Response of the UK Low Carbon Vehicle Partnership[1] to the Review of the EU Biofuels Directive

The Low Carbon Vehicle Partnership (LowCVP)

This response to the EC consultation on the review of the Biofuels Directive has been prepared by the LowCVP; a UK based organisation established to accelerate a sustainable shift to low carbon vehicles and fuels. The Partnership is a multi-stakeholder forum with over 210 members including many leading car manufacturers, fuel and biofuel suppliers, major fleet operators, environmental and consumer groups, academics and government departments.

Since its establishment the Partnership has undertaken an extensive programme of work on biofuels. This has included activities to:

- Identify environmental impacts of biofuels production & UK capacity to supply biofuels from indigenous sources[1]
- Achieve consensus amongst most leading research groups on WTW GHG calculation boundaries and methods demonstrated through detailed examination of the wheat to ethanol process[2]
- Develop practical systems for quantifying and reporting upon the GHG savings from supplied fuels[3]
- Examine the feasibility of including carbon certification and sustainability assurance requirements within the Renewable Transport Fuels Obligation (RTFO)[4]
- Develop practical tools and reporting systems for environmental assurance of biofuels. This includes development of a draft Biofuels Environmental Standard that can be operated by companies supplying biofuels to manage and report upon impacts.[5]

This response focuses upon questions concerning carbon certification and sustainability assurance of biofuels. The response describes key learning's from our work as these apply to questions 4.1, 4.2 and 6.1. We also comment briefly on questions 5.4 and 5.5 that are related to this topic.

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UK priorities for biofuels

In the UK biofuels are seen primarily as a means of reducing emissions of greenhouse gases (GHGs). Most LowCVP members believe that the widespread use of biofuels should be accompanied by reporting on carbon savings achieved and against agreed environmental criteria.[2] The need for sustainability reporting was highlighted by Alistair Darling (Secretary of State, Department for Transport) when he announced the introduction of an RTFO "to ensure that biofuels are sourced sustainably, obligated companies will be required to report on the level of carbon savings achieved and on the sustainability of their supplies." In the recent UK Energy Review[6] the UK Government signalled its intention to move to a 10% target for biofuels subject to several conditions being met including *development of robust sustainability and carbon savings for biofuels to ensure they are delivering high levels* of carbon savings without leading to biodiversity loss or endangering sensitive habitats. The necessary protocols are being developed, discussed and will be available before the RTFO commences in April 2008.

An aim of LowCVP is to stimulate the market for lower carbon intensity of transport fuels; and the development of reporting systems to calculate the carbon intensity of biofuels in a robust and consistent manner is seen as an important milestone. In the transition to systems that encourage the supply of low carbon transport fuels it is nevertheless important that markets for existing lower carbon biofuels are not destabilised and that these remain attractive to investors. In this submission the Partnership seeks to balance long-term objectives with short-term tactical considerations as to how reporting and assurance schemes should develop. In doing this the response reflects a range of views across LowCVP members.

Question 4.1 Should there be a system – for example, a system of certificates - to ensure that biofuels have been made from raw materials whose cultivation meets minimum environmental standards?

Sourcing of biofuels cultivated and processed in a manner that does not lead to significant environmental harm is a concern of all LowCVP stakeholders. A system of certificates that ensure biofuels meet acceptable environmental (and social) criteria is therefore desirable. Any system of mandatory environmental standards would, however, need to be carefully designed and internationally negotiated before it could be implemented to avoid the risk of being contested under trade rules. Mandatory social standards would not currently comply with WTO rules.[3]

The UK's feasibility study[7] examining how environmental assurance could be included within the proposed RTFO concluded the Obligation should include a mandatory *reporting* requirement for the sustainability of biofuels. This was based upon the feasibility and the timeliness of the UK obtaining international agreement for a mandatory scheme. An appropriately designed reporting system, which does not act as a defacto trade barrier, is permissible under trade rules.

[2] Some statutory environmental bodies and most environmental NGOs have stated their preference for mandatory environmental criteria within the RTFO. These groups do however recognise robust and transparent reporting systems can also deliver benefits – but do not represent the complete solution to managing biocrop cultivation impacts.

[3] The emerging international consensus on social assurance currently being developed through ISO 26000 and other bodies may provide a mechanism through which this could be developed and introduced in the future (see reference 4)

To complement environmental reporting requirements within the UK RTFO, LowCVP stakeholders are developing a biofuels sustainability standard that can be operated by companies to manage their risks and reduce the impacts of sourcing unsustainable fuels. Company standards operated in a voluntary manner are allowable under trade rules. The standard currently consists of draft environmental criteria and a carbon certification methodology to consistently quantify the greenhouse gas (GHG) savings arising from biofuel use. Further work is on-going to develop both elements.

Internationalisation of a biofuels sustainability standard of the type being developed in the UK is supported by all LowCVP stakeholders. We propose a multi-stakeholder forum is established to take forward the development of an EU Biofuels Sustainability Assurance Scheme. The forum should be supported by a secretariat and funded through the Commission Services. Part of the considerations and work of this group should be to examine and propose whether such a scheme should be voluntary or mandatory as well as the precise requirements and framework that would operate it, including reporting requirements. It would provide advice on the most effective way forward to support the development of low carbon intensity, sustainably sourced biofuels. We would be pleased to contribute UK experience to such a group. Development of the Standard itself could be conducted under the auspices of CEN. An EU wide scheme would have several benefits, including:

- Harmonising biofuel environmental standards across the EU – reducing administration and supporting the single market
- Creating a substantially larger market – therefore encouraging more international suppliers to provide fuels that comply with the standard – and therefore higher levels of environmental performance
- Supporting the expansion of existing crop specifications or national biofuel environmental assurance schemes
- Encouraging the development of existing biofuel / agricultural environmental assurance schemes to address the full range of environmental concerns raised by biocrop cultivation.

Assurance schemes do not represent the complete solution to mitigating the full range of environmental concerns raised by expansion of biocrop cultivation. In particular, many existing agricultural assurance schemes are focused on food safety not environmental protection and do not offer the necessary safeguards.[4] Notable limitations of the effectiveness of environmental assurance schemes are that:

- Experience from environmental assurance in forestry indicates there have not been tangible reductions in deforestation or improvements to management outside the certified areas
- Environmental assurance is unlikely to solve socio-environmental problems such as conflict over resources
- Environmental assurance schemes do not protect and may discriminate against smallholders – unless group certification schemes are established in parallel. EU funding from the EAGGF could be used to encourage such an approach

[4] The introduction in the UK of a Single Payment Scheme (SPS) has established new baseline standards for agriculture that will contribute to a higher degree of environmental protection.

- Scheme credibility and effectiveness in delivering social and environmental improvements is highly variable and dependent upon NGO participation and consultation
- Environmental assurance schemes are not an effective substitute for good governance and regulation of natural resources

It will also be important to monitor the effects of expanded biocrop cultivation in both sensitive environments and more widely and conduct a Strategic Environmental Assessment of the effects of EU biofuels policy on EU biodiversity and other key effects. Through multilateral discussions the EU needs to establish effective support to exporting countries to prevent adverse impacts of biofuels on biodiversity and natural resources. For example, through the establishment of a critical ecosystem fund to protect key species and habitats by ensuring stringent protection of the most important areas for conservation in the environs of biofuel production areas globally.

An environmental standard and reporting framework for biofuels

The biofuels environmental standard and complementary reporting framework being developed by LowCVP are intended to encourage companies supplying biofuels to opt (voluntarily) to source fuels which meet an acceptable level of environmental performance. Practically, complying companies could add the requirements of the biofuels standard to other environmental practices being operated by the company – such as ISO 14001. Delivery of the environmental requirements would be cascaded through companies supply chains through contractual requirements upon suppliers of biofuels. The proposed UK scheme will be voluntary but the proposed approach could be established as a mandatory scheme – if WTO issues were resolved.

The Standard provides a single benchmark against which companies can operate avoiding a proliferation of different assurance schemes, standards and claims concerning the sustainability of biofuels being supplied. It has been developed by representatives of the principal stakeholder groups including members from the UK oil and biofuels industries, agricultural suppliers, environmental groups and Government. Broader and international consultation and negotiation is needed to widen awareness and implementation of the approach. The work to date does, however, provide an example of how the EU could move forward to develop environmental assurance for biofuels.

The proposed sustainability criteria will also be used to inform the development of mandatory reporting requirements as part of the UK RTFO. Under the reporting requirements biofuels would not need to achieve minimum level of environmental performance to qualify for RTFO certificates. Companies would however need to report on the environmental performance of fuels to obtain a certificate. Details of the reporting framework are presently under development. Using the same criteria within the biofuels standard and reporting system reduces administration for companies operating to standard. Details of the Environmental Standard are contained in Annex 1. The full report describing its components will be forwarded to the EC on completion in August.

Question 4.2 - Should a wider system of certificates be introduced, indicating the greenhouse gas and/or security of supply impact of each type of biofuel?

Most LowCVP members support the development of the EU Biofuels Directive to include reporting on the well to tank greenhouse gas savings of biofuels. In the longer-term most stakeholders believe a system of incentives rewarding road transport fuels with low carbon intensity is also desirable. However, it is recognised such an approach would first require robust systems of data compilation and auditing and may also require improvements in scientific understanding (for example for nitrous oxide emissions from soil). Reporting is seen as an important step towards an incentive scheme for low carbon intensity biofuels.

The UK Government concluded that for the first phase of the RTFO it will be mandatory for obligated companies to *report* on the carbon intensity of supplied biofuels but RTFO certificates will not be issued based upon the carbon intensity of the biofuel. This decision was based upon the need to prove the systems before introducing an incentive based approach and not to destabilise the infant biofuels market in the UK – particularly to create uncertainty for investors. Most stakeholders support reporting as an important first step although environmental organisations and some companies have indicated a preference for incentives from the start of the RTFO scheme. The UK Government has indicated that subject to robust systems being developed and trade rule issues being resolved the long-term direction of policy is to transition to a system that ensures biofuels are delivered in a way that maximise life-cycle carbon savings while ensuring biofuels are sourced sustainably. The Government has made this a pre-requisite for any future move beyond the current 5% biofuels target.

A system reporting the GHG savings of biofuels has several benefits:

- Without GHG certification it is difficult to quantify the GHG savings resulting from biofuel use. This is because the uncertainty over GHG emissions from different biofuel sources and production processes are significant.
- The uncertainty over the level of emission reductions means that there is a risk of biofuels becoming discredited if it were found they do not deliver significant GHG emissions reductions but lead to significant other forms of environmental degradation
- It provides the basis to test future possible systems that reward fuels with low carbon intensity
- Aids institutional learning as to the most advantageous processes for reducing GHG emissions, and also enables a range of drivers that can progressively reduce the average life cycle GHG emissions of currently-available biofuels.

The feasibility of going beyond reporting to rewarding fuels with low carbon intensity has been examined as part of a LowCVP study[4] that examined the practicality and legality (under WTO rules) of linking award of RTFO certificates to the carbon intensity of the biofuel. Further details of the proposed approach are detailed in Annex 4. The study suggested incentives for low carbon fuels are feasible; but noted that design of the scheme is important to comply with WTO rules.

A subsequent LowCVP study[8] has further developed the proposed carbon certification methodology and applied the approach to the wheat to ethanol process. The details are described in Annex 3. The calculation is performed on a field to forecourt (well to tank) basis with the potential to quantify emissions either at each stage of the production pathway (where data are available) or use default factors (where data are limited). At the

simplest level a default factor could be provided for a fuel (e.g., ethanol) or fuel of known origin (e.g., Brazilian ethanol from sugar cane). Alternatively a combination of default factors and real data could be provided for each step of the pathway (e.g., cultivation – feedstock transport – processing – biofuel transport – blending). At the most detailed level the calculation method requires input parameters to measure all sources of GHG emissions (e.g., fertiliser input to calculate nitrous oxide emissions in a known environment).

The practicality of the proposed approach is being demonstrated by an oil company that is providing a carbon declaration for biofuels using default factors.[9] Initial experience indicates once information is requested from the supply chain many suppliers are able to respond. A study by the Home Grown Cereals Authority[10] has used the wheat to ethanol method and developed a simple tool that can be used by farmers to calculate emissions from cultivation. Initial results from the pilot indicate farmers are able to operate the system and provide detailed data on input parameters using the tool to calculate emissions produced during cultivation. This is the most data intensive step of the overall biofuel carbon intensity calculation.

The work to date has demonstrated the benefits and feasibility of the approach and a further study, funded by the UK Government, will commence in the late summer to develop default factors and detailed calculation methods for principal biofuel production pathways. The method will be piloted in Spring 2007 and become the basis for technical guidance to inform Obligated Companies how to comply with reporting requirements specified by the RTFO. LowCVP will keep the EC informed of the project outputs as these evolve.

Question 4.3 - Should there be a scheme to reward second-generation biofuels (made with processes that can accept a wider range of biomass) within biofuel support systems?

Second-generation (advanced) biofuels offer several possible advantages over some first-generation fuels including that they may:

- Be produced from a wider range of feedstocks - including waste green materials
- Achieve higher productivity per unit area than some current biofuel feedstocks
- Produce molecules that replicate oil products and therefore be capable for use in any blend without engine adaptation and achieve higher levels of engine efficiency.

At present, the cost of producing second-generation fuels is prohibitively high. Incentives are therefore needed to enable the market for these products to develop and realise the benefits.

Most LowCVP members support the principle of rewarding sustainably produced road transport fuels with low carbon intensity. However, we believe market support for road transport fuels to be provided in a technology neutral manner. This would involve support for fuels that achieve higher levels of environmental performance rather then specific named products or those produced from specific feedstock or processes or “generations”. This approach is essential since there is no established definition of a second-generation biofuel and the range of products is likely to be wide. It should also be recognised that some first-generation biofuels, such a Brazilian sugar-cane ethanol, achieve very high levels of land productivity and produce a low carbon intensity fuel. If cultivated in a sustainable manner these fuels should not, and under WTO rules, cannot be discriminated against simply because they are defined as a first-generation product.

Through use of the whole crop, other first generation fuels could achieve low carbon intensity fuels.

Questions 5.4 & 5.5 – Future targets

From the discussion above, it is clear most LowCVP stakeholders broadly support reporting of biofuels carbon intensity as a next step with a transition in the longer-term to targets and incentives for road transport fuels based upon carbon-savings (if such a scheme can be rigorously implemented and demonstrated to be scientifically robust).

There are different views concerning how quickly carbon based targets should be introduced. Stakeholders from the UK oil industry and environmental organisations support the establishment of carbon-based targets from an early date. The biofuels industry is more cautious about how quickly carbon-based targets should be established and believe carbon certification systems need to have been operated and refined over a number of years before carbon-based targets and incentives are introduced. Biofuel suppliers also stress the need for market stability to encourage the development of a vibrant EU biofuels industry.

Volume based targets for biofuels will lead to production of fuels at the lowest possible cost. In some circumstances these fuels may also have a low carbon intensity. For example, Brazilian ethanol is both low cost and has a low carbon intensity due to the high productivity of the crop and use of bagasse as an energy source. For production of ethanol from wheat a LowCVP study[2] demonstrated lower carbon intensity fuels are more expensive to produce since the economics favour sale of straw and by-products rather than their use for co-firing.

The economics that favour production of low carbon intensity biofuels are complex and depend upon the additional capex and opex of plant and the relative value of renewable heat and electricity production compared to other by-product markets. The initial high costs of “second-generation” biofuel production however suggest that these fuels may not be cost-competitive and achieve significant market penetration without rewarding fuels with low carbon intensity.

In moving beyond the present 5.75% (by energy) target environmental groups also emphasise the need to ensure that adequate sustainable sources of biocrops are available. The oil industry stresses the need to ensure fuel quality specifications have been amended to provide markets for biofuels, that there is adequate supply, both in the EU and globally, and that there is stability for early market entrants.

Annex 1 – UK Biofuels Environmental Standard

The UK Biofuels Environmental Standard defines Principles, Criteria and Indicators that describe and mitigate the principal environmental impacts of biofuel cultivation and production. The proposed Principles and Criteria are listed below:

- Conservation of Carbon
  - Protection of above-ground carbon
  - Protection of soil carbon
- Conservation of Biodiversity
  - Conservation of important ecosystems & species
  - Basic good biodiversity practices
- Sustainable Water Use
  - Efficient water use in water critical areas
  - Avoidance of diffuse water pollution
- Waste Management
  - Waste management complies with relevant legislation
  - Safe storage and segregation of waste
- Maintenance of soil fertility
  - Protection of soil structure and avoidance of erosion
  - Maintain nutrient status
  - Good fertiliser practice
- Good Agricultural Practice
  - Use of inputs complies with relevant legislation
  - Use of inputs justified by documented problem
  - Safe handling of materials
- Planning, Records & Improvement
  - Environmental plan for production unit
  - Records maintained for operations, training and environmental impacts
  - Improvement cycle based on planning and records

Indicators describe either a basic or enhanced level of environmental performance. This encourages continuous improvement and allows companies that wish to supply biofuels to high environmental standards to robustly differentiate their product. Broad consensus has been reached on the overall approach, Principles and Criteria, but further negotiation is needed to finalise the indicators.

The proposed structure for the scheme complies with the good practice guidelines agreed in the Uruguay Round of WTO – to build upon existing assurance schemes (such as ACCS, LEAF, EurepGAP, RSPO and other round-table initiatives). It does this through the creation of a “Meta-Standard.” The Meta-Standard operates through a cross-compliance framework whereby crops produced to the requirements of an existing assurance scheme would meet specific Criteria defined by the Meta-Standard. “Supplementary Checks” would address any gaps in existing schemes. A draft of the cross- compliance framework is shown below

Draft benchmarking table comparing requirements of the draft standard with existing assurance schemes

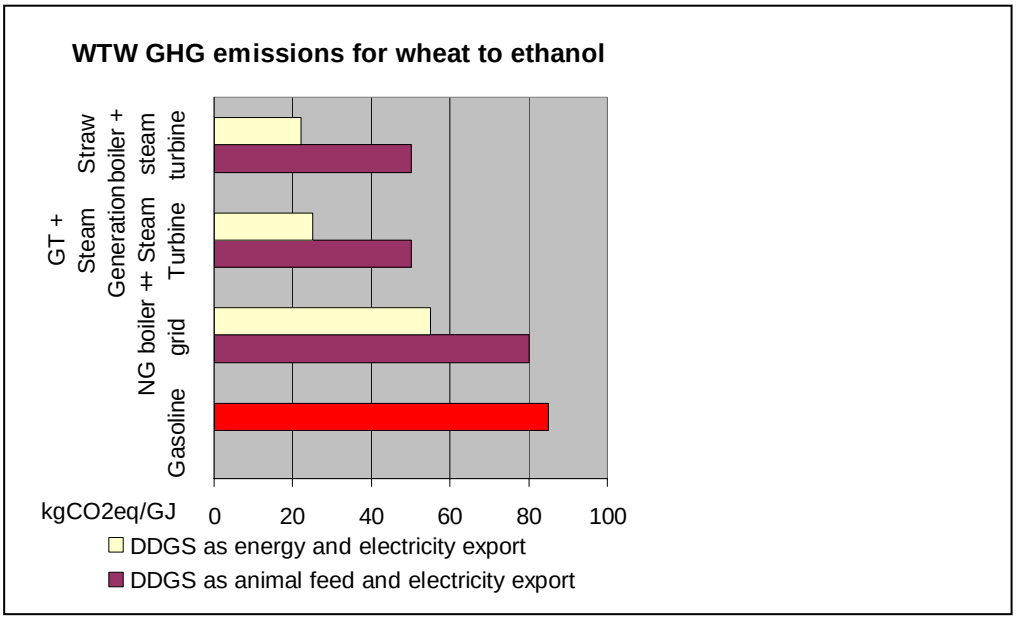
LCVP Draft Principles (Ps) and Criteria (Cs)		SAN/RA (farm)		RSPO (Palm)		Basel (Soy)		LEAF (farm)		ACCS (combinable crops)		EUREPGAP IFA (combinable crops)	
P1. Conserve Carbon													
C1.1 *Protection of above-ground carbon*	✓	P2 (ecosystem conserv')	✓	7.3 (+protect 2y forest) 7.7 (+fire restriction)	✓	3.1.1, 3.1.2 (+protect 2y forest), 3.2.3	✓	1.2.1 Documented farm policy (C implicit)	?	1.0 Awareness of Defra COPs for soil, air and water	X	Carbon not mentioned	
C2. 1 *Protection of soil carbon*	✓	P9: (soil mgt)	?	7.4 (+restrict high OM soils)	?	2.1.24 (+restrict planting on high OM soils)	✓	2.1.1 Soil management plan (C implicit)	?	As above	X	As above	
P2. Conserve Biodiversity													
C2.1 *Conservation of important ecosystems & species*	✓	P2 (ecosystem conservation);	✓	5.2	✓	3.1.1	✓	7.1.1 –7.5.7 Extensive set of criteria	?	1.2 "take account of environmentally sensitive areas…."	✓	All Farm Base Module. Environment issues 1.6.1.2	
C2.2 *Basic good biodiversity practices*	✓	P3 (wildlife conservation)	✓	5.2 (+on-farm practice)	✓	3.3	✓	7.5.1-7.5.7 Integrate farming and biodiversity management	?	Compliance with professional schemes to provide 'good practice'	✓	1.6.1.1 – needs mild rewording	
P3. Sustainable Water Use													
C3.1 *Efficient water use in water critical areas*	✓	P4 (water conservation)	✓	4.4	✓	2.1.4	✓	2.7.1 –2.7.8 Irrigation and water storage	?	Covered by compliance with soil and water COPs [C.1.1 above]	✓ ?	1.6.1.3 & 1.6.1.4 Crops Base Module 2.5.1.2 & 2.5.1.3	
C3.2 *Avoidance of diffuse water pollution*	✓	P8 (ICM)	✓	4.4	✓	2.1.5	✓	3.7.4 4.2.1-4.2.6	✓	2.1.1, 2.1.5, 2.9, 5.1, 5.2, 5.5,	✓	1.5.2. No explicit mention of diffuse pollution 3.2.1.1 – Fertiliser	
P4. Soil fertility													
C4.1 *Protection of soil structure and avoidance of erosion*	✓	P9: (soil mgt)	✓	4.3	✓	2.1.1, 2.1.3, 2.4.2	✓	2.2.1 –2.2.10 Soil erosion section	✓	5.10	✓	2.3.2.1 & 2.3.3.1	
C4.2 *Maintain nutrient status*	✓	P9: (soil mgt)	✓	4.2 (+pH monitoring?)	✓	2.1.2 (+monitoring soil?), 2.4.2	✓	2.4.1 – 2.4.14 Crop nutrition	✓	5.8, 5.9 – Match crop requirements	✓	3.2.1.1	
C4.3 *Good fertiliser practice*	✓	P9: (soil mgt)	✓	4.2, 3.1	✓	2.1.2		As above plus 2.5.1-2.5.9 Organic 2.6.1-2.6.9 Inorganic fertilisers	✓	5.0, 5.7(sludge as a fert not a waste) 5.9	✓	2.4 & 3.2	

LCVP Draft Principles (Ps) and Criteria (Cs)		SAN/RA (farm)		RSPO (Palm)		Basel (Soy)		LEAF (farm)		ACCS (combinable crops)		EUREPGAP IFA (combinable crops)	
P5. Good Ag Practice													
C5.1 *Use of inputs complies with relevant legislation*	✓	P8 (ICM)	✓	2.1	✓	1.1 (-GMO restriction?), 2.2.2	✓	2.4.14 Fertiliser/NVZ 3.7.4 Chemicals		1.0, 1.1 compliance with legislation is part of COP compliance 2.6, 2.7	✓	2.6.2 pesticides [?2.4.4. fertiliser]	
C5.2 *Use of inputs justified by documented problem*	✓	P8 (ICM)	✓	4.5	✓	2.2.1, 2.2.2	✓	Yes, but presentation means problem documentation is not explicit		2.10, 5.6, 6.9, 7.3	✓	2.4.2, 2.6.1	
C5.3 *Safe handling of materials*	✓	P8 (ICM)	✓	2.1, 4.6, 4.7, 4.8	✓	2.2.2	✓	1.1.3 Implicit in 'comply with current requirements' 3.7.2 Pesticides		2.2, 5.1, 5.2	✓	1.4, 2.6.2, 2.8.1	
P6. Waste Management													
C6.1 *Waste management complies with relevant legislation*	✓	P10 (integrated waste mgt)	✓	2.1	✓	1.1	✓	1.1.3 - "Comply with" and 4.1.4 – "are aware of".	?	Waste not explicitly mentioned. Waste only a by-product of specified cleaning operations	? X	1.5.2 No explicit mention of compliance with legislation	
C6.2 *Safe storage and segregation of waste*	✓	P10 (integrated waste mgt)	✓	5.3 (+segregation?), 5.5	✓	3.4	✓	4.1.2 & 4.1.3	X	Pesticide container disposal follows COP recommendation	?	1.5.2 &1.5.3 storage and segregation not mentioned	

Key: Checklist columns: ✓ = Compliance with Draft LCVP PCIs. ? = Partial compliance. X = Not compliant
Numbers refer to relevant sections, or criteria & indicators in respective schemes.

Annex 2 – GHG savings and costs of biofuel production

A range of research, including the authoritative CONCAWE/EUCAR/JRC studies demonstrate that the greenhouse gas savings of biofuels vary widely, principally depending upon the feedstock, cultivation practices and processing methods. This is illustrated below from a study undertaken by the LowCVP[2] examining the wheat to ethanol process.



The (2004) study brought together authors of major well to wheel (WTW) wheat to ethanol studies to understand the reasons for differences in reported outcomes; and to achieve consensus on methodological variations. The study was successful in achieving both objectives and the graph highlights that between 7 and 77% of the emissions of conventional gasoline can be saved depending upon the production process. Low carbon intensity biofuels are produced using biomass to co-fire generators (and optimally the Dark Distilled Grains and Solids – DDGS by-product). Advanced steam turbines that also export renewable electricity achieve the lowest carbon intensity biofuels.

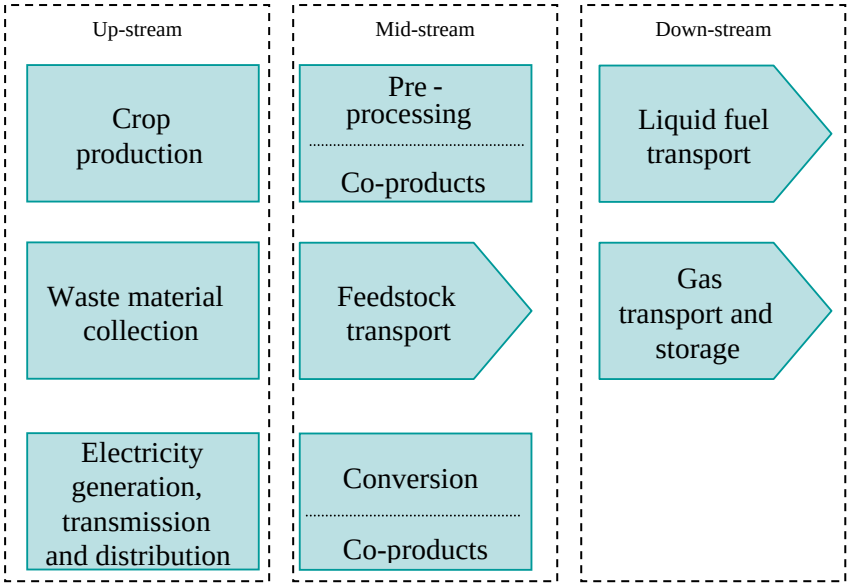
The study also highlighted that production of lower carbon intensity biofuels is more expensive. The operating costs for a 100kt pa production facility using a natural gas boiler and grid electricity (producing ethanol with a 10 – 20% GHG saving) was half that of a straw fired condensing turbine system which achieved nearly 80% GHG saving. Gas-fired CHP plant is intermediate in both costs and savings. The DDGS by-product is more valuable as an animal feedstock than as a co-firing source of biomass. Without incentives for low carbon intensity fuels (at present commodity prices) DDGS will be sold, increasing the GHG emissions. The cost-effectiveness of the biofuel, in terms of £ per tonne Ceq avoided, is five times lower for a low carbon intensity bioethanol compared to a high carbon intensity equivalent. To encourage production of biofuels with low carbon intensity (including advanced biofuels), incentives need to be provided for these fuels. Carbon certification provides a system through which such incentives can be developed.

Annex 3 – Carbon certification methodology

The carbon certification methodology applies the following principles:

- A field to forecourt (well to tank) calculation[5]
- The potential to quantify emissions at each stage of the production pathway (where data are available) to identify key sources and approaches to reduce emissions
- Consistency between biofuel feedstocks and pathways –using the same boundaries and overall approach
- Transparency – users can examine each step of the calculation method
- Applicable to both indigenous supplies and imported fuels
- Flexible data requirements with the ability to:
    - Calculate GHG emissions based at each step in the pathway using real data for individual, or multiple batches; or
    - Use default values to estimate emissions at each step & cumulatively
- Auditable

The study has demonstrated any biofuel production pathway may be represented by up to 8 modules – as shown below. Annex 2 illustrates this point for the principal biofuel pathways.



The flexible calculation method allows fuel suppliers to decide which steps in the emissions pathway they wish to quantify by compiling real data; and for which steps they will use default factors. Details of the boundaries and data requirements are contained in the report.[8]
At the simplest level a default factor could be provided for a fuel (e.g., ethanol) or fuel of known origin (e.g., Brazilian ethanol from sugar cane). Alternatively a combination

[5] In addition an agreed tank to wheel performance (MJ/100km) has to be characterised to compare biofuels and fossil fuels. This should probably remain constant unless compelling evidence suggests otherwise.

of default factors and real data could be provided for each step of the pathway (e.g., cultivation – feedstock transport – processing – biofuel transport – blending). At the most detailed level the calculation method requires input parameters to measure all sources of GHG emissions (e.g., fertiliser input to calculate nitrous oxide emissions in a known environment).

Annex 4 – Feasibility of rewarding fuels with low carbon intensity

The feasibility of rewarding fuels with low carbon intensity has been examined as part of a LowCVP study[4] that examined the practicality and legality (under WTO rules) of linking award of RTFO certificates to the carbon intensity of the biofuel. The study suggested incentives for low carbon fuels are feasible; but noted that design of the scheme is important to comply with WTO rules and requires:

- Incentives for fuels with low carbon intensity – rather than seeking to exclude high carbon intensity fuels
- Being scientifically and technically robust and building upon existing schemes as far as practicable
- Not excluding fuels for which the carbon intensity could not be certified – for example fuels of unknown origin bought on the spot-market.

The proposed approach was to issue a Base Certificate for any biofuel supplied to the market. The carbon intensity of the Base Certificate would represent the highest carbon intensity biofuel likely to be supplied to the market. This would encourage biofuel producers to quantify the actual carbon intensity of the fuel rather than receive the default level. For the RTFO, the feasibility study proposed that more certificates would be awarded as the carbon intensity of the fuel decreased.

The feasibility study also considered whether it is possible to assign biofuels produced from deforested areas a lower or zero GHG benefit. This would need to reflect the release of carbon stored from land use change. While calculation of the release of carbon stored is complex, and the subject of considerable scientific uncertainty, it is known that emissions from certain land use changes could negate the benefits of biofuels for many years. This is not being taken forward by the UK at present as it is liable to be challenged under trade rules, leaving aside the scientific uncertainty. A recent legal opinion obtained from the RSPB,[11] however, indicates exclusion of these fuels from a mandatory certification scheme may be possible under current World Trade rules – but would require careful design and prior negotiation.

Annex 5 - References

[1] http://www.lowcvp.org.uk/uploaded/documents/BOARD-P-05-07_Biofuels_for_Road_Transport.pdf
[2] http://www.lowcvp.org.uk/uploaded/documents/Biofuels_WTW_final_report.pdf
[3] http://www.lowcvp.org.uk/resources/agendasandminutes/working.cfm?catid=3&catName=Fuels
[4] http://www.lowcvp.org.uk/uploaded/documents/RTFO%20-%20feasibility%20of%20certification.pdf
[5] LowCVP 2006, In press (available August)
[6] DTI 2006, Energy Review
[7] DfT 2005, RTFO Feasibility Study
[8] LowCVP 2006, A methodology and tool for calculating the carbon intensity of biofuels
[9] http://www.greenergy.com/expertise/pdfs/Carbon_Declaration_Methodology.pdf
[10] HGCA 2006, in press
[11] http://www.transportenvironment.org/docs/presentations/2006/2006-06_biofuels/Lancaster_Presentation_pdf.pdf