

## Renewable Fuels Agency: Review of Indirect Effects of Biofuels

### Progress Bulletin 1 8<sup>th</sup> April 2008

#### 1. Background

The Renewable Fuels Agency (RFA) is currently undertaking a review into the indirect effects of biofuels as requested by Ruth Kelly, UK Secretary of State for Transport, on 21 February<sup>1</sup>. It is based upon the Terms of Reference for the study published by the Government on 12 March and attached in Annex A.

The Review is narrowly focused upon new and emerging evidence on the displacement effects of biofuels. This is in recognition of substantial previous work on biofuel sustainability concerns and the tight timescale for delivery of the Review.

The Review will be evidence-based examining the impacts of rising demand for biofuels upon land-use and specifically effects upon the net greenhouse gas (GHG) savings taking into account potential direct and indirect land changes. It will also address the extent to which increasing demand for biofuels is driving increasing food commodity prices and food insecurity for the most vulnerable members of society.

#### 2. Key questions

The Review will consider recent and anticipated future demand and supply scenarios to 2020 and the effects of these compared to a baseline that should take account of other land change drivers. It will specifically seek to address six key questions:

1. What are the key drivers of land use change and food insecurity to date and to what extent is increasing demand for biofuels significant?
2. To what extent may global demand for biofuels contribute to land use change and food insecurity to 2020 given known current and proposed targets and anticipated future commodity prices?
3. How are GHG-savings from biofuels affected by displaced agricultural activity and resulting land-use change taking into account the introduction of possible new technologies and other changes in land productivity and cultivation and production methods?
4. What are the sustainability risks associated with different levels and forms of biofuel targets to 2020 for a range of supply scenarios?
5. What policies can mitigate the potential negative indirect effects of biofuels on land-use change and food security?

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<sup>1</sup><http://www.gnn.gov.uk/environment/fullDetail.asp?ReleaseID=354445&NewsAreaID=2&NavigatedFromDepartment=False>

6. What further work would help to monitor and evaluate displacement effects of biofuels?

### **3. Work programme elements**

The work programme comprises the following elements and timescales as shown below:

- An initial setup phase (complete)
- Call for evidence – (The call for evidence has been launched and closes on Monday 14 April 2008)
- Consultancy studies that will provide the key inputs into the RFA's review. These will be completed by mid May.
- Expert seminars to provide additional inputs into the review. These will take place until early May.
- Stakeholder Workshop to take place on 22<sup>nd</sup> May.
- Meetings of the RFA advisory group to critique and quality assure the various work elements.
- Report drafting and finalisation.
- Submission of the final review to the UK Government.

### **4. Project team, responsibilities and governance**

The project will be led by the RFA Chair - Professor Ed Gallagher. He will be supported in drafting the report, during May, by the Review Authors (RFA) plus the Project Secretariat (which comprises the Project Director, Manager and Assistants). An Advisory Group has been assembled to provide specialist input and advice. The scope and content of the report is solely the responsibility of the RFA whose Board will sign-off the draft study for release to Government and the final published report.

The RFA Board will monitor progress through its monthly meetings. Officials from DfT and DEFRA (to whom the RFA will issue the Review) will be invited to participate in discussions regarding the Review at these meetings.

**The Project Secretariat** will be responsible for managing the project including:

- Managing the technical studies
- Issuing, promoting and managing the Call for Evidence
- Organising the stakeholder workshop
- Organising the expert seminars
- Managing the activities of the Advisory Group
- Supporting the report authors
- Responding to queries.

The Advisory Group will provide expert input to the consultancy studies and to the team drafting the Review report. It will be advisory only and meet:

- At the start of the consultancy packages

- To review the consultancy study outcomes
- To input to the draft report for Government – along with other Government representatives - at a joint seminar.

### **The Advisory Group will comprise:**

- Dr Paul Jefferiss (Renewable Fuels Agency Board Member)
- Jonathon Lingham (UK Department for International Development - DfID)
- Simone Pfuderer (UK Department for the Environment, Food and Rural Affairs - DEFRA)
- Jean-Philippe den Ruyter/Adam Harrison (WWF)
- Dr Jeremy Woods (Imperial College, London University)

### **The Study Teams**

A number of study teams will contribute to the studies and subprojects that will provide some of the key inputs to the Review. The studies are being coordinated by AEA. The Study Teams are:

- ADAS
- CE Delft
- E4Tech
- Ecofys
- North Energy
- ODI
- Oeko-Institute
- Themba Technology Ltd

## **5. Studies**

There will be three studies that input into the RFA's review. These are given below, together with the subprojects that will make up the studies.

### **Study 1 - Evaluation of the drivers of land use change**

1. Current and anticipated future drivers and demand (to 2020) for land and feedstock for food, feed and other major uses including idle land;
2. The current rates and the principal locations and types of land conversion including identification of areas of high risk for conservation of carbon and high conservation value areas;
3. Anticipated and potential improvements in land productivity and increased agricultural inputs with intensification;
4. The extent to which biofuel co-products offset additional land demand for transport fuel feedstock;

5. Where biofuel feedstocks are actually likely to be grown – and policy mechanisms to encourage production in the optimal locations and with ideal cultivation practices;  
Global agricultural land availability including idle land and including the potential role of feedstocks cultivated on poor quality soils, salt water environments and in arid areas;
6. The impact on land use of the proposed EU biofuel target to demand for biofuel feedstock using a range of scenarios.

## **Study 2 - Review of future demand and supply of biofuels to 2020 and their impact upon GHG-emissions**

7. Examine the anticipated demand for biofuels and feedstock to 2020 globally and propose a range of feedstock supply scenarios;
8. Undertake a review of evidence concerning the effect upon biofuel GHG-saving of indirect land use change including a detailed assessment of the Searchinger paper and others seeking to quantify GHG-emissions of displacement effects. This should include identification of the principal uncertainties and key variables;
9. Review the impacts and uncertainties in GHG-emissions from a variety of land use changes including the impact of low and no till agricultural practices
10. Review the evidence on GHG-savings of current and future biofuel technologies and identify key areas of uncertainty. (This should include N<sub>2</sub>O emissions from soils arising from fertiliser application and an assessment of the Crutzen paper);
11. The potential contribution of advanced technologies and feedstocks with limited or no land demand and resulting GHG savings;

## **Study 3 - Economic benefits and food insecurity concerns of increasing demand for biofuels**

1. Review recent changes in and drivers of food commodity prices. Consider how anticipated future changes are likely to impact upon prices to 2020;
2. Examine the drivers of food insecurity and identify vulnerable groups;
3. Review the economic benefits of increased biofuel production in the South.

## **6. Call for Evidence**

The Call for Evidence is an opportunity for stakeholders with relevant knowledge to input to the study. It was launched on the 19<sup>th</sup> March and will last for 4 weeks. The Call for Evidence will pose a short number of detailed questions to which

respondents will be asked for contributions - as distinct from making general comments on biofuel sustainability issues. The Call for Evidence can be viewed at

[http://www.dft.gov.uk/rfa/db/documents/080325\\_Biofuels\\_Review\\_-\\_A\\_Call\\_for\\_Evidence\\_revised.pdf](http://www.dft.gov.uk/rfa/db/documents/080325_Biofuels_Review_-_A_Call_for_Evidence_revised.pdf)

## **7. Stakeholder workshop**

In addition to the Call for Evidence, there will a full day stakeholder workshop on

**22<sup>nd</sup> May 2008 10am - 4.30pm, Central London, UK  
Venue to be confirmed**

The purpose of the workshops is to communicate the objectives and initial findings of the Review to stakeholders, and to provide a forum in which the findings of the studies can be discussed ahead of the Review's finalisation.

Further details will be released shortly.

## **8. Expert Seminars**

Expert seminars will bring together established experts to discuss points of detail in an environment in which statements are challenged by other experts.

Provisional seminar headings are:

- Drivers
- Impacts on food insecurity
- Impacts on GHG emissions/biodiversity
- Technology solutions
- Policy solutions
- Idle land use and availability

One seminar will be held in the Netherlands and possibly one in the United States. Others will be held in the UK.

The outcomes of these seminars will be published on the RFA's website.

# **Annex A - Terms of reference for review of indirect impacts of biofuels**

## **Introduction**

Biofuels have the potential to deliver significant environmental benefits, and it is this principle that has underpinned UK Government support for them. Government support mechanisms have been justified in particular on the grounds that biofuels can deliver considerable net reductions in greenhouse gas emissions compared to fossil fuels.

New evidence has emerged in recent months on the net greenhouse gas benefits of certain types of biofuels. There is currently little consensus on much of this new evidence and there are widely diverging views on the sustainability of current and future biofuels targets.

The Government is keen that biofuel targets and support policies should be underpinned by robust scientific evidence. To this end, it commissioned in 2007 a review of work on the environmental sustainability of international biofuels production and use, and this review is due to report shortly.

To complement and build on this work, the Government is inviting the Renewable Fuels Agency to lead a review of the fast-emerging new evidence of displacement effects of biofuels on land-use and impacts upon GHG-savings. This RFA-led review will - alongside the review of work on the environmental sustainability of international biofuels production and use - inform the development of future biofuel policies and targets, including in particular proposed EU targets for future biofuel consumption.

## **Scope**

The RFA-led review will focus on recent evidence on the indirect or "displacement" impacts of biofuel production, both within the EU and internationally, and evaluate, for current and future demand and production scenarios:

- The extent to which the production of biofuel feedstocks leads to land-conversion
- GHG-emissions arising from changes in land-use change and cultivation practices.

It will seek to make an objective, evidence-based assessment of the risks and uncertainty around these impacts and how this can be quantified.

It will seek to put the impacts of biofuels into perspective, by quantifying the extent to which the demand for biofuels - as opposed to other pressures - is likely to pressure on available land resources in the period to 2020. It will also consider the extent to which these impacts would be reduced if advanced biofuel technologies became commercially viable in the medium term.

It will consider and describe the risk that biofuel policies will affect international food commodity prices in the period to 2020 and indicate the uncertainties attached to that appraisal.

It will make recommendations as to how all of the above should be built into future calculations of the net greenhouse gas impacts of biofuel policies and future biofuel targets. It will also define the requirements of the further modelling and analysis that would be needed to consider a range of policy and demand scenarios, and their wider economic, environmental and social impacts, including for example on food prices.

It will make recommendations, as far as this is possible from the available evidence, on prudent levels and forms of biofuel targets and ways to manage and reduce the risk of displacement effects.

## **Participants**

The UK's Renewable Fuels Agency will lead the work and will seek to draw upon knowledge and expertise globally. The study will be led by Professor Ed Gallagher, Chairman of the RFA, and former Chief Executive of the Environment Agency. The RFA will assemble a small team of experts to undertake the study including individuals with specific knowledge and skills in relevant areas.

## **Methodology**

The study will include the following elements:

- Studies examining evidence concerning:
  - Global drivers, pressures and availability of land and the effect of current and future demand and production scenarios for biofuels
  - GHG emissions arising from land-change and cultivation of biofuels and uncertainties in science and methodologies
  - Drivers of rising food commodity prices and effects upon food security
- written stakeholder consultation on these issues, disseminated globally to encourage a wide range of expert respondents
- stakeholder workshops and meetings with experts from the UK, EU and elsewhere to consider land use change effects and the impact on agricultural markets

The review will as far as possible draw in expertise from other EU Member States and elsewhere. The findings will be peer-reviewed by the Government's Chief Scientific Advisers.

## **Timetable**

An initial report will be provided to Ruth Kelly and Hilary Benn by Friday 27 June including recommendations for further work. This initial report will include the outcomes of the stakeholder consultation, literature review and workshops. A draft

report will be provided to Government officials by the end of May which will inform UK negotiations in Brussels.