



House of Commons  
Environment, Food and Rural  
Affairs Committee

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**Biofuels**

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**Seventeenth Report of Session  
2002–03**

*Volume I*





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Environment, Food and Rural  
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**Seventeenth Report of Session  
2002–03**

*Report, together with minutes of proceedings*

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## Environment, Food and Rural Affairs Committee

The Environment, Food and Rural Affairs Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department for Environment, Food and Rural Affairs and its associated bodies.

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Ms Candy Atherton (*Labour, Falmouth and Camborne*)  
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### Publications

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at

[www.parliament.uk/parliamentary\\_committees/environment\\_\\_food\\_and\\_rural\\_affairs.cfm](http://www.parliament.uk/parliamentary_committees/environment__food_and_rural_affairs.cfm).

A list of Reports of the Committee in the present Parliament is at the back of this Report.

### Committee staff

The current staff of the Committee are Gavin Devine (Clerk), Fiona McLean (Second Clerk), Dr Kate Trumper and Jonathan Little (Committee Specialists), Mark Oxborough and Louise Combs (Committee Assistants), and Anne Woolhouse (Secretary).

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# Contents

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<b>Report</b>	<i>Page</i>
<b>Summary</b>	<b>3</b>
<b>1 Introduction</b>	<b>5</b>
Background to the inquiry	5
What is the problem?	6
<b>2 How can biofuels contribute towards Defra's policy goals?</b>	<b>8</b>
Climate change	8
Imports	9
Other mechanisms for cutting carbon emissions	10
Conservation	11
Sustainable farming	12
Rural development	14
<b>3 Biofuels directive</b>	<b>15</b>
<b>4 Options for supporting biofuels</b>	<b>15</b>
<b>5 The role of Government</b>	<b>17</b>
<b>Conclusions and recommendations</b>	<b>19</b>
<b>Minutes of proceedings</b>	<b>21</b>
<b>Witnesses</b>	<b>22</b>
<b>List of written evidence</b>	<b>23</b>
<b>List of unprinted written evidence</b>	<b>24</b>
<b>Reports from the Committee since 2001</b>	<b>25</b>



## Summary

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The use of biofuels to replace conventional fossil fuels in transport can help reduce greenhouse gas emissions. Biofuels are the only source of renewable power currently suitable for road transport and as such have an important role in reducing the environmental impact of this sector of the economy.

However, the debate about the need for Government support for domestic biofuels production has been going on for some time with few concrete conclusions. The Government's biofuels policy, to the extent that it has one, appears muddled and unfocussed.

Different Government departments disagree about the main reason for increasing use of biofuels and about what level of Government support is necessary. The Treasury says that Government support for biofuels reflects the environmental advantages they offer over conventional fuels and that the current 20 pence duty derogation is sufficient. Defra places greater emphasis on the contribution a domestic biofuels industry could make to farm incomes and rural development and says that 20 pence is not enough to stimulate production.

The Government has expressed support for biofuels in its Energy White Paper and the European Union has adopted a directive promoting the use of biofuels. So far, though, Government support for biofuels production has had little effect. Until it is clear what the primary aim of the Government's biofuels policy is, it is difficult to judge how effective are the instruments by which it intends to achieve that policy.

The current level of duty derogation of 20 pence per litre for biodiesel has not been enough to stimulate the development of domestic production. However, if the Government wishes to increase domestic production of biofuels, increasing the duty derogation may be ineffective as to do so may simply encourage the import of biofuels produced elsewhere. It is not clear why the Government chose the level of duty derogation that it did.

It is difficult to determine the extent to which biofuels can contribute more widely to sustainable development. The crops from which biofuels are made can bring both benefits and costs to biodiversity here and abroad. Careful planning is needed to maximise the gains and minimise the losses if these crops are grown more widely.

Defra, as the Department with overall responsibility for sustainable development, needs to clarify the goals of the Government's biofuels policy. Only then can the benefits and costs of the various options open to it be accurately weighed up.



# 1 Introduction

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## Background to the inquiry

1. Biofuels are transport fuels that are produced from plant material.<sup>1</sup> Bio-ethanol, mainly made from starch and sugar crops, is used in petrol engines. Biodiesel, made from plant oils, is used in diesel engines. Biofuels can be either wholly or partially substituted for petrol and diesel. Up to five per cent of the volume of petrol or diesel can be replaced with biofuel without needing any modification to the vehicle.<sup>2</sup> Petrol engines need only minor adjustments to work when up to 10% of the volume of the fuel is replaced by ethanol. Higher proportions of biofuels in transport fuels require specially designed components or vehicles designed to use them.<sup>3</sup>

2. Throughout this text we refer to the proportion of conventional fuel that has been substituted with biofuels as the level of “inclusion” of biofuels. Inclusion levels can either refer to the volume of conventional fuel that is replaced biofuels or to the proportion of the energy of the fuel that is provided by biofuels. Biofuels contain less energy than the same volume of conventional fuels, which means, for example, that to achieve a 5.75% inclusion by energy content would require something close to 9% inclusion by volume.<sup>4</sup>

3. A number of environmental and economic benefits are claimed for biofuels. These include reductions in emissions of the greenhouse gas carbon dioxide of as much as 70%, reduced reliance on fossil fuels and greater security of fuel supply, and improvement of the rural economy by stimulation of the markets for certain crops and by the creation of new jobs in the processing of the fuels.

4. In order to encourage greater use of biofuels, the EU has adopted a Directive which requires Member States to set targets for the substitution of petrol and diesel with biofuels to be reached by 2005 and 2010 (see section three).<sup>5</sup>

5. Biofuels are more expensive to produce than conventional transport fuels and evidence suggests that consumers may not be willing to pay more for them. In recognition of this and of the reduction in carbon dioxide emissions that biofuels can offer, in the 2002 Budget the Government announced a 20 pence per litre (ppl) reduction in the amount of duty payable on biodiesel, compared with ultra-low sulphur diesel. The cut came into effect on 26 July 2002.

6. In the 2003 Budget the Chancellor announced that the Government would reduce the duty rate for bioethanol by 20 ppl compared with ultra-low sulphur petrol with effect from

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<sup>1</sup> For example agricultural crops and woody material. It is also possible to make biofuels from certain organic wastes such as used cooking oil and paper.

<sup>2</sup> Q 100.

<sup>3</sup> Information provided by Volkswagen do Brazil.

<sup>4</sup> Qq 111-112. 5.75% is the ‘reference’ target suggested in the European Union’s Biofuels Directive.

<sup>5</sup> Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport. Official Journal L 123, 17 May 2003.

1 January 2005. Despite these actual and pending duty derogations, domestic production and consumption of biofuels has remained at very low levels.<sup>6</sup>

7. Because of this, we decided to conduct an inquiry into alternative uses for crops, focussed on biofuels, which we announced on 27 February 2003.<sup>7</sup> The terms of reference for our inquiry were:

“Taking account of the Energy White Paper (Our energy future - creating a low carbon economy), as well as any announcements to be made in the Budget, the Committee will consider crops used for purposes other than for providing food and feed. In particular it will look at their use as sources of fuel. The Committee will examine: the extent to which crops are already grown for alternative uses in the United Kingdom; what benefits (or costs) would result from expanding their production, and in particular what contribution the use of biofuels might make to sustainable development; what should be done to encourage production; and what examples there are of best practice in other countries from which we can learn.”

8. In response to our invitation to submit written evidence, we received memoranda from 32 organisations and individuals. We took oral evidence in July and in September 2003. In addition, we visited Brazil in connection with this inquiry and several of our other inquiries, where we met bioethanol industry and government representatives. We wish to thank all those who gave evidence or otherwise assisted in our inquiry.

## What is the problem?

9. At first glance, the biofuels issue looks straightforward: biofuels offer advantages over conventional fuels, but the current level of Government support does not appear to have been enough to realise those advantages, so a greater level of support would be desirable. However, a closer analysis of the costs and benefits is needed before we could recommend such a policy.

10. It is important to clarify what the impacts of increasing the use of biofuels would be and what strategic policy goal or goals would be met by doing so. Is the Government’s goal to reduce emissions of greenhouse gases? Is it to boost the rural economy? Is it to improve fuel security? To what extent is it possible to achieve more than one of these goals at once? It is also necessary to consider whether the benefits offered by biofuels can be more efficiently or cheaply gained by other means. If not, then what is the best means of increasing the use of biofuels?

11. Underpinning this report is the consideration of three options: manufacturing biofuels in the UK using domestically produced feedstocks; manufacturing biofuels in the UK using imported feedstocks; and using imported biofuels. We also consider what mechanisms the Government has at its disposal to encourage the use of biofuels.

12. Decisions about whether or not to increase support for biofuels, about the way in which any further support is provided, and about the balance to be struck between importing

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<sup>6</sup> Qq 31, 100.

<sup>7</sup> EFRA Committee Press Notices of 27 February 2003 and 13 March 2003.

fuels and producing them domestically require detailed analysis of their costs and benefits in economic, social and environmental terms. As the table below indicates, there are no easy answers: whilst one option might be most beneficial to the environment it might not generate the largest number of new jobs in this country.

**Table 1 Examples of questions raised as part of the decisions to be made about sourcing biofuels**

	UK production from UK crops	UK production from imported crops	Imported fuels
Greenhouse gas emissions	What are net emissions savings?	How are emissions savings affected by using tropical crops in production? What savings are lost through transporting the feedstock?	How are emissions savings affected by using tropical rather than domestic crops in production? What savings are lost through transporting the fuel?
Biodiversity	What is the effect on UK farmland biodiversity of increasing production of crops such as oilseed rape, wheat and sugar beet?	What is the effect on biodiversity in the exporting country of growing feedstock for biofuels?	What is the effect on biodiversity in the exporting country of growing feedstock for biofuels?
Farming	What effect does producing biofuels have on demand for UK farmers' crops? What effect does this have on farm incomes?	What impact (if any) would importing feedstocks have on domestic farming?	What impact (if any) would importing biofuels have on domestic farming?
Wider rural development	How many jobs would a domestic biofuels industry create? Where would these jobs be?	How many jobs would be created by processing biofuels in the UK? Where would these jobs be?	How many jobs would be created in marketing and distributing imported biofuels?
International dimension	What (if any) limits on trade would be needed to protect domestic industry? What would be the WTO perspective?	What impact would growing the feedstock have on the economy and society in the exporting country?	What impact would growing the feedstock have on the economy and society in the exporting country?

13. The Sustainable Development Commission told us that it would like the Government to develop “a methodology of cascading assessments that allow you to view the environmental dimension, the economic dimension and the social dimension together”.<sup>8</sup> **We too would like to see how Government balances the considerations of the environment, the economy and society in developing its policy on biofuels.** It seems to us that it is difficult to strike such a balance unless the Government is clear about what is its primary policy objective: is it to support the United Kingdom farming industry or to reduce greenhouse gas emissions?

<sup>8</sup> Q 195.

## 2 How can biofuels contribute towards Defra's policy goals?

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14. In this section we consider how increasing the use of biofuels could contribute towards meeting Defra's goals. We recognise that doing so may also contribute to the goals of other Departments, such as the Department for Transport and the Department of Trade and Industry.

### Climate change

15. The UK has a Kyoto Protocol commitment to reduce greenhouse gas emissions by 12.5% below 1990 levels in 2008-12 and a national goal to move towards a 20% reduction in carbon dioxide emissions below 1990 levels by 2010. The Energy White Paper announced that the Government had accepted the Royal Commission on Environmental Pollution's recommendation that "the UK should put itself on a path to a reduction in carbon dioxide emissions of some 60% from current levels by about 2050".<sup>9</sup>

16. The White Paper also states that transport (including aviation) produces about one quarter of the UK's total carbon emissions and of this, 85% comes from road transport.<sup>10</sup> The White Paper outlines a number of steps that the Government will take in order to tackle transport emissions, including encouraging improvements in fuel efficiency, encouraging freight transport to shift from road to other forms of transport and supporting the development of hydrogen-powered fuel cells.<sup>11</sup> The Paper says that "fuels made from biomass represent an important potential route for achieving the goal of zero-carbon transport, creating new opportunities for agriculture in the UK as well as globally".<sup>12</sup>

17. If we compare burning biofuels with burning fossil fuels, biofuels can contribute towards reducing emissions of carbon dioxide. This is because, as they burn, they release no more carbon dioxide than was absorbed during growth by the plants from which they derive. In other words, the total contribution of carbon dioxide to the atmosphere is zero over the timescale of the growth of the crop and the use of the fuel. This is in contrast to burning fossil fuels, which releases carbon that has been locked away from the atmosphere for millions of years and therefore makes a net contribution to the concentration of carbon dioxide in today's atmosphere.

18. The carbon savings offered by biofuels may be offset to some extent by carbon emissions incurred over the life-cycle of the fuels. For example, there are carbon emissions associated with growing the crop, transporting it and processing it into fuel, which should be factored into the environmental performance of the fuel. How much of the carbon savings are lost varies with the crop used and the processing methods. A recent report by

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<sup>9</sup> *Our energy future – creating a low carbon economy*, Cm 5761, February 2003, para 2.12.

<sup>10</sup> *Our energy future – creating a low carbon economy*, Cm 5761, February 2003, para 5.1.

<sup>11</sup> *Our energy future – creating a low carbon economy*, Cm 5761, February 2003, chapter 5.

<sup>12</sup> *Our energy future – creating a low carbon economy*, Cm 5761, February 2003, p.69.

Sheffield Hallam University found that net savings of 71% in carbon dioxide emissions could be realised by replacing ultra low sulphur diesel with biodiesel produced from oilseed rape and that net savings of 70% in carbon dioxide emissions could arise from the substitution of unleaded petrol with bioethanol produced from wheat. Bioethanol produced from lignocellulosic (i.e. woody) material, in the form of wheat straw could be, effectively, “carbon neutral”.<sup>13</sup>

## Imports

19. The energy efficiency of biofuels, that is, the ratio of the energy used in production of the fuel to the energy available in the fuel, is also an important consideration. The energy efficiency of temperate crops such as wheat has been improved through breeding and better agricultural practices, but tropical crops are generally more efficient because they use a different photosynthetic pathway that allows them to make the most of the high light intensities at which they are grown.<sup>14</sup>

20. This greater energy efficiency and the fact that other costs, such as labour and transport, are often lower in tropical countries mean that biofuels produced from tropical crops such as sugar cane or palm oil will often be cheaper than those produced from temperate crops. For example, a report for the East of England Development Agency found that imported bioethanol from Brazil would be 10 pence per litre cheaper than that made from United Kingdom wheat and sugar beet.<sup>15</sup>

21. In response to this, Lord Whitty argued that “producing biofuels close to end users minimises costs and adverse environmental impacts of transporting the fuel long distances. Home-grown fuels also improve fuel security through lesser reliance on imports”. Specifically addressing biodiesel, he told us that “although other types of vegetable and animal oils (e.g. palm oil, tallows) can be produced at commercial rates elsewhere in the world, there are real difficulties in getting them to meet the high quality standards obtainable by rape-based biodiesel”.<sup>16</sup>

22. Potential United Kingdom producers of bioethanol and biodiesel were confident that they would be able to compete with imports. British Sugar said

“we see absolutely no reason why we should not be able to compete with very low cost producers of bioethanol wherever they are in the world”<sup>17</sup>

Moreover, British Sugar argued that, although “imports will undoubtedly feature commercially in any European industry [...] their international availability is likely to be scarce for the foreseeable future as most supplies will be needed for domestic use”.<sup>18</sup> By contrast, bioethanol producers in Brazil told us that their industry would be able to expand

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<sup>13</sup> Ev 131.

<sup>14</sup> Q 176.

<sup>15</sup> *Impacts of creating a domestic bioethanol industry*, East of England Development Agency, June 2003

<sup>16</sup> Ev 89.

<sup>17</sup> Q 42.

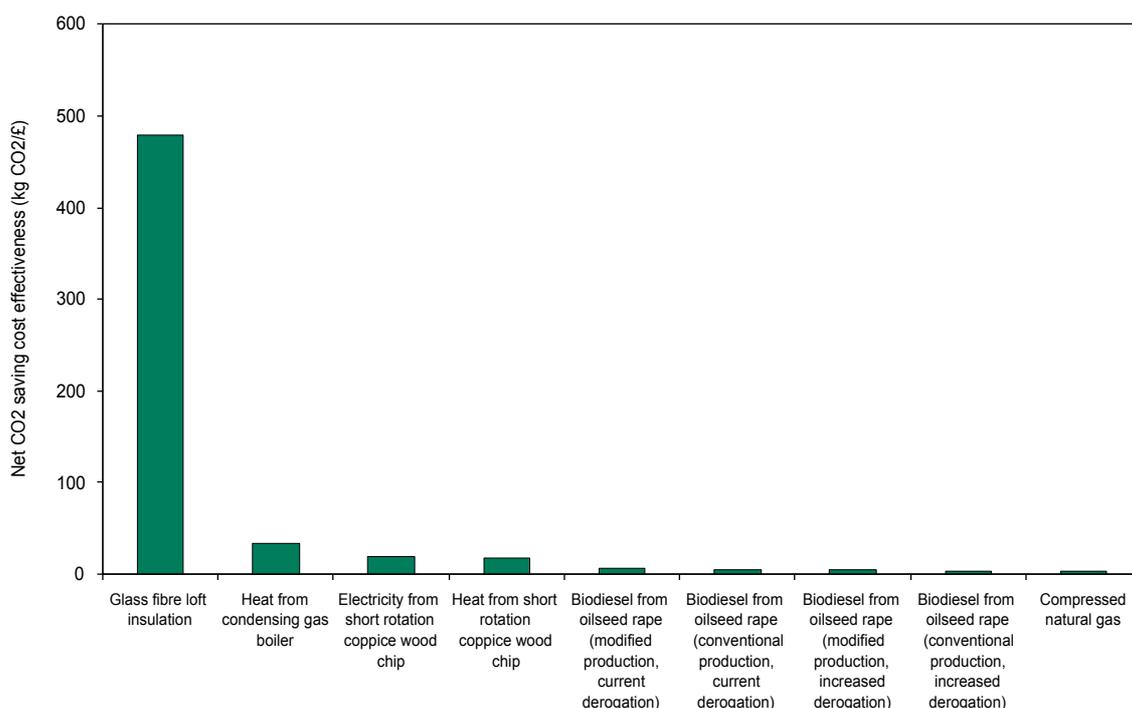
<sup>18</sup> Ev 8.

to meet much of the anticipated demand for bioethanol in countries such as Germany and Japan.

23. The United Kingdom could make carbon savings by using biofuels, even if those fuels were produced from crops grown elsewhere, although the emissions associated with transport of the crop and fuel would reduce the savings to some extent.<sup>19</sup> So, if the main purpose of encouraging the use of biofuels is to reduce carbon dioxide emissions, it would make sense to use the fuels that can be produced most cheaply and efficiently, even if these are imported. If, on the other hand, the Government wishes to maximise the other benefits offered by biofuels, it will need to promote a UK-based industry.

### *Other mechanisms for cutting carbon emissions*

24. Biofuels are of course not the only mechanism available to the Government for cutting carbon emissions. Analyses carried out by Sheffield Hallam University showed that, in terms of cost effectiveness, glass fibre loft insulation rated very highly and biofuels rated somewhat lower than condensing gas boilers and the production of heat and power from short rotation coppice.<sup>20</sup> Their results are reproduced below.



25. These kinds of analyses have led some of our witnesses to the view that Government should concentrate its efforts elsewhere. The United Kingdom Petroleum Industries Association, for example, believes that biomass “is used most effectively in the production of primary energy [...] it can achieve, in terms of CO<sub>2</sub> abated per hectare, between four and

<sup>19</sup> Q 224.

<sup>20</sup> Evaluation of the comparative energy, global warming and socio-economic costs and benefits of biodiesel, N. D. Mortimer, P. Cormack, M. A. Elsayed and R. E. Horne, Sheffield Hallam University, January 2003.

eight times the savings that can be achieved if it is used as road transport fuel<sup>21</sup>, in other words, that it would be better to burn the crops to provide heat and power than convert them into transport fuels. English Nature recommended that the Government compare the long term economic sustainability of investing public money in supporting biofuels with investing in other forms of renewable energy, energy efficiency measures and demand management measures for energy.<sup>22</sup>

26. However, we note that evidence collated for the Energy White Paper indicated that the costs per tonne of carbon saved of biodiesel production are broadly comparable to those for electricity generation using offshore wind turbines, a technology of which the Government is highly supportive.<sup>23</sup> **The Treasury should publish clear data showing the current and future levels of taxpayer subsidy aimed at promoting a renewable energy industry. Such information would enable a better informed debate to take place as to how a broad based renewable strategy should develop.**

27. In any case, until hydrogen fuel cells become commercially viable, biofuels represent the principal means of using renewable energy to power road transport. In addition, the Treasury told us that

“looking at the climate change challenge we believe that every sector ought to be making some contribution, so we are prepared to see what is in effect a more costly programme to make environmental gains through biofuels in the transport sector than we would be through biofuels in electricity generation, or arguably the same amount of money going into things like loft insulation and other forms of carbon saving”.<sup>24</sup>

28. **Although increasing the use of biofuels may not be the most efficient way to reduce greenhouse gas emissions when considering the whole economy, we agree with the Treasury that all sectors should make a contribution towards reducing the United Kingdom’s emissions. Biofuels offer one attractive means of doing so for transport, although other measures such as engine efficiency and managing the demand for road transport are also important.**

## Conservation

29. One of Defra’s objectives is to “protect and improve the rural, urban, marine and global environment”.<sup>25</sup> The role to be played by biofuels in the conservation of landscapes, habitats and species is complex. Looking at crops grown in the United Kingdom, English Nature said that “there is ecological evidence to suggest that oilseed rape (OSR) is a relatively beneficial crop for biodiversity”, although it noted that “spring-sown OSR would be vastly preferable to autumn-sown rape”.<sup>26</sup> However, winter wheat, which could be used to produce bioethanol “is generally a poor crop for biodiversity, so any further expansion

<sup>21</sup> Q 102.

<sup>22</sup> Ev 144.

<sup>23</sup> Ev 89.

<sup>24</sup> Q 300.

<sup>25</sup> Department for Environment, Food and Rural Affairs Departmental Report 2003, May 2003, Cm 5919.

<sup>26</sup> Ev 145.

in the area of this crop could reduce chances of the United Kingdom reaching targets on Biodiversity Action Plan species and the Farmland Birds PSA [Public Service Agreement]”.<sup>27</sup>

30. The RSPB is “concerned that the expansion of energy crop cultivation without a strategic impact assessment could cause considerable damage to our biodiversity”.<sup>28</sup> It says that “set-aside land currently provides important benefits for United Kingdom biodiversity, particularly for wintering and breeding birds [...]. An expansion in the area of set-aside land being lost to bioenergy crops, such as autumn-sown industrial oilseed rape, is likely to further exacerbate the major population declines experienced by birds such as skylark, lapwing, finches and buntings in recent decades”.<sup>29</sup>

31. Such issues are not restricted to the United Kingdom: tropical biofuel crops may have negative impacts on habitats and biodiversity in the countries in which they are grown. For example, WWF has expressed concern that expansion of oil palm plantations, whose produce is used in biodiesel production in the United Kingdom and elsewhere, may be contributing to deforestation in Indonesia.<sup>30</sup>

**32. There is not yet clear enough evidence of what will be the impact of expanding biofuels production on habitats and biodiversity here and elsewhere: but the prospect of greatly increased planting of autumn-sown oilseed rape or winter wheat causes understandable concern. We call on the Government to commission a full scientific study to assess the effects on biodiversity of expanding the cultivation of biofuel crops.**

## Sustainable farming

33. Defra’s Strategy for Sustainable Farming and Food says that “opportunities for diversification within farming can have benefits in maximising income”. It also says that, because of this, the Government is “committed to extending the competitive non-food uses of crops”.<sup>31</sup> Defra says that “new economic activity from the expansion of non-food crops will protect and create jobs in farming and in the industries associated with farming”.<sup>32</sup>

34. The NFU agrees that diversifying into non-food crops can allow “agriculture to access a variety of new markets, and to reduce its dependence upon the food commodity markets”.<sup>33</sup> It is optimistic about the opportunities this will offer to farmers, “from now on under the implementation of the CAP reforms he [the farmer] will be growing for whichever market suits him the best. The opportunities are endless and interchangeable. [...] The opportunities are there for the farmer to aim for the market because he is no longer structured by having to aim for a brown envelope with taxpayers’ money in it”.<sup>34</sup>

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<sup>27</sup> Ev 146.

<sup>28</sup> Ev 132.

<sup>29</sup> Ev 132.

<sup>30</sup> *Oil palm plantations and deforestation in Indonesia – what role do Europe and Germany play?* WWF Germany in collaboration with WWF Indonesia and WWF Switzerland. November 2002.

<sup>31</sup> *The strategy for sustainable farming and food: facing the future*, Defra, 2002, p. 20.

<sup>32</sup> Ev 78.

<sup>33</sup> Ev 25.

<sup>34</sup> Q 61.

35. However, the Treasury made it clear that support for biofuels was not to be seen as a mechanism for subsidising production in farming.<sup>35</sup> The benefits for farmers will depend on the market for their crops and on support via the Common Agricultural Policy.

36. A report for Defra said that “the prices being discussed within the industry for oilseed rape for biodiesel production are in the region of £8-12/tonne less than those likely to be available for conventional markets. [...] Those wishing to procure stocks hope that that the offer of long-term supply contracts will encourage farmers to produce biofuels crops”.<sup>36</sup>

37. British Sugar said that, providing the industry had the right level of support, it “would be able to contract with farmers at a price which we feel would be reasonably acceptable to them”. It said that the price for wheat would be £75 per tonne, which it said was slightly higher than current United Kingdom and world market prices.<sup>37</sup>

38. British Sugar and Cargill emphasised that the main benefit to farmers would be an increase in demand for their products.<sup>38</sup> This, of course, would only be the case if biofuels were produced from United Kingdom crops, but there might be potential for United Kingdom farmers to export their crops to be processed elsewhere, as happens already to some extent.<sup>39</sup>

39. The importance of biofuel crops in supporting farm incomes depends to a large degree on how the Common Agricultural Policy is reformed. Until now, a high proportion of energy crops has been grown on set-aside land, because farmers could still receive set-aside payments when these crops are grown. For example in 2002 the United Kingdom produced around 79,000 hectares (ha) of industrial oilseed rape, of which more than 50,000 ha were on set-aside land.<sup>40</sup> Under the CAP reform agreement of 26 June 2003, energy crops will be supported by payment of 45 Euro per hectare, but the total area of land that can receive this payment is capped at 1.5 million ha. Energy crops may continue to be grown on set-aside land, but, apart from short-rotation coppice, will not be eligible for the Euro 45 payment in addition to the set-aside payment.<sup>41</sup>

**40. While we welcome the development of new markets for crops and opportunities for farmers to diversify and respond to market demands, we have not seen enough evidence to allow us to make an accurate assessment of what impact increasing the use of biofuels would have on farm incomes. We recommend that Defra, as a matter of urgency, carry out an economic appraisal of the effect that a UK-based biofuels industry would have on farming.**

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<sup>35</sup> Q 326.

<sup>36</sup> *Liquid biofuels – industry support, cost of carbon savings and agricultural implications*, report for Defra Organic Farming and Industrial Crops Division by CSL< ADAS and Ecofys, August 2003.

<sup>37</sup> Q 34.

<sup>38</sup> Q 40.

<sup>39</sup> Q 42.

<sup>40</sup> Ev 25, Ev 77.

<sup>41</sup> *Impacts of Creating a Domestic Bioethanol Industry*, East of England Development Agency, June 2003, p. 70.

## Rural development

41. The Government's Rural White Paper outlined a vision of "a working countryside, with a prosperous and diverse economy, giving high and stable levels of employment".<sup>42</sup> Defra has a Public Service Agreement target to reduce the gap in productivity between the least well performing quartile of rural areas and the English median by 2006.<sup>43</sup>

42. The organisations that are arguing for greater support for biofuels told us that United Kingdom-based biofuel production had the potential to create jobs, most of which would be in rural areas. British Sugar suggested that "some 20-30,000 jobs could be created from the development of a 1.2 million tonne [5% inclusion] British bioethanol industry".<sup>44</sup> Cargill said "the development of a domestic United Kingdom biodiesel industry would create new employment and sustain existing jobs in Cargill's Liverpool plant, where our biodiesel production process would be based".<sup>45</sup>

43. However, a recent report for Defra said that "the direct levels of employment created are low". It said that around two jobs are likely to be created in agriculture per 1000 tonnes of biodiesel production and about 5.5 jobs per 1000 tonnes of bioethanol production. The report said "few additional jobs are created in biofuel processing. A 100,000 tonne biodiesel plant would employ in the region of 62 staff [...] a similar sized bioethanol plant would employ 50-55 staff, plus a further 16-28 in fuel blending and transport".<sup>46</sup>

44. The impact of increasing the use of biofuels on the rural economy depends in part of the sources of the fuel. A report for the East of England Development Agency found that imports would have a low impact on the value added to the United Kingdom economy, and on United Kingdom employment. It said that "gasoline and imported wheat generate the least employment impact, whereas SRC [short rotation coppice], forestry and miscanthus feedstocks are responsible for the highest levels of employment generated. These high levels are mainly due to the indirect labour effects. Employment generation for wheat, sugar beet and wheat straw feedstocks are also influenced by indirect labour and by the direct labour generated in the feedstock production stages".<sup>47</sup> **Estimates of the number of jobs that would be created by a UK-based biofuels industry vary widely. The extent to which a domestic industry would boost rural prosperity is of crucial importance in determining whether home-grown or imported biofuels should be used. We call on all parties involved to publish robust models with which to back up their claims.**

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<sup>42</sup> Our Countryside: the Future – a Fair Deal for Rural England, DETR. November 2000, Cm 4909.

<sup>43</sup> Department for Environment, Food and Rural Affairs Departmental Report 2003, May 2003, Cm 5919.

<sup>44</sup> Ev 6.

<sup>45</sup> Ev 3.

<sup>46</sup> *Liquid biofuels – industry support, cost of carbon savings and agricultural implications*. Report prepared for Defra Organic Farming and Industrial Crops Division by Central Science laboratory, ADAS and Ecofys, August 2003.

<sup>47</sup> *Impacts of creating a domestic bioethanol industry*, East of England Development Agency, June 2003, p.10.

## 3 Biofuels directive

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45. In order to encourage greater use of biofuels, the EU has adopted a Directive which sets indicative targets of 2% substitution of petrol and diesel with biofuels by the end of 2005 and 5.75% substitution in 2010.<sup>48</sup> As we have already said, this amounts to around nine per cent by volume.<sup>49</sup> Member States must set their own targets and report to the European Commission on progress towards them. They are expected to justify any departure from the reference targets. The Directive outlines possible reasons why a Member State may set different targets, including allocation of resources to the use of biomass to provide energy in other ways or to other sources of renewable power for transport.

46. The Government has said that it intends to consult over what targets it should set for 2005 and 2010 during the first half of 2004.<sup>50</sup> That leaves too little time between the consultation and the delivery of the first target for farmers to plant and harvest their crops and for any extra processing capability to be brought on line. This leads us to suspect that the Government is unlikely to set itself very ambitious targets, at least for the first deadline. **Whatever targets the Government chooses to set under the Biofuels Directive, it must make firm decisions quickly if farmers and processors are to be able to plant crops and build processing plant in time to meet the targets.**

## 4 Options for supporting biofuels

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47. The Treasury takes the view that the case for greater support for the biofuels industry has not been proven. Mr Healey, the Economic Secretary, told us that,

“as a government we are not convinced that the 20p cut will not produce the developments that we are looking for. There is also a question over whether the duty incentive is the right policy instrument to support the development of a new industry, which is what it would be within the United Kingdom. I also think that there are some flaws, or certainly some areas of serious question about the kind of calculations that some of the prospective producers and manufacturers offer to support the claim that they must have a duty discount of more than 20p”.<sup>51</sup>

48. Defra, on the other hand, said that the current fiscal incentive for biofuels production “is not sufficient to mobilise the amount of biodiesel or bioethanol which would be needed for the 5.75 per cent figure in the EU Directive, it might just be enough to reach the two per cent”.<sup>52</sup> Lord Whitty told us that if the United Kingdom were to meet the higher targets set

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<sup>48</sup> Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport. Official Journal L 123, 17 May 2003.

<sup>49</sup> Q 111-112.

<sup>50</sup> HC Deb, 17 July 2003, col 605-6W.

<sup>51</sup> Q 276.

<sup>52</sup> Q 223.

out in the Biofuels Directive, the Government would need to consider offering a greater fiscal incentive or making some level of biofuels inclusion mandatory.<sup>53</sup>

49. The Treasury has expressed concern that if the duty on biofuels were lowered before a domestic industry had been established the effect would simply be to draw in imports of biofuels.<sup>54</sup> As we have discussed above, although imported fuels may offer similar environmental benefits to domestically produced fuels, they do not offer the same benefits to the United Kingdom's rural economy. **We share the Treasury's view that a greater level of duty derogation on biofuels introduced now would be more likely to encourage imports of biofuels than the development of domestic production.**

**50. If the Government decides to increase the support available for the production of biofuels, any such support must be designed to achieve the underlying policy goal it has set. For example, an increase in the duty derogation may encourage imports, but this may not matter if the prime policy goal is to reduce emissions. If the Government wants to further its rural development objectives as well, a combination of other instruments such as grants to support capital investment may be necessary.**

51. The East of England Development Agency's report on the impacts of creating a domestic bioethanol industry found that further incentives would be needed before such an industry could develop. It outlined a number of ways that the Government could support the industry: a further reduction in duty; the present level of duty cut combined with capital grants to offset some of the initial expenditure on processing infrastructure; or the present level of duty cut with a Transport Fuels Obligation applied to all United Kingdom fuels suppliers under which they are required to bridge the funding gap (which would mean that most of the gap would be met by the consumer).<sup>55</sup>

52. Although any of these alternatives might be suitable for the bioethanol industry, the initial capital expenditure necessary for biodiesel production is not as great and so the grants plus the current duty cut model would not be as effective in supporting the development of biodiesel production as a greater cut in duty.<sup>56</sup>

53. It is worth noting in this context that the Government has set the level of duty on road fuel gases such as liquid petroleum gas at 9p/kg, which is equivalent to 6.5p/litre and a duty derogation of about 40p/litre,<sup>57</sup> on the basis of its environmental performance. In our view, the environmental performance of biofuels is at least as good as that of liquid petroleum gas.

54. The Government told us that setting mandatory levels for biofuels inclusion was among the options it was considering, but that it had not yet reached a conclusion.<sup>58</sup> Cargill estimated that for biodiesel, the introduction of a mandatory inclusion level would cost the consumer less than a quarter of a penny more than the price of conventional diesel.<sup>59</sup>

<sup>53</sup> Q 221.

<sup>54</sup> Q 279.

<sup>55</sup> Ev 116.

<sup>56</sup> Q 21.

<sup>57</sup> Budget 2001, IPPR press release 25 June 2003.

<sup>58</sup> Q 302.

<sup>59</sup> Q 10.

However this figure was disputed by the UK Petroleum Industry Association, which also argued that consumers would not welcome any increase in the price of fuel.<sup>60</sup> **If the Treasury is not prepared to subsidise the biofuels industry directly, it should evaluate different strategies for minimum cost introduction of biofuels, while making the price attractive to consumers.**

## 5 The role of Government

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55. Responsibility for biofuels policy is shared between five Government departments: Defra, Department of Trade and Industry, Department for Transport, Customs and Excise and the Treasury.<sup>61</sup> Lord Whitty told us that no single department took the lead.<sup>62</sup> Instead there is

“an overall committee in Government following up the Energy White Paper and also as far as the transport side is concerned on low carbon fuels, within that different departments have different responsibilities: Defra is responsible for the agriculture-environmental dimension, air quality and climate change, et cetera and agricultural production and agricultural markets; broadly speaking the DTI is responsible for the technology and the capital investment and the DfT is responsible for the vehicle fuel dimension, although they do act very closely with Defra in that respect as well. As we have just been touching on, at the end of the day the Treasury is responsible for all the fiscal side”.<sup>63</sup>

56. Lord Whitty told us that the group of Ministers examining the biofuels issue meets about every three months, although officials meet very frequently.<sup>64</sup> **It is clear from the evidence we took from Defra and the Treasury that the departments involved do not speak with one voice. In a policy area such as this it is inevitable that different departments will each have a legitimate interest and perhaps different priorities. However, we deplore the fact that the Government has not nominated any one Department to lead on biofuels and consider that this is a prime reason for the slow progress that has been made in this area.**

57. **The debate about the need for Government support for domestic biofuels production has been going on for some time without reaching a firm conclusion. The Government’s biofuels policy still appears to be muddled and unfocussed: it has expressed support for biofuels but the mechanisms used to promote their use have had little effect so far.**

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<sup>60</sup> Q 126.

<sup>61</sup> Q 13.

<sup>62</sup> Q 226.

<sup>63</sup> Q 225.

<sup>64</sup> Qq 232-234.

58. The Government must make a series of decisions regarding its biofuels policy. A clear declaration of the policy's ultimate goal is a necessary precursor to deciding what the respective roles of imports and domestic production should be.

59. The strongest argument for increasing the use of biofuels in this country might be that they can contribute to reducing greenhouse gas emissions in the transport sector, which is otherwise not yet open to the use of renewable power. However, it may be cheaper and more effective to reduce transport emissions by increasing engine efficiency and reducing reliance on road transport. If the Government decides that the emissions argument warrants support for increased use of biofuels, then it must choose whether it wishes to encourage the development of a domestic industry or whether imported fuels or crops could deliver the same benefit at lower cost.

60. In our view the sustainability of a domestic industry is still open to question. Crops grown for biofuels could deliver benefits to our landscape and biodiversity if planned carefully, but some crops could present a threat to biodiversity here or abroad. **We encourage Defra to work closely with the statutory conservation agencies to find ways to maximise the benefits biofuels can offer to conservation and to minimise the negative impacts associated with some biofuel crops. If imported crops, or fuels derived from them, are to furnish a significant proportion of the biofuels used in the United Kingdom, we encourage Defra to develop cost effective ways of auditing their environmental impact in the countries in which they are produced.**

61. We do not know with any certainty how great the benefits to the rural economy, including farmers, are likely to be. However it may be that, in combination with the other possible benefits, the possible boost to the rural economy is enough to convince the Government to favour domestically produced biofuels over imported ones. **Defra has responsibility for championing sustainable development within Government. The development of a sensible biofuels policy could provide a good showcase for the Department's thinking in this area. Defra should set out how the various environmental, economic and social costs and benefits represented by the different options have been weighed against one another. This would allow the Department's stakeholders to judge the policy fairly. At present it appears that the Government is still testing the waters with regard to supporting the development of a domestic biofuels industry and the current level of support reflects this ambivalent attitude. The Government should recognise that compared to other forms of renewable energy, either imported or domestically produced, agriculturally derived biofuels do represent a predictable and secure source of energy and this fact should be given due weight in deciding future policy in this area.**

## Conclusions and recommendations

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1. We too would like to see how Government balances the considerations of the environment, the economy and society in developing its policy on biofuels. (Paragraph 13)
2. The Treasury should publish clear data showing the current and future levels of taxpayer subsidy aimed at promoting a renewable energy industry. Such information would enable a better informed debate to take place as to how a broad based renewable strategy should develop. (Paragraph 26)
3. Although increasing the use of biofuels may not be the most efficient way to reduce greenhouse gas emissions when considering the whole economy, we agree with the Treasury that all sectors should make a contribution towards reducing the United Kingdom's emissions. Biofuels offer one attractive means of doing so for transport, although other measures such as engine efficiency and managing the demand for road transport are also important. (Paragraph 28)
4. There is not yet clear enough evidence of what will be the impact of expanding biofuels production on habitats and biodiversity here and elsewhere: but the prospect of greatly increased planting of autumn-sown oilseed rape or winter wheat causes understandable concern. We call on the Government to commission a full scientific study to assess the effects on biodiversity of expanding the cultivation of biofuel crops. (Paragraph 32)
5. While we welcome the development of new markets for crops and opportunities for farmers to diversify and respond to market demands, we have not seen enough evidence to allow us to make an accurate assessment of what impact increasing the use of biofuels would have on farm incomes. We recommend that Defra, as a matter of urgency, carry out an economic appraisal of the effect that a UK-based biofuels industry would have on farming. (Paragraph 40)
6. Estimates of the number of jobs that would be created by a UK-based biofuels industry vary widely. The extent to which a domestic industry would boost rural prosperity is of crucial importance in determining whether home-grown or imported biofuels should be used. We call on all parties involved to publish robust models with which to back up their claims. (Paragraph 44)
7. Whatever targets the Government chooses to set under the Biofuels Directive, it must make firm decisions quickly if farmers and processors are to be able to plant crops and build processing plant in time to meet the targets. (Paragraph 46)
8. We share the Treasury's view that a greater level of duty derogation on biofuels introduced now would be more likely to encourage imports of biofuels than the development of domestic production. (Paragraph 49)
9. If the Government decides to increase the support available for the production of biofuels, any such support must be designed to achieve the underlying policy goal it has set. For example, an increase in the duty derogation may encourage imports, but

this may not matter if the prime policy goal is to reduce emissions. If the Government wants to further its rural development objectives as well, a combination of other instruments such as grants to support capital investment may be necessary. (Paragraph 50)

10. If the Treasury is not prepared to subsidise the biofuels industry directly, it should evaluate different strategies for minimum cost introduction of biofuels, while making the price attractive to consumers. (Paragraph 54)
11. It is clear from the evidence we took from Defra and the Treasury that the departments involved do not speak with one voice. In a policy area such as this it is inevitable that different departments will each have a legitimate interest and perhaps different priorities. However, we deplore the fact that the Government has not nominated any one Department to lead on biofuels and consider that this is a prime reason for the slow progress that has been made in this area. (Paragraph 56)
12. The debate about the need for Government support for domestic biofuels production has been going on for some time without reaching a firm conclusion. The Government's biofuels policy still appears to be muddled and unfocussed: it has expressed support for biofuels but the mechanisms used to promote their use have had little effect so far. (Paragraph 57)
13. We encourage Defra to work closely with the statutory conservation agencies to find ways to maximise the benefits biofuels can offer to conservation and to minimise the negative impacts associated with some biofuel crops. If imported crops, or fuels derived from them, are to furnish a significant proportion of the biofuels used in the United Kingdom, we encourage Defra to develop cost effective ways of auditing their environmental impact in the countries in which they are produced. (Paragraph 60)
14. Defra has responsibility for championing sustainable development within Government. The development of a sensible biofuels policy could provide a good showcase for the Department's thinking in this area. Defra should set out how the various environmental, economic and social costs and benefits represented by the different options have been weighed against one another. This would allow the Department's stakeholders to judge the policy fairly. At present it appears that the Government is still testing the waters with regard to supporting the development of a domestic biofuels industry and the current level of support reflects this ambivalent attitude. The Government should recognise that compared to other forms of renewable energy, either imported or domestically produced, agriculturally derived biofuels do represent a predictable and secure source of energy and this fact should be given due weight in deciding future policy in this area. (Paragraph 61)

# Minutes of proceedings

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**Wednesday 29 October 2003**

Members present:

Mr David Curry, in the Chair

Ms Candy Atherton	Mr Austin Mitchell
Mr Colin Breed	Diana Organ
Mr David Drew	Joan Ruddock
Patrick Hall	Alan Simpson
Mr Michael Jack	Paddy Tipping
Mr Mark Lazarowicz	Mr Bill Wiggin
Mr David Lepper	

The Committee deliberated.

Draft Report [*Biofuels*], proposed by the Chairman, brought up and read.

*Ordered*, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 61 read and agreed to.

Summary read and agreed to.

*Resolved*, That the Report be the Seventeenth Report of the Committee to the House.

*Ordered*, That the Chairman do make the Report to the House.

Several Papers were ordered to be appended to the Minutes of Evidence.

*Ordered*, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.—(*The Chairman*).

Several Memoranda were ordered to be reported to the House.

The Committee further deliberated.

[Adjourned till Wednesday 5 November at a quarter past Two o'clock.]

## Witnesses

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### Wednesday 2 July 2003

Page

Chris Carter and Gary Punter, **British Sugar**; and Ruth Rawling and Peter Smith, **Cargill plc** Ev 12

Sir Ben Gill, Rad Thomas and Nick Starkey, **National Farmers' Union of England and Wales** Ev 29

### Wednesday 10 September 2003

Malcolm Webb and Malcolm Watson, **United Kingdom Petroleum Industry Association**; Steven Brown, **Shell Europe Oil Products** and Stephen Thomason, **Petroplus UK** Ev 42

Philip Wolfe, **Renewable Power Association**, Malcolm Chilton, **Energy Power Resources Ltd**, Alan Raymant, **Powergen UK plc**, Peter Dickson, **United Utilities Green Energy Limited**, and Robert Smith, **Renewable Fuels Ltd** Ev 53

Dr Paul Rylott, **Agricultural Biotechnology Council**, and Dr Colin Merritt, **Monsanto** Ev 63

### Monday 15 September 2003

Richard Wakeford and Charles Secrett, **Sustainable Development Commission** Ev 70

Lord Whitty and Andrew Perrins, **Department for Environment, Food and Rural Affairs** Ev 82

### Wednesday 17 September 2003

John Healey MP, **HM Treasury** Ev 91

## List of written evidence

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Cargill plc	Ev 1, 21, 22
British Sugar plc	Ev 5
National Farmers' Union of England and Wales	Ev 25,36
United Kingdom Petroleum Industry Association Limited (UKPIA)	Ev 37,48
Renewable Power Association	Ev 49,58
Agricultural Biotechnology Council (abc)	Ev 59
Sustainable Development Commission	Ev 68
Department for Environment, Food and Rural Affairs	Ev 76,88
HM Treasury	Ev 103
John Amos & Co	Ev 106
NSCA (National Society for Clean Air and Environmental Protection)	Ev 107
Robin Twizell	Ev 108
TL de Winne MF, Allied Biodiesel Industries (UK)	Ev 109
BP	Ev 112
Powergen	Ev 113
East of England Development Agency	Ev 114
BASF plc	Ev 120
Greenergy	Ev 123,127
Forestry & Timber Association (FTA)	Ev 128
Norman Blyth	Ev 129
Geoff Brown, Herdwick Sheep Breeders' Association	Ev 130
Sheffield Hallam University	Ev 131
Royal Society for the Protection of Birds	Ev 132
The Sheep Trust	Ev 135
Family Farmers' Association	Ev 136
Government-Industry Forum on Non-Food Uses of Crops	Ev 138
logen Corporation	Ev 141
English Nature	Ev 144
British Biogen	Ev 149
The British Association for Biofuels and Oils (BABFO)	Ev 152,154
Country Land and Business Association	Ev 155
United Utilities	Ev 162

## List of unprinted written evidence

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Additional papers have been received from the following and have been reported to the House but to save printing costs they have not been printed and copies have been placed in the House of Commons library where they may be inspected by members. Other copies are in the Record Office, House of Lords and are available to the public for inspection. Requests for inspection should be addressed to the Record Office, House of Lords, London SW1. (Tel 020 7219 3074) hours of inspection are from 9:30am to 5:00pm on Mondays to Fridays.

National Society for Clean Air and Environmental Protection

Tim Stevens

Sheffield Hallam University

Renewable Power Association (Annex)

## Reports from the Committee since 2001

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### Session 2002–03

Sixteenth Report	Vets and Veterinary Services	HC 703
Fifteenth Report	New Covent Garden Market: a follow-up	HC 901
Fourteenth Report	Gangmasters	HC 691
Thirteenth Report	Poultry Farming in the United Kingdom ( <i>Reply, HC 1219</i> )	HC 779-I
Twelfth Report	The Departmental Annual Report 2003 ( <i>Reply, HC 1175</i> )	HC 832
Eleventh Report	Rural Broadband ( <i>Reply, HC 1174</i> )	HC 587
Tenth Report	Horticulture Research International ( <i>Reply, HC 1086</i> )	HC 873
Ninth Report	The Delivery of Education in Rural Areas ( <i>Reply, HC 1085</i> )	HC 467
Eighth Report	The Future of Waste Management ( <i>Reply, HC 1084</i> )	HC 385
Seventh Report	Badgers and Bovine TB ( <i>Reply, HC 831</i> )	HC 432
Sixth Report	Rural Payments Agency ( <i>Reply, HC 830</i> )	HC 382
Fifth Report	The Countryside and Rights of Way Act 2000 ( <i>Reply, HC 748</i> )	HC 394
Fourth Report	Water Framework Directive ( <i>Reply, HC 749</i> )	HC 130
Third Report	The Mid-term Review of the Common Agricultural Policy ( <i>Reply, HC 615</i> )	HC 151
Second Report	Annual Report of the Committee 2002	HC 269
First Report	Reform of the Common Fisheries Policy ( <i>Reply, HC 478</i> )	HC 110

### Session 2001–02

Tenth Report	The Role of Defra ( <i>Reply, HC 340, Session 2002-03</i> )	HC 991
Ninth Report	The Future of UK Agriculture in a Changing World ( <i>Reply, HC 384, Session 2002-03</i> )	HC 550
Eighth Report	Hazardous Waste ( <i>Reply, HC 1225</i> )	HC 919
Seventh Report	Illegal Meat Imports ( <i>Reply, HC 1224</i> )	HC 968
Sixth Report	Departmental Annual Report 2002 ( <i>Reply, HC 1223</i> )	HC 969
Fifth Report	Genetically Modified Organisms ( <i>Reply, HC 1222</i> )	HC 767
Fourth Report	Disposal of Refrigerators ( <i>Reply, HC 1226</i> )	HC 673
Third Report	Radioactive Waste: The Government's Consultation Process ( <i>Reply, HC 1221</i> )	HC 407
Second Report	The Countryside Agency ( <i>Reply, HC 829</i> )	HC 386
First Report	The Impact of Food and Mouth Disease ( <i>Reply, HC 856</i> )	HC 323