden:

¹⁵ Volume II, Page 69

¹⁶ Volume II, Page 218

“The private sector in Sweden is on board...They are very active in this field and the major car manufacturers are involved in trying to produce these flexible fuel vehicles...Obviously they see potential business opportunities here for the future...It is a combined effort” (Q 10).

This view was supported by Lyondell, which stated that “Sweden has adopted a more radical energy substitution policy of bioethanol imports directed towards E85 blends and flexi-fuel vehicles in a programme supported by government, oil and automotive industries”¹⁷.

43. In France, partnerships and joint ventures were established from an early stage between farmers, biofuels producers, major oil companies such as TotalFinaElf, and global car companies like Peugeot, Citroën and Renault. Lyondell noted that “support from the oil industry has been aided in the form of powerful backing by the largest French oil company Total”.
44. Another factor that influenced the development of the French biofuels market is the use of a government-run tendering system. Lyondell stated that “France is unquestionably the most politically-committed Member State to its biofuels programme, and has set ambitious substitution targets which exceed EU Directive targets...Such political support is accompanied by a series of government tenders under which excise tax relief is available until at least 2011”¹⁸. This reflects a particular need on the part of investors to seek large volumes of production and economies of scale when making investment decisions. It has also allowed the French government to secure producers who will provide long term supplies and support market expansion.
45. Karl Carter, Agricultural Director at British Sugar, was optimistic about the development of industry partnerships in the biofuels industry’s future in the United Kingdom. He told us that “there is starting to be some movement and some acceptance of biofuels by the oil majors” and that “there is support by car manufacturers, particularly for bioethanol, particularly from Ford, Saab and General Motors” (Q 295).
46. **We note the success of effective partnerships between government, producers and industries in France, Germany and Sweden. These relationships provide security to the biofuels producer that there is a demand for the product and surety to industry investors that the volumes required can be delivered. This mutual cooperation is essential to the growth of any industry and we recommend that the Member States and the Commission consider what steps can be taken to encourage such partnerships throughout the European Union.**

¹⁷ Volume II, Page 219

¹⁸ Volume II, Page 218

CHAPTER 4: THE THREE JUSTIFICATIONS FOR BIOFUELS

47. The motivations and priorities behind national policies differ markedly between Member States. In order to pinpoint measures which can be successfully adopted in Member States, it is first of all necessary to understand the forces driving Member States to use biofuels.

1: Weaning off Oil

48. Biofuels are identified by the European Commission as a significant tool towards reducing the EU's dependence on oil imports for transport fuel. Lord Rooker, the Minister for Sustainable Farming and Food at the Department for Environment, Food and Rural Affairs (Defra), highlighted that, for the United Kingdom, securing energy supply through the production of biofuels was a government duty: "to be able to grow fuel as well as create as much of our own energy as possible I think is absolutely the responsibility and duty of government" (Q 52).
49. Raffaello Garofalo, Secretary General of the European Biodiesel Board, believed that the French government's policy in the 1970s of developing nuclear power to strengthen its domestic electricity production capacity had influenced current thinking on biofuels. He told us: "They want now to do the same; to come out of oil dependency for transport. They see in biofuels the tool to achieve that" (Q 265). Martin Rahm stated that "recent volatility in these markets is a reason for the [Swedish] government to set up new targets and try to break Sweden's dependency on fossil fuels...The goal is to increase domestic production and to decrease the reliance on imports" (Q 26).
50. The REA also highlighted Sweden's decision to become an oil-free economy, saying that this "sets a political environment against which, in the transport sector, commercial interests will look to see how best to maximise biofuel penetration by whatever means possible"¹⁹. However, Malcolm Watson, in his assessment of the overall European fuel market, stated: "I do not believe that bioethanol will contribute to energy security. The reason is that we and Europe produce a surplus of petrol, so if we have a short term hiccup in supplies we will be able to meet our petrol demands" (Q 246).
51. Raffaello Garofalo told us that Europe "imported 25 million tonnes of diesel from Russia, and exported 19 million tonnes of gasoline to the US" (Q 260). The clear message was that, even if European bioethanol could be produced at a comparable cost to fossil fuels, given existing supplies of petrol it would struggle to compete. However, he considered that, because Europe had a shortage of diesel, biodiesel would improve our energy security.
52. **Those Member States which have established a viable and expanding biofuels industry have done so with energy security as their prime objective. As energy security becomes an ever greater political concern, demand for biofuels will grow, but this is likely to concentrate on biodiesel. This will place increased pressure on national governments to ensure demand is met through domestic production or imports.**

¹⁹ Volume II, Page 37

2: Cutting Down on Carbon

53. The desire to reduce oil imports goes hand in hand with the motivation to reduce carbon emissions from transport fuels. Thomas Gameson, Project Manager, Abengoa Bioenergy, said that in Spain there was concern over addiction to oil and the risk of environmental, economic and social catastrophe through global warming or through supply failure, or a combination of the two (Q 299). The Energy Research Centre of the Netherlands believed that the situation was similar in France, stating that the “two priorities of French energy policy are improving security of energy supply and reducing green house gas emissions”²⁰.

BOX 4

Can Biofuels help the Environment?

According to the Sustainable Development Commission, “biofuels can lead to a substantial reduction in emissions of greenhouse gases. But these reductions are not automatic and must be won through carefully designed measures to minimise the greenhouse gas emissions in crop management, subsequent processing and transport to the point of use.”²¹ As we observe below (see paragraphs 74–83), the reduction in emissions varies according to the form of biomass used. Moreover, reductions in emissions at the point of use have to be balanced against any environmental detriment—e.g. as a result of deforestation—during the production process.

54. Interestingly, the United Kingdom Government have pinpointed climate change as the No. 1 reason for promoting biofuels use. Lord Rooker told us that biofuels “have the potential to provide [a] significant contribution to the reduction of carbon dioxide levels” (Q 42). Dr Stephen Ladyman MP, Minister of State, Department for Transport, also said that “we have come at this for climate change reasons because we want to save CO₂” although he conceded that “there are undoubtedly ancillary benefits from taking this approach around energy supply and energy security” and recognised that “the solution to carbon saving is going to be a multiplicity of approaches” (Q 480). Sean Sutcliffe confirmed the biofuel industry’s view that the United Kingdom is “certainly coming at it first and foremost from the carbon savings and the global warming perspective” (Q 170).
55. There was a large measure of agreement with the Government’s position. Dr Clive Mitchell, Team Leader, Energy and Transport, Sustainable Development Commission, said that the Sustainable Development Commission “would put reducing carbon emissions probably at the top of [the] list” (Q 354). The oil industry was also supportive: “[biofuels] will make a contribution to reducing greenhouse gases and that is why...we would support a measure which ultimately makes carbon reporting and all that goes with it part of the requirements on the oil industry when we use biofuels” (Q 221).
56. Lord Rooker admitted that “biofuels are more expensive than some measures for saving carbon, such as biomass or domestic insulation”. This reservation was shared by Raffaello Garofalo. He told us: “I do not know [biofuels use] would be worth it—and probably it would not—if we only looked to the CO₂

²⁰ Volume II, Page 184

²¹ Volume II, Page 89

- solution” (Q 265). The extent to which CO₂ reductions achieved by biofuels are cost-effective depends on a number of factors, including the type of crop used for production, the methods used and the system of transportation and distribution.
57. Denmark has stringent targets for CO₂ reductions but does not choose to invest in biofuels as the method to achieve it. Sveen Friis, Chief Advisor, EU Co-ordination, Ministry of Transport and Energy, Denmark, informed us that the Danish government view the use of biomass for the production of heat and electricity as a “more cost-effective way of reducing CO₂” than biofuels (Q 457). A number of Member States, including Austria, have welcomed “the initiative to develop a system of certificates to ensure that only biofuels whose cultivation complied with minimum sustainability standards will count towards the envisaged targets” (Mrs Regina Figl, Political Counsellor, Embassy of Austria). The EU, she suggested, should establish a monitoring and assessment programme to ensure the biofuels industry is achieving measurable reductions in carbon dioxide emissions.
 58. Peter Smith agreed that carbon certification has an important role to play and cited one particular example: “We [Cargill] are operating in partnership with Greenergy under a rapeseed contract known as the Field-to-Forecourt contract where it must conform to certain carbon and environmental standards” (Q 116). And Dr Philip New, Senior Vice President, BP Fuels Management Group, highlighted the work of the Low Carbon Vehicle Partnership as “groundbreaking” with regard to carbon certification (Q 600).
 59. But Peter Smith warned of problems relating to imported crops and the need for a level playing field: “If we have certification for domestically grown crops, we must have the same certification for imported crops” (Q 116).
 60. **The Government place CO₂ saving at the top of their agenda in relation to the case for biofuels. If CO₂ saving is the primary goal, it is clearly illogical to use biofuels which have caused the emission of more greenhouse gases by their production than are saved by their consumption. We therefore consider some form of carbon certification to be desirable and we would wish to see the European Commission establish a European-wide system of certification for both imported and domestically produced biofuels and feedstocks.**
 61. **On the condition that any new environmental regulations do not constitute a barrier to free trade or unfairly restrict the importation of foreign produced biofuel or feedstock, certification will greatly strengthen the policy case for biofuels. However, we believe that in relation to the verification process, the onus should be on fuel companies to account for traceability rather than the exporting countries. A system of certification is a viable means of supporting sustainable development and environmental protection. The EU should draw on best practice and establish a monitoring and assessment programme that encourages the environmental lifecycle performance of biofuels to meet minimum standards.**

3: Developing the Agricultural Economy

62. The foundation of France’s and Germany’s success in the biofuels market has been their governments’ strong political support of the agricultural economy. Raffaello Garofalo commented: “It is not by chance that Germany

and France are the two major agricultural producers in Europe because the biofuels relationship with the agricultural sector has always been a crucial asset” (Q 258). Lyondell concurred that “France has a favourable coalition of political and industrial interests which is unprecedented among Member States”.²²

63. The agricultural lobby in France has traditionally received strong support from a government which is faced with growing pressures for Common Agricultural Policy reform. Both parties have rallied behind the promotion of biofuels as a means of easing economic pressures and safeguarding jobs within the agricultural sector. France has set ambitious biofuels market share targets of 5.75 per cent in 2008 (2 years before the EU deadline), seven per cent in 2010 and ten per cent in 2015. The REA believe these targets demonstrate “a strong political commitment...which has given the biofuels industry, both biodiesel and bioethanol, a real impetus to move forward”²³.

BOX 5

The Role of Lobbying

The ECN commented to us that in France agricultural organisations such as the CGB (National Confederation of Beet Producers) and AGPB (General Association of Cereals Producers) have an important voice in the politics of fuel ethanol.

In Germany the formation of an agricultural union between farmers and oil seed producers in 1990 created a single voice to lobby, publicise and advocate support for biofuels—the so called “rapeseed revolution”. Principally because of pressure from this agricultural lobby, Germany’s market for biofuels has been dominated by biodiesel, which has been in mass production since 1993.

In Germany, the 1998 Federal Initiative for Bioenergy set the agenda for combating climate change, and one objective identified was a minimum share for renewable energy in the transport sector. The role of the Green Party as a coalition partner with the Social Democrats was crucial in the development of a coherent and effective biofuels policy.

64. An important consideration for the agricultural industry is long term stability of the biofuels market. Bob Howat, Vice President, National Farmers’ Union of Scotland, noted: “The industry is crying out for stability and some long-term vision so that people can invest with confidence knowing that there will be a market and that government policy is not suddenly going to change down the line” (Q 380). The diversification of the agricultural industry towards biofuels could prove to be an important part of the further development of agricultural economies and is in line with the Committee’s own report into the Future Financing of the Common Agricultural Policy, which stated that “market support and direct subsidies to farmers will become of declining importance. The restructuring of agricultural areas, on the other hand, has become of paramount importance.”²⁴

²² Volume II, Page 219

²³ Volume II, Page 35

²⁴ HL 7, 15 June 2005, House of Lords EU Committee, 2nd Report of Session 2005-06, “The Future Financing of the Common Agricultural Policy”, Paragraph 105

65. **We believe that governments, farmers, fuel producers, car companies and oil companies must work together to create a stable biofuels market supported by long-term agreements. This in turn will strengthen consumer confidence and lead to greater awareness and acceptance of biofuels. Whether these coalitions are led by farmers, as in France, or large multinationals, such as Abengoa in Spain, the outcome is the same: a strong national commitment to agricultural economic development through biofuels.**

CHAPTER 5: IMPORTING BIOFUELS

66. The European Commission's policy is to reduce Europe's current dependence on imported oil and gas. Diversifying fuel supply sources to include biofuels is one way in which the Commission believes it can achieve this objective. However, due to the lower costs of production in the developing world, domestic EU producers face considerable competition from imports.

BOX 6

Biofuels in the Developing World

The EU Strategy for Biofuels states that the EU will pursue a "balanced approach in ongoing and future trade negotiations" and will "respect the interests of both domestic producers and EU trading partners".²⁵ It also gives a commitment that "market access conditions" for imported bioethanol will be "no less favourable" than under current trade agreements.²⁶

The Strategy insists that biofuels production in the developing world must be done in a way which is positive for the environment and which supports sustainable development for both feedstock and biofuels. One of the issues which the European Commission will consider in its review of the Biofuels Directive is whether only biofuels meeting minimum carbon emissions should qualify for the indicative targets.

Price and Trade Competition

67. The major factor in determining the level of imports of biofuels and biofuels feedstock will always be price. Lord Rooker explained that bioethanol made from wheat and from sugar beet produced in the EU costs 32 to 40 pence and 30 to 45 pence per litre respectively; whereas bioethanol made from imported sugar cane costs only 6 to 11 pence per litre (Q 58). Malcolm Watson stated that the "cheapest source of bioethanol today is undoubtedly Brazil. It has a better climate than [the United Kingdom] for growing it, it uses sugar cane and, incidentally, it produces a very good carbon balance" (Q 237) (See also Paragraph 74). The Worldwatch Institute stated that "high crop yields and lower costs for land and labour—which dominates the cost of these fuels—provide an economic advantage [to developing countries] that is hard for countries in temperate regions to match"²⁷.

²⁵ European Commission 08.02.2006 COM(2006) 34 final, page 13

²⁶ European Commission 08.02.2006 COM(2006) 34 final, page 14

²⁷ Worldwatch Institute, 07.06.06, "Biofuels for Transportation", Extended Summary, Page 7. <http://www.worldwatch.org/taxonomy/term/445>

FIGURE 4**World Ethanol Production**

Ethanol production	2004 billion litres*	2005 billion litres
Brazil	14.6	16.7
United States	14.3	16.6
European Union	2.6	3.0
Asia	6.4	6.6
China	3.7	3.8
India	1.7	1.7
Africa	0.6	0.6
World	41.3	46.0

* Estimate by F.O. Licht, Commodity Analysts

Source: *Biofuels Strategy: Background Memo/06/65, Brussels, 8 February 2006.*

68. The impact of competition from developing countries on the EU's biofuel industry has varied between Member States. In some Member States generous tax breaks have facilitated both the growth of a domestic biofuels industry and imports to meet demand. Nonetheless, the EU as a whole still struggles to compete on price with countries such as Brazil for biofuels.

BOX 7**Sweden**

For both bioethanol and biodiesel, Sweden's domestic production costs are higher than the European average, reducing its competitiveness with both EU and non-EU imports. Sweden has no domestic oil industry and already imports a considerable proportion of its energy needs, which presents a greater incentive to seek alternative sources. Sweden imports the majority of its bioethanol from Brazil.

69. Many Member States have taken advantage of preferential trade agreements to import significant percentages of biofuels. British Sugar believed that "imports of biofuels must be part of the mix available in any market but they should not be dominant... [In order] to allow the fledgling EU bioethanol industry to develop...tariffs should be maintained at their current levels and not be subject to erosion either through the WTO Doha Round negotiations or through bilateral deals"²⁸.
70. The Food and Drink Federation stated that "market access concessions for bioethanol should be balanced and tied to developments in the EU market"²⁹. On the other hand, Lyondell's policy on trade was that "unconstrained EU access to global markets is of paramount importance in building a sustainable and vibrant free market, and in acting as an essential catalyst to the improvement of EU production efficiency"³⁰.

²⁸ Volume II, Page 70

²⁹ Volume II, Page 209

³⁰ Volume II, Page 217

71. Doug Ward believed there was a problem with pursuing a policy based on importing substantial amounts of biofuels or feedstock. Highlighting the fact that one of the EU criteria for developing biofuels was energy security, he posed the question: “What is the security of supply if you are importing 60 per cent of your feed stock? You have defeated the purpose, when it is clearly possible [within the EU] to develop a much larger portion than that” (Q 145). Peter Smith pointed out that “both Germany and France are largely operating off their own domestic crops” (Q 78).
72. We agree wholeheartedly with the view of Paul Hodson of the European Commission that “it is neither possible nor desirable to follow an autarkic route in which Europe would meet all its needs or all its objectives for biofuels with domestic production. On the other hand, we do not want the outcome to be one in which all of the needs or all significant parts will be met with imports, even if those imports are cheaper” (Q 533).
73. **If energy security is a nation’s main concern, those countries wanting to replace fossil fuels with biofuels may understandably seek imports from countries such as Brazil. A strong international market in biofuels is extremely valuable. Equally, a strong and competitive European biofuels industry is strategically and economically important. We thus support the European Commission’s twin objectives of maintaining fair market access for imported biofuels whilst fostering a successful domestic biofuels industry. We do not believe that these objectives are incompatible.**

The Environmental Costs and Benefits of Imports

74. The EU Strategy on Biofuels notes that the fossil energy input for producing ethanol from sugar cane in Brazil is lower than ethanol produced in Europe. The International Energy Agency has estimated that, in comparison with fossil fuels, the carbon saving of ethanol from sugar cane is between 85 and 90 per cent. This compares with 20–45 per cent when ethanol is produced from grain and 30–50 per cent from sugar beet. The Swedish government believe the lower energy costs of sugar cane production make it more environmentally beneficial than European-produced feedstock. The ‘energy balance’ of Brazilian produced ethanol is therefore attractive to some countries seeking to increase biofuel consumption for environmental reasons.
75. On the other hand, the European Commission states in its Biofuels Communication that “in countries where a large-scale expansion of feedstock production is likely to take place, environmental concerns relate to pressures on eco-sensitive areas, like rainforests. There are also concerns regarding the effect on soil fertility, water availability and quality, and pesticide use”³¹. Sean Sutcliffe expressed concern about fertiliser usage and nitrous oxide emissions associated with feedstock cultivation and biofuels consumption. We are aware that such emissions are many times more dangerous than those from carbon dioxide. However, Mr Sutcliffe recognised that “quite frankly, finding data on that is very difficult today” (Q 194).
76. Rory Clarke accepted that, while imports of either the raw material or the finished product from other countries would continue, it was important to “account in some way for the carbon benefit which is being delivered. When

³¹ European Commission 08.02.06 COM(2006)34 final, page 7

I read about areas in Borneo the size of Wales that are being slashed and burnt, virgin rainforest, to make way for palm plantations, then I struggle to understand the balance of what is being delivered here” (Q 149). Concerns on these issues have also been raised recently in the House³², in which it was claimed that deforestation removes some 12,000 acres of rainforest per day in Brazil alone. Oliver Harwood, Chief Surveyor, Country Land and Business Association, made a similar point, saying: “Tropical rain forest acts as a carbon sink: burning, logging and then ploughing it leads to very significant carbon emissions, so any potential benefit from growing cheaper renewable feedstocks on such cleared rain forest would never repay the carbon debt that you had built up by clearing it in the first place” (Q 416).

77. The same point was made in the House of Commons Environment, Food and Rural Affairs Committee’s recent Bioenergy report: “Bioenergy is often said to be carbon neutral, on the basis that the carbon released on burning the fuel is equal to the carbon removed from the atmosphere when the crop is growing. However, carbon savings are affected by agricultural practice, production and processing methods, and transportation of the feedstock. Consequently, the carbon savings offered by biofuels may be reduced to varying degrees by the emissions incurred over the lifecycle of the fuels.”³³
78. Clare Wenner, Head of Transport Biofuels, Renewable Energy Association (REA), agreed. “It is all very well being competitive on cost, but you have got to be competitive on carbon and sustainability as well” (Q 192). She also outlined the difficulties associated with sustainability assessment of imports—“they require huge buy-in from the international community to make them work...you have got to get the Brazilians and Indonesians with you” (Q 193). Sean Sutcliffe, however, was opposed to the EU imposing mandatory carbon targets “until we understand the science a little bit better”, and he believed that too much attention to carbon dioxide savings could kill the United Kingdom biofuels industry before it was properly established (QQ 194, 195). Malcolm Watson, on the other hand, stated that “we would support a measure which ultimately makes carbon reporting and all that goes with it part of the requirements on the oil industry when we use biofuels” (Q 221).
79. Clare Wenner referred to carbon accounting trials conducted jointly by the REA and the Home Grown Cereals Association based on models developed for the Assured Combinable Crops Scheme. We were informed by the REA that the trial had worked well and despite being time-consuming showed “it can be done”, and that there is “no particular reason to believe that that could not be rolled out to the EU”. Ms Wenner added, however: “Where I think we are really under some pressure is in how we actually account for the carbon from the different fuel chains which involve imports” (Q 193).
80. The Sustainable Development Commission also referred to its work with the Low Carbon Vehicle Partnership in “designing proformas for validating greenhouse gas emissions associated with primary crops from the land use change” (Q 346). Peter Smith gave his support, stating that “materials used for biofuels should come from environmentally sound supplies, and we are working with various stakeholder groups, including Round Tables on soya

³² Lords Hansard, 17 October 2006, Col 643

³³ HC 965, Page 19

and on palm, to improve our ability to source these raw materials sustainably” (Q 74).

81. Rory Clarke however raised the important issue of ‘market displacement’, whereby sustainability requirements for energy crops leads to unsustainable development of food crops. Any possible scheme would therefore have to develop a comprehensive approach to monitoring the sustainability of all feedstocks. The Worldwatch Institute felt that the “incremental development of such a certification scheme is probably the most feasible option, allowing for gradual learning and expansion over time...Criteria and indicators should be adaptable to the requirements of different regions”³⁴. The Sustainable Development Commission also advocated a system of “graduated incentives for carbon savings” (Q 369).
82. **While imports to the EU are likely to constitute a significant proportion of both biofuels and feedstock for the foreseeable future, further steps will need to be taken to ensure that the overall environmental benefits of imported alternative fuels are properly realised. Although biofuel use produces less carbon dioxide emissions than use of fossil fuels, this may be partly, if not wholly, negated by environmental costs in their country of origin and by transportation to the point of use.**
83. **Even though Member States can seek guarantees from developing countries about the sustainability of the crops they are importing, accurate monitoring and evaluation is notoriously hard to enforce. A system of certification is therefore a viable means of ensuring sustainable development and environmental protection. Both the biofuels and oil industries clearly view this development as both necessary and workable. We wish to see the European Commission begin work on developing a European wide system of evaluation and certification of the lifecycle environmental performance of both imported and domestically produced biofuels.**

³⁴ Worldwatch Institute, 07.06.06, “Biofuels for Transportation”, Extended Summary, Page 38.
<http://www.worldwatch.org/taxonomy/term/445>

CHAPTER 6: BUILDING DOMESTIC INDUSTRIES

84. As demand for biofuels grows, the pressure on EU biofuels producers to supply sufficient volumes of bioethanol and biodiesel grows. Witnesses highlighted production capacity, land use and technical barriers as the main factors affecting the establishment of a viable EU biofuels industry.

1: Ensuring Production Capacity

85. Although demand within the EU for biofuels has grown, this has not been matched by an increase in production facilities. Peter Smith remarked that “imports of biofuels have been necessary so far on a limited scale to satisfy the demand whilst the capacity which is being built comes on-stream” (Q 112). Rob Vierhout estimated current EU annual bioethanol production capacity at 1.5 billion litres, but commented that even with projected construction of an additional 5.4 billion litres of capacity, the EU would still be considerably short of the 12 billion litres needed to achieve the EU’s 2010 target of 5.75%. The EU had not, he said, developed “the right policy framework” to support the industry and, as a result “there is not a lot of certainty in the market and investors are reluctant to invest” (Q 261).
86. Lord Rooker remarked that there was a “lack of crushing facilities in the United Kingdom” and that there was reluctance within the oil industry to “invest in the necessary blending and storage, particularly for bioethanol” (Q 46). Karl Carter of British Sugar said that annually “the present market for bioethanol in the United Kingdom is limited to about 150,000 tonnes through independent blenders” (Q 293); but, nevertheless, British Sugar was adamant that, “with the right policies in place in the EU, there should be space enough on the EU market for competitive domestically produced biofuels”³⁵.
87. The Margarine and Spreads Association cited a graph by the European Biodiesel Board on the level of biodiesel production needed to meet the 5.75 per cent target by 2010. It estimated that currently the EU had 6 million tonnes of biodiesel certification capacity annually, but that by 2008 it would have 9 million tonnes, and that the 2010 target would require around 14 million tonnes of biodiesel³⁶. Malcolm Watson concluded that, ultimately, “if there is global demand, there will obviously be bidding for the product and the price will go up, which in normal markets will increase production. It is up to the United Kingdom farmer and the United Kingdom biofuels producers to make sure they are competitive; whether that means building large-scale plants or using new technology” (Q 239).
88. **There is an urgent need for biofuels production capacity to increase in order to meet future demand for biofuels. This will require the European Union to develop an appropriate policy framework and Member States to provide appropriate incentives to encourage further investment in production facilities.**

³⁵ Volume II, Page 71

³⁶ Volume II, Page 225

2: Increasing Land Use

89. In the Worldwatch Institute's assessment, "many of the countries that consume large quantities of transportation fuels have limited land available for producing biomass feedstock, which leaves them unable to produce more than a fraction of their transportation fuels from domestic biomass. This will likely encourage many industrial countries to consider importing biofuels"³⁷. The REA concluded also that "Governments have to take a realistic view of the potential biofuel production from domestic feedstocks, at least in a start-up phase. This can lead to greater imports, as in Sweden, where domestic feedstocks are currently limited"³⁸.
90. Clare Wenner considered that "imports are going to play a fairly substantial role either as feedstocks from international commodity markets or as finished products. We do not have the land...to go on fuelling this for ever..." (Q 192). The European Bioethanol Fuel Association illustrated the scale of the European-wide problem when it said: "If we want to achieve the target of 5.75 per cent, we would require 25 million tonnes [of cereal] for making ethanol. At present, we only use 2 million tonnes" (Q 261).
91. Rob Vierhout added "From a raw material perspective there would not be any problem whatsoever. The problem could be caused by production capacity: do we have enough production capacity available by then?" (Q 261). Martin Haworth, Head of Policy, National Farmers' Union of England and Wales, supported this assertion, stating that "there is an adequate amount of land to fulfil both markets...We have a big exportable surplus of cereals, 3 million tonnes, which we could easily switch to biofuel use" (Q 401). Greenspirit Fuels concurred, explaining in addition that wheat in particular is a high starch crop which would make it ideal to produce ethanol through the fermentation process. It was stated that wheat producers would respond quickly and positively to price signals from biofuels producers³⁹.
92. Lord Rooker confirmed that "feedstocks in some ways are exported rather than used in the United Kingdom; we have a surplus and therefore we export it" (Q 46). Malcolm Watson explored this area further when he said that, while the United Kingdom had sufficient grain surplus to meet the 5 per cent target for 2010 in bioethanol, "we are some way short of self-sufficiency in the biodiesel area" (Q 246).
93. The question of how more land could be brought into use was raised by Martin Haworth, who stated: "We have a large amount of land which is set aside under current compulsory set-aside arrangements (see Box below) in the EU. We feel that that obligation is unnecessary and that is another half million hectares of land, which clearly could be used" (Q 401). Graham Meeks, Head of Fuels and Heat, REA, concurred: "Looking at what we have in terms of set-aside in the United Kingdom today and what one can naturally assume through changes in land-use, we could cover that 500,000 hectares and bring more into production" (Q 183).

³⁷ Worldwatch Institute, 07.06.06, "Biofuels for Transportation", Extended Summary, Page 15.
<http://www.worldwatch.org/taxonomy/term/445>

³⁸ Volume II, Page 37

³⁹ See Appendix 6

BOX 8**What is Set-aside Land?**

Under the Common Agricultural Policy (CAP), EU farmers are required to set aside ten per cent of their land to qualify for arable aid payments. The intention is to promote biodiversity by ensuring sections of land are not used for crop growth. Participating farmers receive a set-aside compensation payment. In addition, farmers are allowed to plant oilseeds on the set-aside land as long as it is contracted solely for the production of biodiesel or other industrial products and not sold into either food or feed markets.

94. A further issue raised by United Kingdom witnesses was the use of the energy crop payment [see Box below]. Raffaello Garofalo advocated increasing the ceiling of 1.5 million hectares of the scheme and the premium paid to farmers. He stated that, per yield, the current payment of €45 per hectare was equivalent to €18 per tonne of crop: “This does not make the difference. It will need to be substantially increased, if not doubled, as a premium” (Q 264).

BOX 9**What are energy crop payments?**

The CAP reform of 2003 established a special aid for energy crops grown on non-set-aside land. Crops grown for the production of biofuels or for use as biomass in the production of electric and thermal energy are eligible for a premium of €45 per hectare. To establish a budgetary ceiling, the energy payments were to be restricted to a maximum guaranteed area of 1.5 million hectares. In 2005, an estimated 0.5 million hectares received the energy crop payment.

FIGURE 5**Aid for energy crops**

Country	Area (hectares)	
	2004 (Area paid)	2005 (Area claimed)
Belgium	12.90	2,434.78
Denmark	4,450.36	17,763.44
Germany	109,100.36	244,206.86
Greece	0.00	0.00
Spain	6,704.98	27,321.38
France	130,034.00	123,825.70
Ireland	379.45	1,613.08
Italy	0.00	318.13
Luxembourg	107.72	221.01
Malta	0.00	0.00
Netherlands	138.58	352.27
Austria	3,497.97	8,370.88
Portugal	0.00	77.45
Slovenia	291.76	304.10

Finland	3,475.34	9,765.88
Sweden	14,547.26	31,450.00
United Kingdom	32,927.84	99,351.00
Total	305,668.52	567,375.96

No communications were required from Estonia, Cyprus, Latvia, Lithuania, Hungary, Poland and Slovakia

Source: Biofuels Strategy: Background Memo/06/65, Brussels, 8 February 2006.

95. Many other Member States however, unlike the United Kingdom, do not have the necessary arable land reserves to grow feedstock to supply domestic demand for both food and biofuels, and priorities for land use could therefore significantly affect import policies. Dr Clive Mitchell referred to work conducted by the European Environment Agency (EEA) on how the EU could produce biomass in an environmentally compatible way. The EEA had concluded that “about 85 per cent of the potential lies in seven countries, one of which is the United Kingdom” (Q 362).
96. Paul Hodson referred to an EEA report which concluded that “the amount of European-consumed food which is European-produced should remain at the same level as it is today” (Q 540). Peter Smith expressed concern about the use of EU land for energy crops and warned against “inflexible mandates which give too much priority to fuel use over food use in the event that there is ever a crop shortage”, (Q 74) concluding that we must “remain secure in our food supply” (Q 98).
97. **We strongly believe there is a genuine prospect of bringing into use more EU land, including set-aside, to grow energy crops, while respecting biodiversity policies. However, the EU must always remain secure in its food supply.**

3: Addressing Technical Barriers

98. The European standard for petrol, EN228⁴⁰, includes provision for the blending of bioethanol to a maximum level of five per cent by volume. The European standard for diesel, EN590⁴¹, limits the amount of biodiesel that may be blended with diesel also to five per cent⁴². The European Commission concedes in its Strategy on Biofuels that “these limits put constraints on the increased use of biofuels”⁴³. Martin Rahm believed these limits were the main reason why Sweden had not been able to reach its target of three per cent biofuels market share: “there are limitations on how much ethanol you can blend into petrol...We are of the opinion that this limit needs to be increased to, say, ten per cent” (QQ 3, 6).
99. Dr Stephen Ladyman MP was confident that “technically, you almost certainly can get much higher than 5 per cent” but conceded that above this limit car manufacturers’ warranties would be invalidated. However, we noted with interest the Minister’s comments that the car industry “would actually

⁴⁰ Established by the European Committee on Standardisation (CEN)

⁴¹ Established by the European Committee on Standardisation (CEN)

⁴² Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC

⁴³ European Commission 08.02.2006 COM(2006) 34 final. Page 10

be reasonably open to the idea of going beyond five per cent” and that “they do not see a problem with it”. He also offered the thought that opposition to biofuels from some car manufacturers was “because of a commercial interest they have in promoting other types of clean technology” (Q 481).

100. Malcolm Watson stated that the oil and car industries were working with the European Committee on Standardisation to raise the limit to ten per cent for both bioethanol and biodiesel. The UKPIA, however, sounded a note of caution, stating that “fuel standards have to reflect the requirements of all the current car fleet, which could average 15+ years in age, not just the latest models which may be designed to operate on a higher proportion of biofuels”⁴⁴. The REA was firm in its conviction that “the industry should be able to develop free of this constraint which is considered artificial and divorced from the practicalities of handling and using these fuels”⁴⁵. British Sugar was convinced that, “if changes are not agreed, then this could become a serious limitation on the development of an EU bioethanol market”⁴⁶.
101. **Our evidence indicates that blending limits impede progress towards the 5.75 per cent target. The European Commission should work together with the European Committee on Standardisation and the oil and vehicle industries to review current fuel quality standards, with the aim of increasing blending limits. We urge the European Commission to support changes to the EU Directive on the Quality of Petrol and Diesel and to set new, higher blending limits for bioethanol.**
102. **Car manufacturers have a vital role to play in supporting the growth of biofuels and any changes to blending limits must be carried forward in partnership with the industry. Biofuels are not the only solution to carbon dioxide reduction in the road transport sector and should not be seen as a challenge to alternative ‘clean technologies’.**

Integrating Biofuels into Conventional Fuels

103. Peter Smith stated that in the United States biodiesel can be produced using 100 per cent soya bean oil. “Soya bean oil today”, he told us, “is trading at round about a £150 per tonne discount to rapeseed oil, and therefore they are using soya bean oil” (Q.104). The European Commission imposes strict limits on the quantity of soya bean oil which can be added to rapeseed oil: “If you put more than just a few percentage points in”, Mr Smith added, “then the resultant biodiesel does not meet the EN14214 European specification for biodiesel” (Q 104).
104. Malcolm Watson confirmed that “you cannot make [biodiesel] from 100 per cent palm oil or 100 per cent soya and meet the current European standards” (Q 237). This is for reasons of safety, in that feedstock such as soya bean oil produces biodiesel with a higher iodine value, which in turn lowers the stability of the finished product when in storage. Rory Clarke commented that “ethanol has got a very low flashpoint, it is hygroscopic, so there are problems with handling it and storing it, as there are with biodiesel, but they are greater with bioethanol” (Q 158). Peter Smith believed concern over

⁴⁴ Volume II, Page 55

⁴⁵ Volume II, Page 38

⁴⁶ Volume II, Page 71

storage was the reason why “the EU has set a maximum iodine value on its biodiesel”, but he expressed his belief that biodiesel produced from soya bean oil in the United States, “has not suffered problems of stability in storage” (Q 106).

105. Malcolm Watson stated that, although “integrating biodiesel is relatively straightforward, we do need new infrastructure as we need to be able to get the product into the refinery and then blend it in, but it is a relatively straightforward product to blend in”. In terms of storing and distributing the finished product, he told us that “we can then pump it around through multi-product pipelines and we do not have stability problems” (Q 213). He stated “for bioethanol it is considerably more complex”, primarily in avoiding the mixture of ethanol and water for safety reasons.
106. Sean Sutcliffe was more relaxed about the technical problems presented by the integration of biofuels into conventional fuels. He thought that “biodiesel has perhaps somewhat easier integration benefits, but I think some of the technical barriers to bioethanol have been rather overplayed and people will be able to get this into the market with less difficulty than perhaps they say” (Q 180). Nonetheless, Malcolm Watson stated that “all the oil industry has decided that we do not wish to put ethanol and petrol blends down a multi-product pipeline, which means we are forced into this other solution” (Q 217). Doug Ward concurred that “you cannot risk jet fuel going down the same line as something which has got bioethanol in it” (Q 158). Malcolm Watson concluded that because of this concern companies would be holding central stocks of ethanol and transporting tankers to blend directly at the terminal (Q 214).
107. Rather than seeking to blend biofuel from other plants, another option for fuel suppliers would be to build bespoke plants for their own use. Malcolm Watson estimated that, based on the cost of a biodiesel plant currently being built in Finland, the United Kingdom’s biofuels supply obligations would require six plants of similar size (each producing 170,000 tonnes per year), which amounted to a bill of approximately £400 million. Malcolm Watson concluded that in either scenario (adapting existing refineries or building new plant) due to the extra precautions necessary, “we have to build a different infrastructure which will take us longer” (Q 214).
108. The integration of biobutanol⁴⁷ into conventional fuels was raised by Mr Michael Dolan, Industry Leader, Dupont. “Biobutanol”, he told us, “has a capability to be used in existing fuels under existing regulations at a rate of ten per cent, as opposed to five per cent for ethanol, and of course that translates directly into a potential doubling of the carbon savings just based on this existing technology” (Q.559).
109. **With new plants being regularly announced, and with major oil companies becoming more convinced of the need to be active in the biofuels market, the issue of integrating biofuels with conventional fuels is already prominent, and will become more so. We note with particular interest the development of biobutanol and hope that industry is able to take this technology forward.**

⁴⁷ Biobutanol is an advanced biofuel seen as having a number of advantages over conventional bioethanol. Its energy content is closer to that of petrol than bioethanol (providing improved fuel economy) and it is more suitable for transport along pipelines, thus avoiding the need for additional large-scale supply infrastructure. It is produced from the same feedstocks as bioethanol.

CHAPTER 7: LOOKING FORWARD

110. Because biofuels production within the EU may remain economically marginal, it is likely it will require a substantial amount of continued financial support to compete against oil for fuel use. It is questionable however whether continued financial subsidies on the scale currently necessary to achieve the 5.75 per cent biofuels target would be sustainable either politically or economically.

The Great Tax Giveaway?

111. Despite the success of fiscal measures, it is likely they will become too great a financial burden on national budgets if production volumes of biofuels continue to increase. Rory Clarke voiced concern: “I think there seems to be a fear from [HM] Treasury...of encouraging a huge tax give-away...In Germany I think that now is beginning to be a concern to them, particularly with the level of imported material which is attracted to their markets” (Q 141).
112. Matthew Ware, Policy Analyst, National Farmers’ Union, indicated that “as the targets go up, it becomes increasingly apparent that the various Member States’ Treasuries cannot afford to subsidise at those levels if they are going for 10–15 per cent biofuels” (Q 391). Raffaello Garofalo said “The main limitation of the taxation is that, when the quantities go beyond 200,000 tonnes or 300,000 tonnes, that is too much of the State budget. Probably an obligatory system is fine. I would go even further and say that probably the most suitable system is one that shares the burden of the extra costs between the State budget and the final consumers. The policy needs taxation plus obligatory tariffs” (Q 268).
113. **Although we do not advocate the use of subsidies to prop up markets, we acknowledge that, in order to stimulate initial growth of the biofuels market, Government intervention and regulation will continue to be necessary in order to provide long-term assurance to investors that biofuels production will be financially viable.**

A New Initiative: Biofuels Obligations

114. The EU Strategy on Biofuels states that “biofuels obligations seem a promising way of overcoming difficulties with tax exemptions” and “would also make it easier to give favourable treatment to biofuels”⁴⁸. A biofuels obligation is a regulatory measure which requires transport fuel suppliers to provide biofuels as a fixed proportion of their total aggregate fuel sales (either by energy content or volume). The European Commission states that the compatibility between biofuel supply obligations and tax incentives “will have to be carefully assessed”⁴⁹.
115. As yet only Austria and Slovenia have established an obligation (2.5 and 1.2 per cent by energy content respectively), with the Netherlands due to introduce a two per cent obligation in 2007. The United Kingdom’s Renewable Transport Fuels Obligation (RTFO) will begin in 2008, and by

⁴⁸ European Commission 08.02.2006 COM(2006) 34 final. Page 8

⁴⁹ European Commission 08.02.2006 COM(2006) 34 final. Page 8

2010 domestic fuels suppliers in the United Kingdom will be required to provide biofuels to a minimum of 5 per cent of total fuel sales (by volume).

BOX 10

What is a Biofuels Transport Obligation?

A biofuels obligation is designed to ensure that a minimum volume of biofuels is supplied to the market rather than, as is the case with price support mechanisms (such as duty reductions), to encourage that outcome via voluntary action. The UK's Renewable Transport Fuels Obligation (RTFO) will require transport fuel suppliers to ensure that, by 2010, 5 per cent (by volume) of their sales in the UK are from a renewable source. The RTFO will work through a system of certification. Oil companies will receive certificates from an administrator to demonstrate how much biofuel it has sold. If the company sells more than its 5 per cent obligation, it would then be able to sell those certificates to other companies who need more to meet the obligation.

116. Sean Sutcliffe told us that “the RTFO gives a long-term volume certainty...but what it does not do is guarantee prices, because it sets a maximum and then competition will determine what price we actually get in the marketplace” (Q 202). The importance of reassuring the market about public policy towards biofuels should not be underestimated. We were therefore pleased to hear Lord Rooker say that in the United Kingdom the RTFO would be a “more effective tool” for providing “long-term market certainty” (Q 56). This sentiment was echoed by Dr Stephen Ladyman MP, who stated that “it is an obligation, it is not a target, and the Government and the Chancellor have made long-term commitments to it precisely in order to give people the comfort they need to make investments” (Q 487).
117. Malcolm Watson believed that tax incentives and obligations were “equally strong drivers”. “Fiscal incentives”, he said, “have been used to change the market...they are very effective and they work. We believe the RTFO will work as well...The real difference is who pays; ultimately it is the consumer who pays. You can either pay the taxman and have a fiscal incentive, or you pay at the petrol pump [and have an obligation] or some combination of the two...” (Q 222).
118. Raffaello Garofalo stated that the option of “coupling” duty reductions with an obligation is “probably the most suitable here [in the United Kingdom], because you have this sharing of the cost burden between the final consumer and the budget of the state”. He also concluded that it would incentivise the capture of environmental benefits if “the obligation has been married to apply the principle ‘polluter pays’ because those who use more of the fuel will pay more” (Q 281).
119. The European Commission is considering whether road transport fuel obligations can be adapted to support the pan-European market. There is ongoing discussion about the necessity of maintaining tax incentives as well as supply obligations and, as they come into force, we will be better able to gauge their effect. Nonetheless, Matthew Ware predicted that “duty support across Europe all becomes more academic as we all go towards obligations” and that the latter were likely to be of most interest to those European countries with high level of duty rebate, such as Germany, with its full fiscal support and 100 per cent rebate (Q 391).

120. It is probable that, as obligations are implemented progressively, the level of fiscal incentives will be gradually reduced. The important foundation of this new policy will be maintaining fiscal incentives at a level that continues to provide price support until obligations are able to bolster the industry's long term future. Matthew Ware considered that in the United Kingdom the RTFO had "finally been sold to the United Kingdom Government because the Treasury see a get-out clause. They can reduce their 20p to 18p to 15p and so on, as the renewable obligation bites" (Q 391).
121. Dr Stephen Ladyman, MP, assured us that the system governing the 'buy-out' price, which is likely to be set at 15p per litre, was sufficiently flexible to respond to market behaviour. The Minister commented that, "if we suddenly found that everybody was buying out of the process, we could increase the buy-out price in order to disincentivise them from doing that. Likewise, if we found that people were building up credits because it had become so profitable to include bioethanol, we could adjust the buy-out price and the incentives to deal with that if we wanted to" (Q 497).
122. Doug Ward was more sceptical. He said that "15 pence is likely not to achieve too much in the United Kingdom" (Q 144, 133) and British Sugar agreed that the buy-out price proposed in 2008/09 in the 2006 Budget at 15 pence per litre is too low. Graham Meeks concluded that ultimately "it could be a very strong incentive or it could be completely meaningless if the incentives that it places upon the obligated parties, predominantly the oil majors in the United Kingdom market, are insufficient for them to change their behaviour" (Q 198).
123. **We believe that the RTFO model developed by the United Kingdom Government is one that has great merit and we are encouraged that the European Commission is considering a similar option. We consider that the European Commission should amend the Biofuels Directive to require Member States to use biofuel obligations as a tool to achieve national targets. The Commission must however ensure that distortions in the Single Market do not arise as a result. If such a situation were to develop, the position would need to be reviewed and the case for Community-wide compulsory fuel obligations examined.**
124. **In present circumstances, however, we do not consider that biofuel obligations should be imposed at Community level on each fuel. Rather, by allowing Member States to select the percentage of the biofuel obligation on a country-by-country basis while retaining a policy framework of indicative targets for market share, it strikes a sensible balance between national rights and responsibilities. Obligations also provide an essential counterweight to the support received by the biofuels industries in Brazil and the United States of America, which currently enjoy a greater degree of Government support than in the EU.**

Second Generation Biofuels

125. A wide range of 'second generation' technologies and products are progressively supplementing the present generation of biofuels. These are strengthening the financial competitiveness of biofuels in three ways. First they are improving crop yields from existing amounts of feedstock; second, they are widening the range of biomass that can be utilised to produce

biofuels; and, third, they are increasing the number and performance of the different biofuels which can be produced.

BOX 11

What are Second Generation Biofuels?

The first generation of biofuels is limited to those which can be combined with conventional fossil fuels without requiring significant alterations to existing engine technologies and other infrastructure. Second generation biofuels are those which can be produced from a wider range of biomass (e.g. timber and straw) whilst remaining compatible with conventional fuels.

126. It is most likely that the production of new biofuels through technological advances will emerge from the industry's existing programme of research and development. The role of the major oil companies will be crucial in supporting the development and marketing of new biofuels. We were pleased therefore to note Malcolm Watson's enthusiasm on the subject. He referred to funding in Canada to turn waste products, such as straw, into bioethanol; ongoing research into the 'Fischer-Tropsch' process of turning biomass into biodiesel via gasification; and BP's \$500 million biofuels research institute (Q 207). In this context we were interested also to note the observation in the House of Commons Environment, Food and Rural Affairs Committee's recent Bioenergy Report⁵⁰ that a second generation biofuel for aviation, synthetic kerosene, could be produced from biomass using the Fischer-Tropsch process, as outlined above.
127. Paul Hodson felt that the greatest advantage of second generation biofuels was the feasibility of producing them from a wider range of feedstocks (Q 527). Peter Smith confirmed that "technologies which will allow us to use far more waste products than we use today rather than prime crops to produce fuels is a far better future than just developing more and more land into rapeseed, wheat and sugarbeet" (Q 118). Given growing concerns in some quarters about the possible impact of energy crops on Europe's food production, this is an important consideration.
128. An added benefit of new technology is likely to be reduced costs of production for the biofuels industry, making it more competitive with fossil fuels and lowering entry barriers to the market. This, in turn, will improve competition within the industry, further spurring innovations and improvements. Rob Vierhout was convinced that "in the future—and we are not talking about ten years away but closer—five years—we will be able to make more ethanol from the same volume of raw material, because we are going into the next generation of bioethanol production. Therefore, your raw material will become cheaper and your output will grow and your costs will go down" (Q 269).
129. Lord Rooker also raised the prospect that "what is now commercial land could be used for growing energy crops because technology enables us to do that" (Q 54). The commercial interest in this area has been considerable, and Peter Smith stated that, from Cargill's point of view, "we see the current generation of biofuels production as having a limited shelf-life, because second generation will come along and take over" (Q 118).

⁵⁰ HC 965. House of Commons Environment Food and Rural Affairs Committee, Eighth Report of Session 2006-06, 18 September 2006, Volume I, Paragraph 69

130. Improving efficiency and lowering production costs was the prime motivation for the Danish government's interest in second generation biofuels. Svend Friis stated that the main reason for these gains was "the fact that you use waste products which have little or almost no value for the production of the fuel. Instead of foodstuffs like wheat, sugar beet, sugar from sugar cane, et cetera, which competes with food in the food market, waste like straw or wood chips are normally available at very low cost" (Q 456).
131. The Government is also investing in this area, and Lord Rooker claimed that, with progress in the growing, crushing, and refining process, "by 2050, the United Kingdom could produce approximately one third of our needs using different feedstocks, and that would include green waste such as grasses, straw, wood and organic waste" (Q 50). He also indicated that in the future "we should see higher carbon savings and lower costs" (Q 42). The Minister for Transport indicated that there was a delicate balance to be struck between "allowing first generation biofuels to flourish" while not "closing the door" on long-term investments in research and development (Q 491). We were pleased to learn therefore from Mr Rupert Furness, Department for Transport, that the Government is "directly supporting some research into some second generation biofuel techniques, largely through the DTI's research programmes (Q 495).
132. In addition, further work is being conducted in Spain by Abengoa "to make cellulose competitive with traditional raw materials somewhere around 2012–2015" (Q 312). According to the Financial Times⁵¹, the Canadian biotechnology company, Iogen, is planning to start work on its first cellulose ethanol plant soon. Thomas Gameson outlined that the EU is providing a proportion of the funding to build a demonstration plant for cellulose ethanol and that in time this support would increase (Q 313).
133. The importance of the EU's involvement was highlighted by Paul Hodson: "We need technological development in this area. We need to bring the second generation biofuels to the market and we need to set up an incentive system which encourages the firms which are developing those fuels to keep investing and to go to the necessary scale, which will bring the costs down" (Q 526).
134. **We believe there is scope for second generation biofuels to become increasingly important and to bring greater environmental advantages than currently provided by biodiesel and bioethanol. Further advances in engineering, chemical and agricultural crop technologies will sustain the progress of biofuels and it is here that the EU can add real value. By co-ordinating, financing and organising European research and development as well as facilitation of good practice, the European Commission should act as the catalyst to encourage the market to find and develop new technologies, including the use of by-products and potential feedstocks now classified as waste. We believe, furthermore, that Commission efforts in this area of research should extend to second generation biofuels for aviation, such as synthetic kerosene.**

⁵¹ Financial Times, June 21 2006, P.19, *Elusive cornucopia: why it will be hard to reap the benefit of biofuel*

What the EU should do next

135. The European Commission is currently considering a number of options for reform of the Biofuels Directive and the system of setting biofuels targets. The three current exemptions from the European indicative target are a balanced and sensible compromise with alternative types and uses of bioenergy. We are in agreement with Lord Rooker, who stated that the aim of EU policy should be to “enable this industry to flourish in as flexible a way as possible and reflect various national circumstances”
136. The European Commission has initiated infringement proceedings against a number of countries which have set low targets for biofuels, including Greece and Denmark (which set a target of 0.1 per cent). As indicated above, the Danish Government adopts a very sceptical line on the economic and environmental merits of biofuels. Svend Friis felt that the problems associated with the Common Agricultural Policy should not be replicated in the biofuels market. As Denmark seeks the general abolition of aid to agriculture, Mr Friis feared that the European Commission’s strategy on biofuels “can only be realised through subsidisation and only through the creation of new trade barriers to protect the EU production of biofuels” (Q 444).
137. Mr Friis quoted the EU Council that “the principle of subsidiarity should be respected, giving flexibility to Member States to develop their own specific policy approach and determine individual goals”; and to “decide on the instruments for the promotion of bioenergy and on the instruments to achieve cost-effectiveness. Policies and measures at Member State level must remain as the primary means of increasing the market share for biofuels.”
138. **It is appropriate that Member States should have the flexibility to develop bioenergy solutions that best suit their climatic conditions and agricultural sector. We recommend that the current system of voluntary targets coupled with monitoring and assessment by the European Commission be retained. The present process of setting biofuel market share targets at five year intervals should also continue, with new targets being set for 2015 and 2020.**
139. **However, it is unlikely that the European Commission will be able to set ambitious yet achievable targets for these dates until Member States’ progress toward the 2010 target has been assessed. As there is a petrol surplus and diesel deficit in the EU, consideration should also be given to separate targets for the two relevant biofuels to ensure balanced development.**
140. **With regard to obligations, we consider that the European Commission should amend the Biofuels Directive to require Member States to use biofuel obligations, such as RTFOs, as a tool to achieve the national consumption targets they have identified.**

CHAPTER 8: SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Chapter 2: Stimulating Demand for Biofuels

141. We welcome the initiative shown by the EU in adopting reference value targets under the Biofuels Directive. It is undoubtedly helpful for common targets to have been established to which Member States have agreed to aspire, even though without binding commitment. The Directive provides the Commission with a useful policy instrument through which pressure may be brought to bear on Member States to increase biofuels production. (Paragraph 23)
142. We consider that in some measure the targets set within the Biofuels Directives are responsible for the increased use of biofuels in the EU in recent years. But the current Directive has failed to enable the EU to reach the 2005 target of a two per cent market share for biofuels and additional measures will need to be established if the higher target of 5.75 per cent market share is to be reached by 2010. (Paragraph 24)

Chapter 3: Economic Factors in the Success of France, Germany and Sweden

143. The governments of Germany and Sweden are to be commended for the initiative and originality they have demonstrated in the incentives and exemptions introduced to encourage the use of biofuels. Implementing a strategy flexible enough to accommodate both high and low level biofuel blends has produced significant biofuels market growth in these Member States. (Paragraph 32)
144. We welcome the Government's plan to introduce Enhanced Capital Allowances to enable those biofuel plants which can demonstrate significant carbon dioxide emission savings to claim 100 per cent first-year capital allowances on their spending on qualifying plant and machinery. This is an innovative and important step towards boosting the growth of the biofuels industry within the United Kingdom. (Paragraph 37)
145. Long-term tax concessions are an effective method of supporting the entry of new biofuels producers. Legal guarantees on the duration of duty exemptions give certainty and predictability to investors in the energy market, thus providing for significant investment and growth. We recommend that the Government should take note of this and consider what further incentives can be given within the United Kingdom. (Paragraph 40)
146. We note the success of effective partnerships between government, producers and industries in France, Germany and Sweden. These relationships provide security to the biofuels producer that there is a demand for the product and surety to industry investors that the volumes required can be delivered. This mutual cooperation is essential to the growth of any industry and we recommend that the Member States and the Commission consider what steps can be taken to encourage such partnerships throughout the European Union. (Paragraph 46)

Chapter 4: The Three Justifications for Biofuels

147. Those Member States which have established a viable and expanding biofuels industry have done so with energy security as their prime objective. As energy security becomes an ever greater political concern, demand for biofuels will grow, but this is likely to concentrate on biodiesel. This will place increased pressure on national governments to ensure demand is met through domestic production or imports. (Paragraph 52)
148. The Government place CO₂ saving at the top of their agenda in relation to the case for biofuels. If CO₂ saving is the primary goal, it is clearly illogical to use biofuels which have caused the emission of more greenhouse gases by their production than are saved by their consumption. We therefore consider some form of carbon certification to be desirable and we would wish to see the European Commission establish a European-wide system of certification for both imported and domestically produced biofuels and feedstocks. (Paragraph 60)
149. On the condition that any new environmental regulations do not constitute a barrier to free trade or unfairly restrict the importation of foreign produced biofuel or feedstock, certification will greatly strengthen the policy case for biofuels. However, we believe that in relation to the verification process, the onus should be on fuel companies to account for traceability rather than the exporting countries. A system of certification is a viable means of supporting sustainable development and environmental protection. The EU should draw on best practice and establish a monitoring and assessment programme that encourages the environmental lifecycle performance of biofuels to meet minimum standards. (Paragraph 61)
150. We believe that governments, farmers, fuel producers, car companies and oil companies must work together to create a stable biofuels market supported by long-term agreements. This in turn will strengthen consumer confidence and lead to greater awareness and acceptance of biofuels. Whether these coalitions are led by farmers, as in France, or large multinationals, such as Abengoa in Spain, the outcome is the same: a strong national commitment to agricultural economic development through biofuels. (Paragraph 65)

Chapter 5: Importing Biofuels

151. If energy security is a nation's main concern, those countries wanting to replace fossil fuels with biofuels may understandably seek imports from countries such as Brazil. A strong international market in biofuels is extremely valuable. Equally, a strong and competitive European biofuels industry is strategically and economically important. We thus support the European Commission's twin objectives of maintaining fair market access for imported biofuels whilst fostering a successful domestic biofuels industry. We do not believe that these objectives are incompatible. (Paragraph 73)
152. While imports to the EU are likely to constitute a significant proportion of both biofuels and feedstock for the foreseeable future, further steps will need to be taken to ensure that the overall environmental benefits of imported alternative fuels are properly realised. Although biofuel use produces less carbon dioxide emissions than use of fossil fuels, this may be partly, if not wholly, negated by environmental costs in their country of origin and by transportation to the point of use. (Paragraph 82)

153. Even though Member States can seek guarantees from developing countries about the sustainability of the crops they are importing, accurate monitoring and evaluation is notoriously hard to enforce. A system of certification is therefore a viable means of ensuring sustainable development and environmental protection. Both the biofuels and oil industries clearly view this development as both necessary and workable. We wish to see the European Commission begin work on developing a European wide system of evaluation and certification of the lifecycle environmental performance of both imported and domestically produced biofuels. (Paragraph 83)

Chapter 6: Building Domestic Industries

154. There is an urgent need for biofuels production capacity to increase in order to meet future demand for biofuels. This will require the European Union to develop an appropriate policy framework and Member States to provide appropriate incentives to encourage further investment in production facilities. (Paragraph 88)
155. We strongly believe there is a genuine prospect of bringing into use more EU land, including set-aside, to grow energy crops, while respecting biodiversity policies. However, the EU must always remain secure in its food supply. (Paragraph 97)
156. Our evidence indicates that blending limits impede progress towards the 5.75 per cent target. The European Commission should work together with the European Committee on Standardisation and the oil and vehicle industries to review current fuel quality standards, with the aim of increasing blending limits. We urge the European Commission to support changes to the EU Directive on the Quality of Petrol and Diesel and to set new, higher blending limits for bioethanol. (Paragraph 101)
157. Car manufacturers have a vital role to play in supporting the growth of biofuels and any changes to blending limits must be carried forward in partnership with the industry. Biofuels are not the only solution to carbon dioxide reduction in the road transport sector and should not be seen as a challenge to alternative 'clean technologies'. (Paragraph 102)
158. With new plants being regularly announced, and with major oil companies becoming more convinced of the need to be active in the biofuel market, the issue of integrating biofuels with conventional fuels is already prominent, and will become more so. We note with particular interest the development of biobutanol and hope that industry is able to take this technology forward. (Paragraph 109)

Chapter 7: Looking Forward

159. Although we do not advocate the use of subsidies to prop up markets, we acknowledge that, in order to stimulate initial growth of the biofuels market, Government intervention and regulation will continue to be necessary in order to provide long-term assurance to investors that biofuels production will be financially viable. (Paragraph 113)
160. We believe that the RTFO model developed by the United Kingdom Government is one that has great merit and we are encouraged that the European Commission is considering a similar option. We consider that the European Commission should amend the Biofuels Directive to require Member States to use biofuel obligations as a tool to achieve national targets.

The Commission must however ensure that distortions in the Single Market do not arise as a result. If such a situation were to develop, the position would need to be reviewed and the case for Community-wide compulsory fuel obligations examined. (Paragraph 123)

161. In present circumstances, however, we do not consider that biofuel obligations should be imposed at Community level on each fuel. Rather, by allowing Member States to select the percentage of the biofuel obligation on a country-by-country basis while retaining a policy framework of indicative targets for market share, it strikes a sensible balance between national rights and responsibilities. Obligations also provide an essential counterweight to the support received by the biofuels industries in Brazil and the United States of America, which currently enjoy a greater degree of Government support than in the EU. (Paragraph 124)
162. We believe there is scope for second generation biofuels to become increasingly important and to bring greater environmental advantages than currently provided by biodiesel and bioethanol. Further advances in engineering, chemical and agricultural crop technologies will sustain the progress of biofuels and it is here that the EU can add real value. By co-ordinating, financing and organising European research and development as well as facilitation of good practice, the European Commission should act as the catalyst to encourage the market to find and develop new technologies, including the use of by-products and potential feedstocks now classified as waste. We believe, furthermore, that Commission efforts in this area of research should extend to second generation biofuels for aviation, such as synthetic kerosene. (Paragraph 134)
163. It is appropriate that Member States should have the flexibility to develop bioenergy solutions that best suit their climatic conditions and agricultural sector. We recommend that the current system of voluntary targets coupled with monitoring and assessment by the European Commission be retained. The present process of setting biofuel market share targets at five year intervals should also continue, with new targets being set for 2015 and 2020. (Paragraph 138)
164. However, it is unlikely that the European Commission will be able to set ambitious yet achievable targets for these dates until Member States' progress toward the 2010 target has been assessed. As there is a petrol surplus and diesel deficit in the EU, consideration should also be given to separate targets for the two relevant biofuels to ensure balanced development. (Paragraph 139)
165. With regard to obligations, we consider that the European Commission should amend the Biofuels Directive to require Member States to use biofuel obligations, such as RTFOs, as a tool to achieve the national consumption targets they have identified. (Paragraph 140)

APPENDIX 1: SUB-COMMITTEE D (ENVIRONMENT AND AGRICULTURE)

Sub-Committee D

The Members of the Sub-Committee which conducted this inquiry were:-

Lord Cameron of Dillington
 Lord Christopher
 Lord Haskins
 Lord Lewis of Newnham
 Lord Livsey of Talgarth
 Baroness Miller of Chilthorne Domer
 Lord Palmer
 * Earl Peel
 Lord Plumb
 Lord Renton of Mount Harry (Chairman)
 Lord Sewel

* until 5 July 2006

The Sub-Committee appointed Mr Peter Clery as Specialist Adviser for this inquiry.

Declaration of Interests

A full list of Members' interests can be found in the Register of Lords Interests:
<http://www.publications.parliament.uk/pa/ld/ldreg.htm>

Members have drawn particular attention to the following interests relevant to this inquiry:

Lord Cameron of Dillington

I declare an interest as having agricultural interests in farms in Somerset and Scotland which grow crops which could be converted to biofuels.

Dillington Park Farms Ltd (farming business)

Allanrange Farming Co. (farming business)

Dillington Farms and Estate (rural property management including farming, forestry, domestic and commercial let property)

Part owner of Dillington Estate—consisting of agricultural property in Somerset with revenue derived from agriculture, forestry, residential and commercial lettings

Lord Livsey of Talgarth

Trustee, CPRW (Campaign for the Protection of Rural Wales)

Lord Palmer

Managing partner of farming operation

Farmland etc in Brunstane, Edinburgh

Residual beneficiary of Patience Estate (St. Lucia)

President, BABFO

President of REA (Transport Group)

The Scottish National Farmers Union

Scottish Land Owners Federation

Borders FWAG

Scottish Protection Rural Society

The Specialist Adviser declared the following relevant interests:

Assessment of biodiesel proposal in Spain.

APPENDIX 2: LIST OF WITNESSES

The following witnesses gave evidence. Those marked * gave oral evidence.

- * Abengoa Bioenergy
- Archer Daniel Midland Company
- * Argent Energy
- * BP Fuels Management Group
- * British Sugar plc
- * Cargill plc
- Committee of Professional Agricultural Organisations in the EU and
General Confederation of Agricultural Co-operatives in the EU (COPA and
COGECA)
- * Country Land and Business Association
- * DuPont
- * Embassy of Austria
- * Embassy of Sweden
- The Energy Research Centre of the Netherlands
- * European Biodiesel Board
- * European Bioethanol Fuel Association
- * European Commission
- * Department for Environment, Food and Rural Affairs
- * Lord Rooker, Minister of State (Sustainable Farming and Food)
- Food and Drink Federation
- Forestry and Timber Association
- Increment Ltd
- The Integral Cell Biology Laboratory, Durham University
- Lyondell Chemicals Europe
- The Margarine and Spreads Association
- * National Farmers' Union of England and Wales
- * National Farmers' Union of Scotland
- * Renewable Energy Association
- * Rix Bio Diesel
- * Sustainable Development Commission
- * Department for Transport
- Dr Stephen Ladyman MP, Minister of State
- * Ministry of Transport and Energy, Denmark
- * UK Petroleum Industry Association
- * Ulster Farmers' Union

We would like to take the opportunity to thank all our witnesses for their submissions to our inquiry.

APPENDIX 3: CALL FOR EVIDENCE

“The House of Lords have appointed the European Union Committee on Environment and Agriculture to consider the European Commission’s ‘EU Strategy for Biofuels’ and the setting of national targets for biofuels market share. The Committee will assess the progress made by EU Member States in reaching their targets and evaluate the factors that have affected the development of national biofuels markets”.

The ‘EU Strategy for Biofuels’ is available at:

www.europa.eu.int/comm/agriculture/biomass/biofuel/com2006_34_en.pdf

We therefore invite evidence on European Union Member States’ policy on biofuels. **In particular, we would welcome responses to the following questions:**

Biofuel Targets

Which Member States have been most successful in meeting their biofuel targets; and how have they achieved this?

Economic Instruments

What financial instruments or incentives have proven to be most effective in meeting national targets for biofuel market share?

Biofuel Obligations

To what extent has the imposition of biofuel obligations by Member States reduced the biofuel industry’s need for fiscal support?

Production of Biofuel

Which countries have the lowest biofuel production costs and why? What steps have Member States taken in research and development to reduce the production costs of biofuels?

Trade in Biofuel

Which Member States import the greatest volume of biofuel and why? What impact have imports of cheap biofuel had on domestic production in the European Union?

Technical Barriers

What are the technical requirements that have acted as barriers to the introduction of biofuel into national fuel markets?

Looking ahead

Should the European Union take further action to promote biofuel production; and, if so, what action is required?

GUIDANCE FOR THOSE SUBMITTING WRITTEN EVIDENCE

Submissions should be sent to:

Peter Hills-Jones

Committee Specialist

EU Committee on Environment and Agriculture

House of Lords

London

SW1A 0PW

Tel 020 7219 2922 Fax 020 7219 8666

And also as an email attachment to : hillsjonesp@parliament.uk

The deadline for submitting written evidence is **Monday 19 June 2006**. Please ensure that you include relevant contact details. Evidence should be attributed and dated, with a note of your name and position, and should state whether it is submitted on an individual or corporate basis.

Short submissions of 6 pages or fewer are preferred; longer submissions should include a summary. Evidence sent as hard copy should be clearly printed or typed on single sides of A4 paper, unstapled. Paragraphs should be numbered. If drawings or charts are included, we ask that these are black-and-white and of camera-ready quality.

Evidence becomes the property of the Committee, and may be printed or circulated by the Committee. You may publish your evidence yourself, but in doing so you should indicate that it was prepared for the Committee. The Committee will invite some of those who submit written evidence to give oral evidence, usually in public at Westminster. Public sessions will be held in June 2006; transcripts will be published.

You can follow the inquiry via the Committee web pages, accessed from www.parliament.uk/parliamentary_committees/lords_s_comm_d.cfm

This is a public call for evidence. Please bring it to the attention of other groups and individuals who may not have received a copy direct.

APPENDIX 4: LETTER FROM LORD GRENFELL, CHAIRMAN OF THE EU SELECT COMMITTEE TO MR PAUL HODSON, ENERGY AND TRANSPORT DIRECTORATE, THE EUROPEAN COMMISSION DATED 19 JULY 2006

I am writing to you in my capacity as the Chairman of the House of Lords' European Union Select Committee. Our Environment and Agriculture Sub-Committee is currently holding an inquiry into the European Union's Strategy on Biofuels⁵². Our inquiry is examining the progress made by EU Member States, including the United Kingdom, towards achieving the targets set down in the Biofuels Directive⁵³. Numerous witnesses have given expert evidence to the Committee on this issue and we intend to publish a report on the matter in the autumn⁵⁴.

We are aware that the European Commission is consulting on the EU's biofuels policies and that you have requested that responses be received in July. Given the relevance of our inquiry to your consultation, we consider it appropriate to submit our preliminary conclusions and recommendations in answer to your questions. We ask that you take account of the following during your review of the Biofuels Directive.

Question 1. Is the objective of promoting biofuels still valid?

We believe that the development of biofuels in the European Union can both reduce carbon dioxide emissions and improve energy security. While we are aware that there are a number of options for reducing carbon dioxide from power generation, biofuels represent almost the only currently available fuelling method for reductions in the road transport sector. Also, the current high price of oil (resulting from declining proven supplies in relation to demand) increases the strength of the case for biofuels as an alternative to fossil fuels. **On both counts therefore, it is sensible that there should be a viable biofuels industry in the EU with the capability to meet growing demand.**

However, biofuels are only part of the solution to the EU's environmental and economic challenges and should be considered as only one element in a wider range of measures needed. Indeed, across the EU different Member States will rightly determine what role biofuels should play in contributing to their national strategies. **The extent to which biofuels can realistically contribute to environmental and economic objectives will vary according to national circumstances and judgements as to their validity should remain the preserve of Member States.**

Some countries have gone further and been more successful than others in promoting biofuel use but greater and more innovative efforts will be required if biofuels are to achieve a serious impact. We welcome the substantial improvements already made and continuing in engine technology, which are complementary to and compatible with biofuels. **We believe there is scope for second generation biofuels to become increasingly important and to bring greater environmental advantages than currently provided by biodiesel and bioethanol.**

⁵² Communication from the Commission, An EU Strategy for Biofuels, COM(2006) 34 Final.

⁵³ Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels and other renewable fuels for transport (OJEU L123 of 17 May 2003).

⁵⁴ Oral and written evidence received to the inquiry is available on the Committee's website: http://www.parliament.uk/parliamentary_committees/lords_s_comm_d.cfm

Question 2: The Directive sets a reference value of 5.75% for the market share of biofuels in 2010. Will this share be achieved with existing policies and measures? If not, why not?

Despite the rising cost of oil, EU biofuels are still considerably disadvantaged by their relatively high production costs. The current Biofuels Directive as a policy instrument provides the Commission with a useful means of bringing pressure to bear on Member States to consider biofuel options. However, it has not proved sufficient to achieve the 2005 target of 2% and so it is unlikely that it can provide the necessary impetus to reach the higher 2010 target of 5.75% market share (by energy content). **So far, the most effective measures have been taken by national governments in the form of sizeable duty reductions for biofuels. However, this has led to uneven growth in the European biofuels market.**

Because biofuels production may remain economically marginal, it is likely they will require a substantial amount of continued financial support to compete against oil for fuel use. **It is clear however that continued financial subsidies on the scale currently necessary to achieve the 5.75% biofuels target would not be sustainable either politically or economically.** The need for financial support may diminish as the price of oil increases. If the price of oil approaches \$100 a barrel, price supports would probably not be required.

Nonetheless, there is no guarantee for the biofuels industry that the current oil price will increase further or even maintain its current position. **Investment decisions on biofuels cannot be based solely on predictions of oil price. Although we do not advocate the use of subsidies to prop up markets, we acknowledge that in order to stimulate initial growth of the biofuels market, Government intervention and regulation will continue to be necessary. This is in order to provide long-term assurance to investors that biofuels production will be financially viable.**

Another issue affecting biofuels growth is land use. While EU countries may have sufficient arable land to grow more biofuels feedstock, given more profitable uses they may decide not to. We cannot predict whether Member States will have to choose between influencing land use for food or fuel, but we must always remain secure in our food supply. **We strongly believe there is a genuine prospect of bringing into use more EU land, including set aside, to grow energy crops, while respecting biodiversity policies.**

Question 3. Looking towards 2010, does the EU system of targets for biofuels need to be adapted? If so, how?

At this stage, we would not support amendments to the Biofuels Directive to set mandatory targets for each Member State. We believe that the principle of subsidiarity should be respected, giving flexibility to Member States to develop their own specific biomass policy and to decide on the instruments for promoting bioenergy. We are in favour of retaining the current system of voluntary targets coupled with strictly enforced monitoring and assessment by the European Commission. The three current criteria for derogating from the European indicative target are a balanced and sensible compromise with alternative types and uses of bioenergy.⁵⁵

⁵⁵ a) Limited national potential for production of biofuels from biomass; b) comparable resources allocated to the production of biomass for energy uses other than transport; c) comparable resources allocated to the production of transport fuels based on other renewable energy sources.

On both energy security and carbon dioxide reduction, there is considerable debate about the relative performance of biomass for transport fuel as compared to heat or power generation. **It is appropriate that Member States have the freedom to develop bioenergy solutions that best suit their agricultural and climatic conditions. However, we do consider that the European Commission should amend the Biofuels Directive to require Member States to use biofuel obligations as a tool to achieve national targets.**

Allowing Member States to select the percentage of the biofuel obligation on a country-by-country basis through a ‘Renewable Transport Fuels Obligation’ (RTFO), while retaining a policy framework of monitored voluntary indicative targets for market share, strikes the right balance between national rights and responsibilities⁵⁶. **New indicative targets for 2015 and 2020 should be considered within the framework of a European RTFO. In addition, as there is a petrol surplus and diesel deficit in the EU, consideration should be given to separate targets for the two relevant biofuels to ensure balanced development.**

Question 4: Should a certification system be introduced to avoid using “poor performing” biofuels or give more support to “better performing” ones?

The UK at present puts carbon dioxide saving at the top of its agenda in relation to the case for biofuels. If carbon dioxide saving is the primary goal, it is clearly illogical to use biofuels which have caused the emission of more greenhouse gases by their production than are saved by their consumption. **We therefore consider some form of carbon certification to be desirable and encourage the European Commission to establish a European-wide system of voluntary certification for both imported and domestically produced biofuels and feedstocks.**

On the condition that any new environmental regulations do not constitute a barrier to free trade or unfairly restrict the importation of foreign produced biofuel or feedstock, certification will greatly strengthen the policy case for biofuels. However, we believe that in relation to the verification process, the onus should be on suppliers to account for traceability rather than the exporting countries. **A system of certification is a viable means of supporting sustainable development and environmental protection. The EU should draw on best practice and establish a monitoring and assessment programme that encourages the environmental lifecycle performance of biofuels to meet minimum standards.**

Question 5. Looking towards 2015 and 2020, should further measures be adopted to promote biofuels?

We believe the EU has a continuing role to play in promoting biofuels for 2015 and 2020, which should include an extension of the current system of indicative targets. The present process of setting biofuel market share targets at five year intervals should also continue, with new targets being set for 2015 and 2020. However, it is unlikely that the European Commission will be able to set ambitious yet achievable targets for these dates until Member States’ progress toward the 2010 target has been assessed. **We recommend that any RTFO guidelines or requirements go up to 2015 with firm figures and to 2020 with parameter figures.**

⁵⁶ The Renewable Transport Fuels Obligation requires that by 2010 all UK transport fuel suppliers must ensure that biofuels make up five per cent of their total aggregate fuel sales.

Further advances in engineering, chemical and agricultural crop technologies will sustain the progress of biofuels and it is here that the European Union can add real value. By co-ordinating, financing and organising European research and development as well as facilitation of good practice, the European Commission should act as the catalyst to encourage the market to find and develop new technologies, including the use of by-products and potential feedstocks now classified as waste.

Question 6: Technical Issues

Our evidence has indicated that blending limits impede progress towards the 5.75% target. For example, the UK Government states that after 2010/11 it intends to raise the level of the RTFO above 5% based on a number of factors, one of which is the development of new fuel quality standards at EU level to ensure existing and new vehicles can run on biofuel blends higher than 5%.⁵⁷ **The European Commission should work together with the European Committee on Standardisation and the oil and vehicle industries to review current fuel quality standards, with the aim of increasing blending limits. We urge the European Commission to support changes to the EU Directive on the Quality of Petrol and Diesel and to set new, higher blending limits for biofuels.**

We hope these initial conclusions and recommendations will make a useful contribution to your review. We will be pleased to provide you with the Committee's full report on the EU Strategy on Biofuels in the autumn. We look forward to receiving the Biofuels Directive review and progress report by the end of the year.

We will be making this letter publicly available on the Committee's website.

⁵⁷ HM Government, The Energy Challenge, Energy Review Report 2006, Department of Trade and Industry, July 2006, Cm 6887, para 6.11, p.127

APPENDIX 5: TAX EXEMPTIONS IN MEMBER STATES

France

Since 1992, there has been a partial excise duty exemption for biodiesel and bio-ETBE. As of 2004, bioethanol directly blended in petrol is partly exempt from taxation. The level of the tax exemption is adjusted each year and is sufficient to bridge the financial gap between biofuels and traditional fuels. The maximum volumes, which these tax exemptions apply to, are adjusted each year as well. In order to stimulate fuel distributors to blend biofuels in their fuels, the Finance Law 2005 has introduced an ecotax called TGAP ('General Tax on Polluting Activities') that applies to each cubic meter of fuel sold. Each fuel distributor is liable to a tax of 1.2% of the value of the product (2005). This rate corresponds to the desired percentage of biofuels to be blended into regular fuels each year and applies to bioethanol blended in petrol as well as biodiesel blended in diesel. This percentage will increase each year in order to reach 5.75% in 2010. Distributors do not have to pay TGAP if they can prove that this percentage was incorporated into the volume of fuel that they delivered.

Germany

Before 2004, the German law defined clearly that mineral-oil taxation applied only to mineral oil based fuels such as petrol and diesel. Therefore, logically any fuel derived from other sources such as biodiesel was free from taxation. Thus, biofuels enjoyed full tax exemption from the very beginning, and no specific law had to be defined and negotiated. However, this applied only for biofuels that were used in pure form, i.e. not mixed with mineral-oil based fuels. This meant that in practice it could only be used for biodiesel and pure plant oil, because other for other biofuels there were no economically available technologies for the biofuels to be used in pure form.

In addition, the red-green coalition government introduced in 1999 an additional eco-tax for fossil fuels, based on the objective to reduce Greenhouse Gas emission and to transfer the related costs to the polluters. Each year from 1999 to 2003 this tax added 0.06 DM/litre (ca. 0.03 €/l) to the mineral-oil taxation, to a total amount of 0.30 DM/litre in 2003. Of course, this eco-tax does not apply to biofuels. Under pressure of several organisations, the government changed the Mineral Oil Duty Act, effective January 2004. Now the act specifically states that biofuels and fractions of biofuels blended with fossil fuels are exempted from duty until 2009. It also states that the tax relief for biofuels must be adjusted in case of overcompensation, i.e. in case the excise duty relief causes biofuels to become much cheaper than fossil fuels. Such an adjustment is expected in 2006.

Research, development and demonstration of second-generation biofuels is supported and will continue to be supported by the new government. Capital grants of up 35% for the investment in commercial plants are also given. This is only possible for plants in certain East German regions that qualify for regional selective assistance. For other regions the EU does not allow this, because then it is regarded as market distortion.

Spain

Under a 1994 law bioethanol projects could be allowed a tax exemption based on the fact that they constitute "innovative projects for technological development of

less contaminating products”. The two commercial bioethanol plants received this tax exemption. However, under EU law at the time, Spain used a very liberal interpretation of the Mineral Oil Directive. Under this Directive, tax exemptions and other financial support could only be given to ‘pilot projects’, i.e. projects that demonstrate or test new fuels, new distribution and new uses of fuels. By a December 2002 change in the law on Tax, Administrative and Social Measures, all biofuel pilot plants receive a full detaxation for five years and all industrial plants receive a full detaxation until at least December 2012. This also applies to the amount of biofuels used in mixes with fossil fuels. However, partial taxation maybe applied to biofuels if the comparative trend in the production costs of petroleum products and biofuels so warrants.

Sweden

In 2004, the tax strategy for alternative fuels was changed so that from 2004 to 2009 CO₂- neutral fuels are exempt from both CO₂ tax and energy tax. However, changes to avoid overcompensation can be made at any time, as is required by the European Commission, and, for the same reason, possibilities of replacing the tax relief by other incentive systems, such as a quota obligation system combined with tradable certificates, are currently being studied.

Czech Republic

In the Czech Republic, for 31 vol-% RME, the RME incorporated in the blend is free of excise duty. As of January 1st 2007, it is expected that the partial refund of excise duty will enter into force for 5 vol-% RME biodiesel blends.

Poland

A system of duty reliefs and exemptions has been operational in Poland since 1993, but initially this only applied to the admixture of bioethanol or ETBE to petrol. The amount of duty relief was determined on a yearly basis after approval of the annual budget. From 1997 there was an excise duty relief of 91 PLZ per 1000 litre (ca. 0.03 €/l) for petrol containing 4.5% to 5% bioethanol and 61 PLZ per 1000 litre (ca. 0.02 €/l) for petrol containing 3% of ETBE.

In May 2004 the tax relief system has undergone modifications bringing it into line with the European Union legislation and the new Polish biofuels law. Biodiesel is now included. There are now three different excise duty relieves, one for blends of 2–5% biofuels in petrol or diesel, one for blends of 5–10% and one for higher blends or pure biofuels.

Slovakia

Slovakia intends to start with blending 5% of biodiesel into diesel (B5) with reduced excise tax (‘red diesel’), which is used in agricultural and forestry production, in railway transport and in public transport.

The Netherlands

In 2006, which is considered a transitional year, there will be fiscal support for biofuel blends in order to compensate for the financial gap with regular petrol and diesel. The tax exemption is granted for a maximum biofuels volume incorporated in a blend of 2%. If the biofuels proportion is below 2%, the level of tax exemption will be adjusted accordingly. Biodiesel and bioethanol will be eligible for this tax exemption, but pure vegetable will be excluded since it cannot be blended with

regular diesel and must be used in adapted vehicles. Instead, pure vegetable projects may apply individually for a tax exemption within the context of innovation programmes.

United Kingdom

From July 2002 the excise duty on biodiesel was lowered by 20 pence per litre (ca. 0.30 €/l), compared to fossil diesel. Effective from January 2005 an identical duty relief (but compared to petrol) was introduced for bioethanol. Both duty relieves are guaranteed for three years rolling, which means that they are currently valid until the end of 2008. The duty relief for bioethanol does not apply to ETBE. Capital grants for the investment in commercial plants can be given under the 'regional selective assistance'. The EU allows this only for certain regions, because otherwise it is regarded as market distortion. The Government also supports R&D projects on the development of advanced production methods for biofuels.

APPENDIX 6: VISIT TO GREENSPIRIT FUELS

The visiting party consisted of Baroness Miller of Chilthorne Domer, Lord Renton of Mount Harry (Chairman) and Lord Sewel.

In the morning the Committee met with Malcolm Shepherd, Managing Director; Arthur Llewellyn, Finance Director; John Waltham, Director; and Graham Hilton, Strategic Adviser; Green Spirit Fuels Ltd. Campbell Dunford, Chief Executive of the Renewable Energy Foundation was also present. A discussion regarding the bioethanol industry was held which was followed by an informal lunch. A further discussion took place in the afternoon. The following points were made during the day.

Mr Shepherd explained that Green Spirit Fuels Ltd had been formed in 2000 as a subsidiary of grain trader Wessex Grain. It was planned that the company would produce bioethanol on a number of sites in the United Kingdom from locally produced feedstocks, principally wheat, with its first plant expected to commence production in 2007. Green Spirit Fuels had received significant financial backing from banks and investment groups.

On the **future development of Green Spirits Fuel**, Mr Llewellyn commented that it was intended that a new bioethanol plant would be built every 12–18 months over the next 3–5 years. The plant currently being built would cost £75–80 million. For every 300,000 tonnes of wheat processed, the plant would produce 100,000 tonnes of ethanol, 120,000 tonnes of high protein cattle feed and 100,000 tonnes of carbon dioxide. It was intended that the cattle feed produced would be sold locally to farmers. Thirty-four people would be employed to work on the plant and thirteen staff would work on development of the company. Additional staff would work in the areas of security and transport.

It was noted by Mr Shepherd that the United Kingdom produced **an annual wheat surplus of 3.5 million tonnes** that was exported, whereas much of the surplus could be diverted to supply the biofuels market. Wheat was a high starch crop which would make it ideal to produce ethanol through the fermentation process. **Green Spirit Fuels had focused on garnering business from wheat producers** as wheat could be grown in three out of every four years in crop rotation, while oilseed rape had a more limited crop rotation. It was stated that wheat producers would respond quickly and positively to price signals from biofuel producers. The supply area for the company would possibly include Somerset, Devon and Wiltshire.

In addition to the **Common Agricultural Policy single farm payment scheme**, farmers could receive 45 euros per hectare (up to a maximum of 100,000 hectares) to **produce crops for non-food uses on set aside land**. Both payment programmes had traditionally provided long term price prediction and purchasing guarantees for farmers. However, it was believed that financial aid would diminish over time, forcing farmers to seek new markets for their product. It was felt by Green Spirit Fuels that there were limited policy instruments to encourage farmers to supply and support the biofuels market and that competition with other countries would result in only **a limited expansion of domestic production**.

A number of United Kingdom companies had established plans for biofuels plants, including **British Sugar** which had incorporated a bioethanol section into its sugar processing plant. However, the United Kingdom had not developed a bioethanol industry as quickly as other countries such as **Canada** and the **United States**. In **Sweden**, a number of plants had combined heat and power generation

in conjunction with biofuels manufacturing which had resulted in improved energy efficiency and cost effectiveness.

It was stated that **the oil industry currently had integrated control of the fuel market** and was reluctant to alter its established and proven process of production by incorporating agricultural products into either petroleum or diesel. **The United Kingdom had a large independent blending sector** that could support greater levels of biofuel blending, but in order to invest oil companies would be obliged to meet fuel standards.

It was argued that the **oil companies favoured the use of biodiesel** which inhibited the establishment of a bioethanol industry in the United Kingdom. Mr Hilton said that the major oil companies asserted many technological barriers to bioethanol production, but the success of bioethanol industries in the United States, Canada, Brazil and China, demonstrated that technological solutions were available. It was suggested that oil companies favoured the use of biodiesel because it was **less disruptive to their operations**. Vegetable oil and diesel could be mixed in a refinery to produce biodiesel whereas the component sources required to produce bioethanol could not be refined together. The oil companies had stated that altering existing fuel terminals to be bioethanol-compatible would be costly, with an initial estimate cost of £320 million, but the Department for Trade and Industry had estimated the cost to be £4 million.

Mr Hilton said oil companies were seeking to comply with the **Renewable Transport Fuels Obligation** (which requires five per cent of all fuel sold in the United Kingdom to come from a renewable source by 2010) through the sole production of biodiesel. Post-2010 obligations could set higher biofuel targets but Mr Hilton argued that, rather than acting as a trigger to the introduction of bioethanol, oil companies were looking to other means to continue their dependency on biodiesel. In particular, it was claimed that the oil industry was anticipating regulatory changes in EU car specifications by 2010 which would allow higher volumes of biofuel to be used in car engines. This would allow greater volumes of biodiesel to be sold and would enable oil companies to continue to meet biofuel targets without the production of bioethanol.

Mr Shepherd commented that there was **massive market potential** for a bioethanol industry to supplement the oil industry in the United Kingdom. Twenty million tonnes of petrol and eighteen million tonnes of diesel were consumed in the United Kingdom annually. If all the United Kingdom's surplus wheat stock was converted into bioethanol it would only supply 2–3 per cent of the fuel market.

It was suggested that incentive schemes should be introduced in the United Kingdom to encourage drivers to use biofuels. It was pointed out that the Swedish government had persuaded car insurers to offer **cheaper insurance to drivers** of biofuel-consuming vehicles on the basis that the effects of climate change are most costly to the insurance industry. It would be in insurers' own interests to encourage the use of biofuels in order to mitigate the effects of climate change. Other schemes that could be of benefit would be free local parking for drivers of flexi-fuel cars.

To sum up, Mr Shepherd called on the Government to:

- (i) introduce ambitious post-2010 targets for the use of renewable fuels;
- (ii) **provide long-term assurance to investors** of the future of the Renewable Transport Fuel Obligation; and to
- (iii) **encourage the EU to adopt a mandated biofuel obligation** which would set compulsory biofuel targets for Member States.

APPENDIX 7: REPORTS

Recent Reports from the Select Committee

Scrutiny of Subsidiarity—Follow-up Report (15th Report session 2005–06, HL Paper 66)

The Work of the European Ombudsman (22nd Report session 2005–06, HL Paper 117)

Annual Report 2005 (25th Report session 2005–06, HL Paper 123)

1. Ensuring Effective Regulation in the EU: Follow-up Report (31st Report session 2005–06, HL Paper 157)

EU Legislation—Public Awareness of the Scrutiny Role of the House of Lords (32nd Report session 2005–06, HL Paper 179)

The Brussels European Union Council and the Priorities of the Finnish Presidency (44th Report session 2005–06, HL Paper 229)

Reports prepared by Sub-Committee D (Environment and Agriculture)

Session 2002–2003

Reform of the Common Fisheries Policy: The Current Crisis over Fish Stocks (2nd Report Session 2003–04, HL Paper 16)

Mid-Term Review of the Common Agricultural Policy: External Implications (10th Report Session 2003–04, HL Paper 62)

Progress of Reform of the Common Fisheries Policy (25th Report Session 2003–04, HL Paper 109)

Revision of the EC Bathing Water Directive (46th Report Session 2003–04, HL Paper 193)

European Waste Management Policy (47th Report Session 2002–03, HL Paper 194)

Session 2003–2004

The EU and Climate Change (30th Report Session 2003–04, HL Paper 179 Volumes I-II)

Session 2005–2006

The Future Financing of the Common Agricultural Policy (2nd Report Session 2005–06, HL Paper 7)

European Union Fisheries Legislation (7th Report Session 2005–06, HL Paper 24)

The United Kingdom Presidency: Defra's Priorities, (12th Report Session 2005–06, HL Paper 36)

Too much or too little? Changes to the EU Sugar Regime (18th Report Session 2005–06, HL Paper 80-I and 80-II)

Managing nuclear safety and waste: the role of the EU (37th Report Session 2005–06, HL Paper 211-I and 211-II)