

# **Carbon and Sustainability reporting within the Renewable Transport Fuel Obligation**

## **Technical Guidance Part One**

### **Renewable Fuels Agency**

Version 3.2 April 2010

Year 3 of the RTFO

15 April 2010 – 14 April 2011\*

\*Note this Guidance may be superseded part way through the obligation year if a new RTFO Order to implement the requirements of the EU Renewable Energy Directive is introduced during the period

© Copyright Renewable Fuels Agency 2010

The RFA is the UK's independent sustainable fuels regulator. Further information about biofuels in the UK can be found on the RFA website, [www.renewablefuelsagency.gov.uk](http://www.renewablefuelsagency.gov.uk)

# Contents

<b>List of tables.....</b>	<b>vi</b>
<b>List of figures .....</b>	<b>vii</b>
<b>Executive summary .....</b>	<b>1</b>
The Renewable Transport Fuel Obligation.....	1
EU Renewable Energy Directive.....	1
The reporting framework.....	2
RTFO Targets.....	3
Reporting requirements .....	4
Monthly reports .....	5
Annual Reports .....	7
Scope and principles for RTFO C&S reporting .....	7
Land-use change .....	8
Environmental and social principles .....	8
Treatment of by-products .....	12
Chain of custody .....	13
Verification.....	14
<b>1 Introduction.....</b>	<b>15</b>
1.1 The Renewable Transport Fuel Obligation (RTFO) .....	15
1.2 Biofuels and the environment .....	15
1.3 Managing concerns about biofuels .....	16
1.4 The Renewable Energy Directive.....	17
1.5 About this document .....	18
<b>2 Scope and principles for RTFO C&amp;S reporting.....</b>	<b>22</b>
2.1 Greenhouse gas calculation methodology and default values .....	22
2.2 Land-use change.....	24
2.3 Sustainability reporting .....	25
<b>3 Monthly reporting .....</b>	<b>30</b>
3.1 Reporting frequency and timetable .....	30
3.2 What to report.....	31
3.3 Reporting on the sustainability of renewable fuels.....	31
3.3.1 The Qualifying Standard .....	32
3.3.2 The RTFO Biofuel Sustainability Meta-Standard .....	35
3.3.3 How are biofuels produced from by-products treated?.....	37
3.3.4 The Renewable Energy Directive .....	37
3.4 Filling in the monthly report.....	40
3.4.1 Providing general and country of origin batch information .....	40

3.4.2	Providing sustainability information for each administrative batch.....	42
3.4.3	Unknown reporting.....	44
3.4.4	Providing carbon information for each administrative batch .....	44
3.4.5	Indicative RED-ready columns .....	46
3.5	Further guidance .....	54
3.6	Changing C&S data after the monthly reporting deadline .....	54
3.7	Reporting on purchased certificates.....	54
3.8	Publication of information .....	55
<b>4</b>	<b>Annual Reporting .....</b>	<b>56</b>
4.1	Small supplier exemption .....	56
4.2	What to report .....	57
4.2.2	How to fill in Table 9: Annual Summary Table.....	60
4.3	When to report .....	63
4.4	How do the RFA use Annual Reporting data? .....	63
<b>5</b>	<b>Expected reporting levels and targets .....</b>	<b>64</b>
5.1	Sustainability performance targets.....	64
5.2	Greenhouse gas (GHG) saving .....	65
5.3	Data reporting on biofuel characteristics .....	65
<b>6</b>	<b>The chain of custody .....</b>	<b>67</b>
6.1	General.....	67
6.1.1	Terminology .....	67
6.1.2	Aggregating multiple administrative batches .....	68
6.2	Which chain of custody systems are permitted for C&S reporting under the RTFO?.....	68
6.3	When to set up a chain of custody .....	70
6.4	Guidance for operating a mass balance type of chain of custody.....	71
6.4.1	Scope.....	71
6.4.2	Responsibilities and procedures.....	71
6.4.3	Selling products with C&S data .....	71
6.4.4	Level at which the mass balance should operate.....	72
6.4.5	Timeframe .....	73
6.4.6	Record keeping .....	73
6.4.7	Records to keep of products from unknown origin.....	75
6.4.8	Proportionate feedstock reporting.....	75
6.4.9	Flexible allocation of C&S data over different 'feedstock-derived products' .....	77
6.5	Equivalence trading .....	79
6.5.1	Rules for C&S data in the case of equivalence trading .....	80
<b>7</b>	<b>Verification of company reporting .....</b>	<b>81</b>
7.1	General.....	81
7.2	Setting up a system for Carbon and Sustainability reporting.....	82
7.2.1	Good practice .....	82

7.3	Which data will be verified? .....	83
7.3.1	Good systems reduce the cost of verification .....	83
7.4	How to organise the verification .....	85
7.4.1	Good practice.....	86
7.5	Verifier opinions.....	87
7.6	Further guidance.....	87
<b>Annex A</b>	<b>Guidance on sustainability standards .....</b>	<b>89</b>
A.1	Benchmarked standards.....	89
A.2	Short term solutions for standards in development .....	92
A.3	Benchmarking additional standards .....	94
A.4	The norm for Qualifying Standards .....	95
A.5	The norm for Audit Quality .....	96
A.6	Procedure for downgrading a standard .....	97
<b>Annex B</b>	<b>Eligible by-products .....</b>	<b>98</b>
<b>Annex C</b>	<b>RTFO Biofuel Sustainability Meta-Standard criteria and indicators.....</b>	<b>99</b>
C.1	Environmental criteria and indicators .....	99
C.2	Social criteria and indicators .....	106
<b>Annex D</b>	<b>Benchmarks of standards .....</b>	<b>110</b>
<b>Annex E</b>	<b>Methodology for projects with low risk of iLUC.....</b>	<b>111</b>
E.1	Scope .....	112
E.2	Mitigation criterion for unwanted indirect effects.....	113
E.3	Demonstrating compliance: Baseline, additionality and registration .....	114
E.3.1	Setting the baseline .....	114
E.3.2	Proving additionality.....	116
E.4	Verification.....	118
E.5	Claims .....	119
E.5.1	The quantity of product for which a claim can be made ..	119
E.5.2	The crediting period .....	119
E.6	Summary of the methodology .....	120
<b>Annex F</b>	<b>Example records for chain of custody .....</b>	<b>122</b>
<b>Annex G</b>	<b>Assessing carbon intensity and calculating direct GHG saving .....</b>	<b>129</b>
G.1	Calculating and reporting a 'known' carbon intensity .....	129
G.2	Reporting using the fuel chain default values.....	130
G.3	Approach to setting default values .....	131
G.4	Default value tables.....	132
G.5	What to do if there is no appropriate default value.....	136
G.6	Calculating direct GHG saving using carbon intensity values .....	136
<b>Annex H</b>	<b>Assessing the impact of land-use change .....</b>	<b>138</b>
H.1	Land-use on 1 January 2008.....	138
H.2	Default values .....	141

H.3	Calculating carbon payback time .....	148
<b>Annex I</b>	<b>Accuracy level .....</b>	<b>150</b>
I.1	Selected defaults or actual data.....	151
I.2	Combining batches .....	152
<b>Annex J</b>	<b>Standard terms .....</b>	<b>154</b>

## List of tables

Table A	RTFO Targets.....	4
Table B	Monthly reporting summary format – example data .....	6
Table C	Environmental and social principles .....	9
Table D	Benchmarked and Qualifying Standards (see Annex A for further details).....	11
Table 1	Environmental and social principles .....	25
Table 4	General information data fields for C&S reporting on the RFA Operating System (ROS) .....	40
Table 5	Sustainability information data fields for C&S reporting on the RFA Operating System (ROS) .....	43
Table 6	Carbon information data fields for C&S reporting on the RFA Operating System (ROS) .....	45
Table 7	Indicative RED-ready data fields for C&S reporting on the RFA Operating System (ROS) .....	46
Table 8	Illustrative monthly reporting requirement for C&S information – example data.....	48
Table 9	Annual Report table A. Summary of C&S data by feedstock.....	59
Table 10	Annual Report table B. C&S characteristics of each feedstock.....	62
Table 11	Supplier target– sustainability standard .....	64
Table 12	Supplier target – GHG saving .....	65
Table 13	Supplier target – data capture .....	66
Table 14	Existing chain of custody for several standards and initiatives.....	70
Table 15	List of benchmarked standards .....	90
Table 16	Norm for Audit Quality.....	96
Table 17	Environmental criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard.....	100
Table 18	Social criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard .....	106
Table 20	Summary of the methodology.....	121
Table 21	Example of an output record from a farmsupplying certified rapeseed to crusher C1 .....	122
Table 22	Example of an input record from a rapeseed crusher.....	123
Table 23	Example record of crusher conversion factor .....	124

Table 24	Example of an output record from a crusher .....	124
Table 25	Example of an input record from a biofuel producer ....	125
Table 26	Example of an inventory record of C&S data for crusher C1 .....	125
Table 27	Example of an input record from biofuel company B.....	126
Table 28	Example of an output record from biofuel company B.....	127
Table 29	Example of an input record from oil major X.....	128
Table 30	Focus for data collection .....	130
Table 31	Cross-reference to relevant default value table .....	131
Table 32	Fuel default values.....	132
Table 33	Feedstock default values.....	133
Table 34	Process default values .....	135
Table 35	Land-use type definitions.....	139
Table 36	Default values for the impact of land-use change (grams CO <sub>2</sub> e/MJ biofuel) .....	142
Table 37	Impact of changes in land-use on carbon intensity (tonnes CO <sub>2</sub> e/hectare/year) .....	147
Table 38	Accuracy levels corresponding to type of default value or data used .....	150
Table 39	Data points which are eligible for accuracy level scores of 3, 4, 5 and 6 .....	152
Table 40	Standard terms for reporting the renewable fuel type in C&S reports.....	154
Table 41	Standard terms for feedstock origin.....	154
Table 42	Standard terms for feedstock type .....	156
Table 43	Standard terms for feedstock standard .....	157
Table 44	Standard terms for land-use on 1 January 2008.....	158

## List of figures

Figure 1	Example of a mass balance system at site level .....	73
Figure 2	Example of a transfer of C&S data between different feedstock-derived products that is allowed under the RTFO from 2010/2011.....	78
Figure 3	Example of a transfer of C&S data between different feedstock-derived products which are and are not allowed for the RTFO in 2010/2011. ....	79
Figure 4	Example of the records kept by each party in the supply chain .....	84





# Executive summary

## The Renewable Transport Fuel Obligation

The Renewable Transport Fuel Obligation (RTFO) is one of the Government's main policies for reducing greenhouse gas emissions from road transport. The RTFO commenced on 15 April 2008 and is intended to deliver reductions in carbon dioxide emissions from the road transport sector of 2.6 - 3.0 million tonnes per annum (equivalent to carbon savings of 700,000 - 800,000 tonnes) by 2010<sup>1</sup>, by encouraging the supply of renewable fuels.

The greenhouse gas (GHG) and sustainability impacts of different biofuels vary significantly. The GHG benefits of biofuels depend, among other things, on the system of cultivation, processing and transportation of feedstock. The introduction of biofuels can also lead to unintended negative environmental and social impacts. Maintaining public confidence in biofuels requires Government and the biofuels industry to find effective ways to manage the potential negative impacts of their increased demand.

## EU Renewable Energy Directive

The European Renewable Energy Directive (RED) was published in June 2008. The text contains a framework for carbon and sustainability requirements that all biofuel sold in the EU will have to meet if it is to count towards the European targets. The requirements include mandatory aspects as well as reporting requirements, both of which are due to be implemented by Member States by December 2010. The RTFO will have to adapt to be in line with the European requirements.

The RFA aims to help UK industry prepare for the RED by updating as many of the RTFO C&S requirements as possible for year three of the RTFO (from April 2010), which we have termed a 'RED-ready' approach. Changes that present a high risk of having to be reversed when further details become available from the EC have not been implemented at this stage.

---

<sup>1</sup> Savings estimate is based on 5% biofuel by volume in 2010. Following the Agency's [Gallagher Review recommendations](#), the targets have been revised leading to 5% biofuels being reached in 2013/14 rather than 2010/11.

New information providing clarity on aspects of the RED are anticipated during 2010 through a European Commission 'Communication' and updates to the RED itself are expected through the Comitology process. The RFA will produce a note by the end of April 2010, setting out the issues likely to be clarified and how these will be dealt with in these guidelines during the year. I.e. which aspects may be updated during the 2010/11 reporting year, and which will be left until the following obligation year when the RED is implemented into UK law.

The Department for Transport (DfT) has been working with stakeholders and other Government departments to determine the best route for implementing the transport requirements set out in the RED. It has been agreed that the best way forward is to amend the current RTFO Order to make it 'RED compliant'. Everything is being done by DfT to make the amendment by the transposition deadline of 5 December 2010. DfT estimate, however, that the amendment is not likely to be made until March 2011. This is due to a number of factors, including the volume of work required to address a number of areas of ambiguity within the RED and the need to allow for the outcomes of comitology processes, as well as an element of delay associated with the forthcoming general election. The Government will consult more broadly on non-C&S related changes to the RTFO later in 2010.

## The reporting framework

To encourage suppliers to source sustainable biofuels the Renewable Fuels Agency (RFA) requires biofuel suppliers to submit reports on both the net GHG saving and the sustainability of the biofuels they supply, in order to receive Renewable Transport Fuel Certificates (RTFCs). These reports address the *direct* impacts arising from biofuel cultivation. The RFA is introducing a methodology suppliers could follow to develop biofuel projects with a low risk of indirect land-use change (iLUC). This can be reported by suppliers on a voluntary basis in their annual report. The RFA will separately monitor the potential indirect impacts of biofuel production such as indirect land-use change or changes to food and other commodity prices.

The reporting framework is designed to encourage the supply of those biofuels which deliver a high level of greenhouse gas savings in a sustainable way and is an essential 'stepping-stone' towards a mandatory assurance scheme. This first step was necessary due to the limited availability of data and the need to test the robustness of the RTFO criteria and methodology in the absence of comprehensive internationally agreed standards. There were also concerns that the unilateral adoption by the UK of a mandatory

assurance scheme could have given rise to possible breaches of World Trade Organisation rules.

The introduction of the EU RED will introduce mandatory carbon and sustainability criteria that suppliers will have to meet. The RFA aims to make the RTFO RED-ready from year three of the scheme. Note that RTFCs will still be issued for biofuels reported in the RED-ready period, without those biofuels meeting the RED mandatory criteria. Over time the RTFO will have to adapt to fully comply with the RED. The RFA will continue to ask suppliers to report on broader sustainability aspects than the RED mandatory requirements to encourage the supply of the most sustainable biofuel.

The RFA currently allows transport fuel suppliers to report that they do not have information on the sustainability or otherwise of their biofuel. This is in recognition of the fact that it may be difficult to provide information for some fuels – particularly those purchased on the spot market. From the implementation of the RED, reporting 'unknown' on certain aspects (likely to be feedstock, NUTS 2 level feedstock origin {unless actual cultivation data is used} and previous land-use) will no longer be allowed.

The RFA also requires annual, independently verified reports of overall supplier performance from suppliers applying for certificates. These reports demonstrate suppliers' performance in sourcing sustainable biofuels with good GHG savings<sup>2</sup>.

The RFA reports annually on the impacts of the RTFO. The first annual report is available on the [RFA website](#).

## RTFO Targets

The Government has set targets for three key aspects of the reporting scheme. The targets are not mandatory (and there is no penalty for failing to meet them) but illustrate the level of performance which the Government expects from fuel suppliers.

---

<sup>2</sup> Suppliers claiming fewer than 450,000 RTFCs in an obligation period do not need to submit an Annual Report.

**Table A RTFO Targets**

<b>Annual supplier target</b>	<b>2008-2009</b>	<b>2009-2010</b>	<b>2010-2011</b>
Percentage of feedstock meeting a Qualifying Environmental Standard	30%	50%	<b>80%</b>
Annual GHG saving of fuel supplied	40%	45%	<b>50%</b>
Data reporting of renewable fuel characteristics	50%	70%	<b>90%</b>

The RFA currently publishes reports of individual supplier performance on GHG savings and sustainability on a quarterly basis. The RFA also makes available other information on the environmental impact of the RTFO including information from annual and monthly carbon and sustainability (C&S) reports that identifies individual suppliers. This is undertaken in a manner which is consistent with the requirements of the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The RFA makes information available in a way that is accessible to consumers and which could inform their purchasing decisions. In compiling this information the RFA recognises and protects the commercial sensitivity of information such as individual suppliers' sales volumes from which market shares can be deduced.

## Reporting requirements

Obligated suppliers who wish to claim RTFCs must submit monthly and, if they apply for 450,000 or more certificates in an obligation period, annual C&S reports<sup>3</sup>. Monthly reports should be submitted by the 14th day of the month following the month in which the fuel was supplied, or the previous working day where this falls on a weekend or public holiday. For example, reports for the period 15 June 2010 to 14 July 2010 (inclusive) would be due by 13 August 2010. Non-obligated suppliers must report whenever they wish to claim RTFCs.

Under the RTFO Order, obligation periods run from April 15 to April 14<sup>4</sup> of the following calendar year. Annual Reports must be submitted by 28 September in the same year and must be accompanied by an independent verifier's statement. The Annual

<sup>3</sup> Note this small supplier exemption may not be permitted under the RED.

<sup>4</sup> Note this Guidance may be superseded part way through the obligation year if a new RTFO Order to implement the requirements of the EU RED is introduced during the period

Report is not linked to the issuing of certificates, but failure to submit an Annual Report is in breach of a requirement which may incur a civil penalty.

## Monthly reports

As explained above, obligated suppliers must report monthly on the fuels they have supplied, and non-obligated suppliers must report whenever they wish to receive RTFCs for the fuel they supply. The term 'monthly reporting' is used throughout this document to differentiate these reports from Annual Reports.

Monthly reports must list the 'administrative batches' of feedstock or fuel. An 'administrative batch' is one with homogenous sustainability characteristics. The summary monthly data sheet is represented in Table B.

**Table B Monthly reporting summary format – example data**

General information						Country of origin information		Sustainability information				Carbon information		Plant in operation on 23 Jan 2008?	Indicative RED-ready			
Batch No.	Internal Batch no. (optional)	Fuel type	Quantity of fuel (litres)	Biofuel Feedstock	Biofuel Production Process	Country	NUTS 2 compliant region	Standard	Env. Level	Social Level	Land-use on 1 Jan 2008	Carbon intensity g CO <sub>2</sub> e / MJ	Accuracy level		GHG	Biodiversity	C-stock	RED-ready
33001		Bioethanol	250,000	Wheat	Unknown	UK	Y	LEAF	QS	-	Cropland – non-protected	70	1	Y	Y	Y	Y	Y
33002		Bioethanol	100,000	Wheat	Natural gas CHP	France	FR51	RED - Biodiversity	-	-	Cropland – protected	44	2	N	Y	Y	Y	Y
33003		Bioethanol	250,000	Sugar beet	-	UK	N	ACCS	QS	-	Cropland – non-protected	40	6	Y	Y	Y	Y	Y
33004		Bioethanol	1,000,000	Sugar cane	-	Brazil	N/A	RTFO Meta-Standard	RTFO	RTFO	Cropland – non-protected	24	1	Y	Y	Y	Y	Y
33005		Bioethanol	500,000	Unknown	-	Unknown	Unknown	Unknown	-	-	Unknown	115	0	Y	Y	N	N	N
33006		Biodiesel	1,000,000	Oilseed rape	-	UK	Y	ACCS	RTFO	RTFO	Cropland – non-protected	52	1	Y	Y	Y	Y	Y
33007		Biodiesel	250,000	Oilseed rape	-	Unknown	Unknown	Unknown	-	-	Unknown	52	1	Y	Y	N	N	N
33008		Biodiesel	500,000	Palm oil	Methane capture	Malaysia	N/A	RSPO	QS	QS	Cropland – non-protected	37	2	Y	Y	Y	Y	Y
33009		Biodiesel	500,000	Soy	-	Argentina	N/A	RTRS	QS	RTFO	Grassland – ag. use	94	1	Y	Y	N	Y	N
33010		Biodiesel	250,000	UCO	-	UK	N/A	By-product	QS	QS	By-product	14	1	N	Y	Y	Y	Y
33011		Biogas	150,000	Dry manure	-	UK	N/A	By-product	QS	QS	By-product	15	1	Y	Y	Y	Y	Y

QS = Qualifying Standard; RTFO = RTFO Meta-standard

## Annual Reports

Annual Reports contain aggregate monthly information and in addition details of:

- Actions that have been taken to increase the sourcing of sustainable biofuels and biofuels with a lower carbon intensity, including actions to promote biofuels projects with a low risk of iLUC;
- Environmental management system certificates;
- Successful prosecutions for breaches of compliance with any environmental and/or social regulations related to biofuels activities;
- Existing verified environmental or corporate responsibility reporting.

## Scope and principles for RTFO C&S reporting

### Greenhouse gas calculation methodology

The GHG calculation methodology is based on a well-to-wheel approach, defined by the RED, which includes all significant sources of GHG emissions. This enables direct comparison of fuel chain GHG savings on a like for like basis. Default values have been set for the principal feedstocks supplying the UK biofuel market:

- Bioethanol, ETBE and TAEE from: corn, molasses, sugar beet, sugar cane, sulphite liquor and wheat;
- FAME (fatty acid methyl ester) biodiesel from: coconut, corn oil, jatropha, oilseed rape, palm, soya beans, sunflower, tallow and used cooking oil;
- Hydrogenated Vegetable Oil (HVO) biodiesels from: coconut, jatropha, oilseed rape, palm, soya beans, sunflower and tallow;
- Biogas (as CNG) from anaerobic digestion of municipal solid waste (MSW), dry manure and wet manure;
- Pure plant oil from: oilseed rape and soya beans.

Note: Annex V of the RED also includes default values for several 'future biofuels' – see Part B of the Renewable Energy Directive.

The Government is likely to extend the RTFO Order to other renewable transport fuels if they are introduced into the UK market on a significant scale. It is also possible that new feedstocks or production pathways become available for existing renewable transport fuels covered by the scheme. In these circumstances, the RFA will continue to develop new fuel chains and/or default values for these fuels, unless the European Commission sets out alternative procedures.

Suppliers who have access to specific information about their supply chain can use qualitative or quantitative data to improve the accuracy of the calculation. Part 2 of this Technical Guidance outlines procedures for using this data. There is a software tool for fuel suppliers called the [Carbon Calculator](#) which can help prepare monthly reports to the RFA, as well as the aggregate data tables for inclusion in suppliers Annual Reports to the RFA. This tool can also help calculate carbon intensity values using actual data for fuel chains.

## Land-use change

Where information on previous land-use has been supplied the calculation includes the effect on overall GHG savings. Default values for specific land-use changes are based on Intergovernmental Panel on Climate Change (IPCC) guidelines. Where information is not provided (i.e. 'unknown' is reported) the calculation does not require the use of a default value for land-use change impacts. This is because the systems providing assurance on the provenance of fuels are in the early stages of development, and applying an assumed land-use change carbon impact 'penalty' to the fuels in question would be overly conservative. This approach will no longer be acceptable under the RED.

## Environmental and social principles

The principal environmental and social risks arising from biofuel production (such as deforestation and loss of biodiversity) arise at the farm/plantation. Therefore sustainability reporting is focused on this part of the supply chain. This is also the case for the forthcoming RED sustainability requirements. A future evolution of the scheme may encompass the wider supply chain including processing and transportation of feedstock.

The RTFO reporting scheme is based on a 'meta-standard' approach. The RTFO Meta-Standard comprises seven principles identified in Table C. Existing agri-environment and social



accountability schemes have been benchmarked to assess the extent to which the feedstock produced can be considered sustainable.

**Table C Environmental and social principles**

<b>Environmental principles</b>
1. Biomass production will not destroy or damage large above or below ground carbon stocks
2. Biomass production will not lead to the destruction of or damage to high biodiversity areas
3. Biomass production does not lead to soil degradation
4. Biomass production does not lead to the contamination or depletion of water sources
5. Biomass production does not lead to air pollution
<b>Social principles</b>
6. Biomass production does not adversely affect workers rights and working relationships
7. Biomass production does not adversely affect existing land rights and community relations

Benchmarked standards that meet the required level of sustainability are called 'Qualifying Standards'. Some benchmarked standards meet the full RFTO Social Meta-Standard, but none currently fully meet the RTFO Environmental Meta-Standard. Therefore none fully meet the RTFO Biofuel Sustainability Meta-Standard (see Table D). Additional standards will be benchmarked as they become available. Suppliers are able to report compliance with any standard that has been benchmarked against the Meta-Standard.

Suppliers are also able to provide evidence of successful supplementary checks to demonstrate that feedstock complies with all the Meta-Standard criteria if they so wish.

The RED sets mandatory minimum sustainability requirements on the following elements:

- **Biodiversity (Article 17.3):** Biofuels may not be made from raw material obtained from land with **high biodiversity value** in or after January 2008. (Further detail is expected from the EC on the definition of highly biodiverse grassland.)
- **Carbon stock (Article 17.4 and 17.5):** Biofuels may not be made from raw material obtained from land with **high carbon**

**stock** or land that was undrained peatland in or after January 2008.

- **Cross compliance (Article 17.6):** Biofuel feedstocks grown in the European Community must be cultivated according to the EC's 'Cross Compliance' requirements (part A and point 9 of Annex II to Council Regulation (EC) No 73/2009 of 19 January 2009).

The RFA has benchmarked existing Environmental Qualifying Standards against the RED wording of the mandatory biodiversity criterion. The existing Environmental Qualifying Standards in general show a good coverage of the current wording of the criterion (see Table D)<sup>5</sup>. Reporting an Environmental Qualifying Standard that covers the RED biodiversity criterion or the full RTFO Meta-Standard can be used to demonstrate RED-readiness against the biodiversity criterion. Note: The benchmarks will be repeated once final details are available on the EC biodiversity criterion.

The RFA also intends to allow independent audit against the EC biodiversity criterion itself (RED Biodiversity Audit). This will only become possible once further details are made available by the EC.

Existing Environmental Qualifying Standards do not show a good coverage of the EC carbon stock criterion. Reporting against the carbon stock criterion is enabled through the previous land-use column of the monthly reports. Additional land-use types are added to the RTFO (see Annex H).

The RFA recognises that there are some wider environmental and social issues (such as land-use change arising as an indirect result of biofuel production or the impacts of biofuels on commodity prices) that are difficult to monitor and manage effectively at the fuel supplier level. The RFA has published a report on these potential effects as part of its [Annual Report](#) to Parliament.

The RFA also commissioned work to develop a methodology that can objectively distinguish biofuels from energy crops with a low risk of indirect effects. The methodology aims to enable individual companies to initiate projects that can demonstrate that the resultant biofuel has a low risk of causing indirect land-use change. The methodology is included as an option for suppliers to use from April 2010. Details are in Annex E. Suppliers are required to report on whether they have initiated such projects as well as other specified activities to support sustainable biofuels in their Annual Report. Details are in chapter 4 of this guidance.

---

<sup>5</sup> Note that a benchmark of non-Qualifying Standards showed that none of these currently cover the RED biodiversity criterion and meet the norm for audit quality.

**Table D    Benchmarked and Qualifying Standards (see Annex A for further details)**

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Stocks Criterion?	RTFO Environmental. Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental Standard?	Qualifying Social Standard?
<b>Standards that meet Qualifying Standard level</b>						
Assured Combinable Crops Scheme (ACCS)	Yes	No	No	No	Yes	No
Basel criteria for soy (Basel)	-	-	No	No	Yes	Yes
Better Sugar Cane Initiative (BSI)A	-	-	No	Yes	No	Yes
Forest Stewardship Council (FSC)	No	No	No	No	Yes	No
Genesis Quality Assurance (Genesis QA)	Yes	No	No	No	Yes	No
Linking Environment And Farming Marque (LEAF)B	No	No	No	No	Yes	No
Roundtable on Sustainable Palm Oil (RSPO)	Yes	No	No	No	Yes	Yes
Round Table on Responsible Soy (RTRS) C	No	No	No	Yes	Yes	Yes
Sustainable Agriculture Network/Rainforest Alliance (SAN/RA)D	Yes	No	No	No	Yes	Yes

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Stocks Criterion?	RTFO Environmental. Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental. Standard?	Qualifying Social Standard?
<b>Standards that do not meet Qualifying Standard level<sup>6</sup></b>						
FEDIOL <sup>E</sup>	-	-	No	No	No	No
German Qualität und Sicherheit (QuS) <sup>F</sup>	-	-	No	No	No	No
GlobalGAP <sup>G</sup>	-	-	No	No	No	No
International Federation of Organic Agriculture Movements (IFOAM) <sup>H</sup>	-	-	No	No	No	No
ProTerra <sup>I</sup>	-	-	No	No	No	No
Scottish Quality Crops (SQC) <sup>J</sup>	-	-	No	No	No	No
Social Accountability 8000 (SA8000) <sup>K</sup>	-	-	No	No	No	No

## Treatment of by-products<sup>7</sup>

To minimise the burden on business, suppliers are not required to report on criteria where the risk of adverse direct impacts is minimal. An objective, risk-based metric has been used to develop this principle. Therefore, where a feedstock represents less than 10% of the farm or factory gate value it is considered a by-product.

Biofuel producers purchasing these by-products will generally have little influence on the sustainability of the production process for the original product. For example, a biofuel producer buying tallow will have little or no influence on the standards applied to rearing the cattle. All feedstock considered by-products (such as used cooking oil and tallow) are listed in Annex B and suppliers are not

<sup>6</sup> These standards have been benchmarked against the RTFO Biofuel Sustainability Meta-Standard, but not found to meet the Qualifying Standard level. The standards can currently be reported under the RTFO and therefore be counted towards a company's data capture target, but they will not count towards a company's Qualifying Environmental Standard target.

<sup>7</sup> In the RTFO 'by-products' describes such products as tallow, used cooking oil and molasses (see Annex B for a full listing). The RED does not use such a classification and instead refers to these products as 'wastes' and 'residues'. As these terms are not yet fully defined in the RED, the RFA intends to continue using the term by-products in the RTFO for the 2010/11 reporting year.

required to report on the sustainability standard or land-use in respect of biofuels produced from these feedstocks. Instead, suppliers should report all general information required and then enter 'by-product' into the remaining sustainability columns within the monthly report. Suppliers are, however, still required to report the carbon intensity of such fuels.

Recent analysis has indicated that using by-products for biofuels can potentially have significant indirect effects, including on the net lifecycle greenhouse gas emissions biofuels offer. Case studies on the [RFA website](#) give an explanation of these issues.

## Chain of custody

To validate the accuracy of C&S reports a chain of custody must be established from the feedstock producer to the fuel supplier. Where an existing standard operates its own certifiable chain of custody this should be used to report the carbon and sustainability information<sup>8</sup>. The chain of custody must be specific to the feedstock and standard it represents.

Where the existing assurance scheme does not operate its own chain of custody, or where the chain of custody is broken within the supply chain a 'mass balance' approach should be used. This requires suppliers in the supply chain to account for their product on a 'units in – units out' basis but does not require physical separation of certified feedstock or fuel from uncertified feedstock. It ensures that for every unit of sustainable biofuel sold the corresponding sustainable feedstock has been produced.

A 'mass balance approach' requires suppliers throughout the chain to keep input and output records of the feedstock characteristics entering and leaving the plant or process stage<sup>9</sup>. The feedstock or fuel sold will have its C&S characteristics described on an invoice or related document. Each physical batch of fuel taken out of a consignment should be supplied with feedstock information which

---

<sup>8</sup> Note that the RED does not currently approve the use of a Book and claim chain of custody system (Article 18.1). The European Commission will review the Book and claim system in 2010 to determine whether it can be accepted as a chain of custody system. The RFA therefore intends to accept the Book and claim system for the 2010/11 obligation period, after which its further use will be dependent on the outcome reached by the European Commission in its review.

<sup>9</sup> Note that the RFA intends the mass balance approach to be operated at least at the level of a site that a company owns/operates. I.e. the RFA does NOT intend companies to operate one single mass balance (units in = units out) approach over their whole global operations. Although final details are not yet available from the European Commission on the approach that will be permitted under the EU RED, the current text suggests that the mass balance may have to be operated at least at the tank level.

is representative of the actual feedstock mix of the fuel in the consignment. Within a feedstock type a company can freely allocate available C&S data to outgoing batches.

‘Equivalence trading’ is practiced under the Common Agricultural Policy of the EU under which crops grown under contract for energy use can be substituted by other material from within the EU which has not been grown under an energy contract. However, this practice is in principle a book and claim type chain of custody system, which is not currently permitted under the RED. As such, the RFA intend to permit the continued use of equivalent trading for the 2010/11 obligation period only, unless otherwise directed by the EC.

## Verification

The reliability of claims made in Annual C&S Reports must be demonstrated through an independent verification (or assurance) and the verifier’s report must be submitted to the RFA alongside the Annual Report. The Annual Reports must be verified by a person who is competent to carry out verification against the International Standard on Assurance Engagements (ISAE 3000), which defines requirements for limited-assurance engagements. The Annual Report and verifier’s statement are made publicly available.

Additional guidance for verifiers can be found on the [RFA website](#).

# 1 Introduction

Key changes to this chapter:

- References to amended RTFO Order
- Introduction to EU Renewable Energy Directive

This chapter introduces the concepts behind the reporting requirements.

## 1.1 The Renewable Transport Fuel Obligation (RTFO)

The UK's Renewable Transport Fuel Obligation (RTFO) commenced on 15 April 2008. It is intended to deliver reductions in carbon dioxide emissions from the road transport sector of 2.6 - 3.0 million tonnes per annum (equivalent to carbon savings of 700,000 - 800,000 tonnes) by 2010, by encouraging the supply of renewable fuels<sup>10</sup>.

The [RTFO](#) Order (2007 No. 3072) as [amended \(2009\)](#) imposes a legal obligation on suppliers of fossil fuel for road transport ('obligated suppliers') to produce Renewable Transport Fuel Certificates (RTFCs) demonstrating that an amount of biofuel has been supplied which is equivalent to a specified percentage of their total fuel sales. The certificates can be earned from the suppliers' own sales of biofuels, or can be acquired from other suppliers of biofuels. Alternatively, obligated suppliers can 'buy out' of their obligation by paying a buy-out price to the Renewable Fuels Agency (RFA). Suppliers of renewable transport fuels who are not obligated suppliers are also able to apply for RTFCs. One RTFC is awarded for every litre of biofuel (or kg in the case of biogas).

## 1.2 Biofuels and the environment

The greenhouse gas (GHG) and sustainability impacts of different biofuels vary significantly. The GHG benefits of biofuels depend,

---

<sup>10</sup> Savings estimate is based on 5% biofuel by volume in 2010. Following the Agency's [Gallagher Review](#) recommendations, the targets have been revised leading to 5% biofuels being reached in 2013/14 rather than 2010/11.

among other things, on the system of cultivation, processing and transportation of feedstock. The production of biofuels can also lead to unintended negative environmental and social impacts. Key issues include potential competition with food crops leading to increased commodity prices. Increased pressure for land may lead directly to deforestation to make way for new plantations with biodiversity impacts and loss of carbon stocks that negate any GHG savings. Changes in land-use may also occur indirectly where existing agricultural activities are displaced into areas of high conservation value by crops for energy.

The Agency's [Gallagher Review](#) concluded that these indirect effects are potentially significant and cannot be ignored if biofuels are to provide a genuinely sustainable part of the suite of measures required to reduce GHG emissions from transport.

The EU Renewable Energy Directive (RED) (Article 19.6) requires the European Commission to report by the end of 2010 on the impact of indirect land-use change on GHG emissions and if necessary proposals to address that impact.

The RFA has also published a methodology that can objectively distinguish biofuels from energy crops with a low risk of indirect effects. The methodology aims to enable individual companies to initiate projects which demonstrate that the resultant biofuel has a low risk of causing indirect land-use change. The methodology is included as a voluntary option for suppliers to use from April 2010.. Details are in Annex E. Suppliers are required to report on whether they have initiated such projects in their annual report alongside other specified activities to promote sustainable biofuels. Details are in Chapter 4.

Some biofuels production has also been associated with social concerns including labour rights, land conflicts and health concerns related to improper use of agrochemicals. Biofuel demand can also create local economic benefits, however, including employment opportunities.

## 1.3 Managing concerns about biofuels

Maintaining public confidence in biofuels requires Government regulators and the fuels industry to find effective ways to manage potential negative impacts of their increased demand. Most risks can be managed by suppliers through effective assurance schemes that demonstrate that biofuels are sourced sustainably. Competition with food and indirect land-use changes need in large part to be managed by national governments and international bodies through other policy mechanisms. The RFA has, however,



proposed a methodology that can be used to initiate projects that demonstrate a low risk of indirect land-use change (see Annex E).

Although there are a number of standards for the sustainable production of some of the feedstocks used to produce biofuels, there are no internationally agreed standards that define sustainable biofuels. The unilateral adoption by the UK of a mandatory assurance scheme could give rise to international trade issues.

Under the [Renewable Transport Fuel Obligation Order](#) it is a pre-condition for issue of a Renewable Transport Fuel Certificate (RTFC) that a carbon and sustainability report is made to the RFA. The reporting requirement has led to more information being made public about the impacts of biofuels and should help consumers to compare the environmental and social benefits of the different biofuels supplied to the market.

## 1.4 The Renewable Energy Directive

The European [Renewable Energy Directive](#) (RED)<sup>11</sup> sets a target for the UK to achieve 15% of total energy consumption from renewable sources by 2020. As part of this all Member States must achieve a minimum 10% renewable energy in transport. The Fuel Quality Directive (FQD)<sup>12</sup> sets a target for fossil fuel suppliers in all Member States to achieve at least a 6% reduction in life cycle greenhouse gas (GHG) emissions in the fuel they supply by 2020. A significant portion of both of these targets is expected to be met through the provision of biofuels.

The RED and FQD contain a framework for C&S requirements that all biofuel sold in the EU will have to meet to count towards the European targets. The requirements are the same in both Directives and include mandatory aspects as well as reporting requirements, both of which are due to be implemented by Member States by December 2010. The RTFO will have to adapt to be in line with the European requirements.

---

<sup>11</sup> Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

<sup>12</sup> Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel, and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterways vessels and repealing Directive 93/12/EEC

The European Commission (EC) is currently in the process of developing more detail on the C&S requirements, to be published during 2010.

## 1.5 About this document

This document is the updated Technical Guidance for suppliers on the requirements for carbon and sustainability reporting for year three of the RTFO, starting on 15 April 2010.

The development of the original document was informed by two separate advisory groups comprising representatives from the oil and biofuel industries as well as from environmental NGOs and other key stakeholders. It was overseen by a steering group comprising representatives from the Department for Transport, the Department for Environment Food and Rural Affairs and the Low Carbon Vehicle Partnership.

The detailed contents of this document derive from two projects by independent consultants to develop:

- a practical methodology for the quantification of the greenhouse gas savings offered by different biofuels; and
- instructions and guidance to enable suppliers both to apply the methodology effectively and to report on the environmental and social aspects of biofuels being supplied to the UK market.

The Renewable Transport Fuel Obligation Order 2007 implemented the RTFO scheme and established the Office of the Renewable Fuels Agency (RFA) to act as the RTFO Administrator.

Suppliers who apply for RTFCs have to provide C&S reports to the RFA as a pre-condition of certificate issue. However, the information that is reported requires the engagement of the renewable fuel supply chain and therefore several chapters are relevant for other entities involved in the production and distribution of biofuels including agricultural producers, fuel refiners, traders and distributors.

This document is in two parts. Part 1 sets out the detail of the reporting scheme including how, what and when parties should report; and how information should be passed through the supply chain. High level default values for the carbon intensity of different renewable fuels and benchmarks of voluntary sustainability assurance schemes against the RTFO meta-standard are also provided. In addition, this document sets out the Government's targets for supplier reporting performance. These targets are set by the Government, not the RFA.

Chapter 2 sets out the basic principles of the GHG intensity calculation and the use of standards in determining sustainability of feedstock production.

Chapter 3 sets out the details of the monthly reporting requirements for suppliers who wish to claim RTFCs.

Chapter 4 sets out who must report on an annual basis and what should be included within the Annual Report.

Chapter 5 sets out the Government's targets for supplier reporting performance.

Chapter 6 sets out how the required information within the supply chain should be passed from one party to another within the supply chain and how a chain of custody should be operated.

Chapter 7 sets out an overview of verification requirements and provides advice on good practice to assist with the verification process.

Annex A to Annex F provide further guidance and detail on sustainability reporting including a list of standards that suppliers may use to report on the sustainability of their renewable fuels, the results of the benchmarks against the RTFO Meta-Standard, a list of feedstocks considered to be by-products, and guidance on developing projects with a low risk of indirect land-use change.

Annex G to Annex I provide the relevant information the RFA requires on the GHG savings of the fuel supplied. High level default values are provided where little is known about the supply chain.

Annex J identifies the 'standard terms' to be used for entering data into the RFA's reporting systems.

Part 2 of this document – *Carbon reporting - default values and fuel chains* and the accompanying spreadsheets available on the RFA website set out how to carry out calculations to assess the carbon intensity of specific fuels chains. Those parties who have more detailed information on the fuel supply chain, either qualitative information (e.g. the biofuel production facility uses a combined heat and power (CHP) system) or quantitative information (e.g. volume of natural gas used in the conversion plant) can use it to undertake their own calculations rather than rely on the high level defaults provided in this document.

## **Carbon Calculator**

The Carbon Calculator is a free software tool available from the [RFA website](#) to aid reporting parties determine the GHG emissions from the biofuels they have supplied. The Carbon Calculator contains default values for the carbon emissions associated with all of the

fuel chains listed in this Guidance. It also allows fuel suppliers to calculate the carbon saved on a batch of biofuel by replacing defaults within part or all of the fuel chain with either alternative defaults (e.g. type of fertiliser or mode of feedstock transport) or actual data. The RFA strongly recommends that this tool is used if suppliers are using actual data or changing the RFA defaults within a fuel chain to reduce the potential for errors. Guidance on using the Carbon Calculator is available [on the RFA web site](#).

The Carbon Calculator has been updated to ensure it is RED-ready i.e. that it is consistent with the RFA's current knowledge of the RED requirements.

Carbon Calculator features:

- Calculate the carbon intensity of your biofuel on a batch basis as required by the RFA
- Covers all the biofuels and feedstocks listed in the Technical Guidance and will include every default value within the calculations
- Automatically updates (via the internet) with the latest RFA defaults and fuel chains
- Generate monthly reports as a CSV file that can be uploaded to the RFA website to comply with C&S reporting requirements
- Generate the Annual Report tables required by the RFA (as specified in the Technical Guidance)
- Load a file from, for example, a biofuel producer into the system and retain any information they provide such as data references, batch numbers etc
- Can be run 'offline' so that all of the user's batches will be stored on their own PC

### **Guidance for verifiers**

In addition, the RFA has produced guidance specifically for verifiers responsible for providing an assurance statement on the Annual Reports individual suppliers are required to produce. This is available from the [RFA website](#).

### **Additional documents**

Additional sources and documents relevant alongside this Guidance are available from the [RFA website](#) and comprise:

- a) [Sustainability reporting within the RTFO: Framework report](#). This document, written by Ecofys, describes the principles behind the reporting requirements for environmental and social issues.

- b) Documents providing detailed benchmarks on feedstock standards
- c) Updates and clarifications to the Technical Guidance
- d) New Fuel Chains
- e) Guidance on the interpretation of field audit results for RFA reporting, written by ProForest
- f) Guidance on mitigating indirect impacts of biofuel production: case studies and methodology
- g) [Renewable Energy Directive](#) ([Directive 2009/28/EC](#) of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC)
- h) [Fuel Quality Directive](#) ([Directive 2009/30/EC](#) of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel, and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterways vessels and repealing Directive 93/12/EEC)

## 2 Scope and principles for RTFO C&S reporting

This chapter provides a high level description of the methodology for greenhouse gas calculations and the meta-standard approach for sustainability reporting.

Key changes to this chapter:

### **Carbon reporting:**

- Revised methodology for calculating lifecycle GHG emissions
- Country-level default values no longer available
- New process-specific default values are now available for reporting
- New default values for all fuel chains
- Revised land-use change reference date
- Introduction of grandfathering clause for meeting RED GHG threshold

### **Sustainability reporting:**

- Use Qualifying Environmental Standards to report against RED biodiversity criterion.
- Use previous land-use definitions to report against RED carbon stock criterion.
- The introduction of a voluntary methodology for developing biofuel projects with a low risk of indirect land-use change, to replace the concept of idle land in a company's annual report.

### 2.1 Greenhouse gas calculation methodology and default values

The GHG calculation methodology is based on a well-to-wheels approach that includes all significant sources of direct GHG emissions. This enables comparison of fuel chain GHG savings on a like for like basis.

Note that the RED introduces a minimum GHG saving threshold. Biofuels must achieve at least a 35% GHG emissions saving, increasing to at least 50% from 1 January 2017, and 60% from 1 January 2018 for biofuels and bioliquids produced in installations which started production on or after 1 January 2017. Biofuels

produced in installations that were already operational on 23 January 2008 do not have to meet the 35% GHG saving threshold until 1 April 2013 (the so-called 'grandfathering clause')<sup>13</sup>.

The methodology defined in the RED (described in detail in Part C of Annex V of the Directive) must be used for all GHG calculations carried out for reporting under the RTFO. The RED methodology completely replaces that used in the first two years of the RTFO.

**Significant differences between the two methodologies mean that any GHG results calculated using the old methodology must be recalculated.**

In addition, the RED requires a revised approach to the type of default values that will be available for reporting companies to use. The most significant changes are:

- Fuel default values will no longer be available for reporting. However, the RFA intends to continue to allow the use of fuel default values until the RED is implemented by the UK Government.
- Feedstock and country of origin default values can no longer be used for reporting.
- New process-specific default values are now available for reporting.
- The introduction of a new GHG calculation methodology means that the values of all fuel chain default values have changed. Reporting companies must use the revised values for reporting from April 2010.

The RED defines default values for the following set of fuel chains:

- Bioethanol, ETBE<sup>14</sup> and TAAE<sup>15</sup> from corn, sugar beet, sugar cane and wheat;
- FAME<sup>16</sup> biodiesel from oilseed rape, palm, soya beans, sunflower, tallow and used cooking oil;
- Hydrotreated biodiesel (dedicated processing only, not co-processed) from oilseed rape, palm, soya beans, sunflower and tallow;

---

<sup>13</sup> Note that in the absence of further guidance from the EC at the time of writing, the RFA recommends that companies interpret the RED text to refer to the **biofuel** production installation being in operation on 23 January 2008, acknowledging that the EC may publish a wider definition of which installation(s) in the biofuel supply chain count towards the grandfathering clause in due course.

<sup>14</sup> Ethyl tertiary butyl ether

<sup>15</sup> Tertiary amyl ethyl ether

<sup>16</sup> Fatty acid methyl ester



- Biogas (as CNG<sup>17</sup>) from dry manure, wet manure and municipal organic waste;
- Pure plant oil from oilseed rape.

Note: Annex V of the RED also includes default values for several 'future biofuels' (see Part B of Annex V).

In addition, the RFA has calculated default values for the following fuel chains using the new RED methodology:

- Bioethanol, ETBE and TAAE from: barley, molasses and spent sulphite liquor.
- FAME biodiesel from: coconut, corn oil and jatropha.
- Co-processed hydrotreated biodiesel from: coconut, corn oil, jatropha, oilseed rape, palm, soya, sunflower and tallow.
- Pure plant oil from soya.

This guidance covers all biofuels currently covered by the scheme and the main feedstocks for their production. The Government is likely to extend the RTFO Order to other renewable transport fuels if they are introduced into the UK market on a significant scale. It is also possible that new feedstocks or production pathways will become available for existing renewable transport fuels covered by the scheme. At the time of publishing this guidance, the European Commission had not specified how default values will be developed for these new fuel chains. The RFA will continue to calculate default values for new fuel chains unless the European Commission specifies alternative procedures. This document provides instructions for reporting on fuel chains not currently defined.

## 2.2 Land-use change

Where information on previous land-use is supplied, the carbon intensity value reported must include the GHG impact of the land-use change. Default values for different land-use types are set out in Annex H (Note: the Commission is expected to published new data on the carbon stock lost through direct land-use change, which will require these default values to be updated).

Where information is not provided on land-use on 1 January 2008 (i.e. 'unknown' is reported) the fuel chain default value excluding land-use change can be reported. Note: when the RED is implemented into UK law information on land-use on 1 January 2008 will be mandatory, i.e. 'unknown' reporting will no longer be permissible.

---

<sup>17</sup> Compressed natural gas



## 2.3 Sustainability reporting

The principal environmental and social risks arising from biofuel production (such as deforestation and loss of biodiversity) arise at the plantation. The sustainability reporting therefore focuses on this part of the supply chain. A future evolution of the scheme may encompass the wider supply chain including processing and transportation of feedstock.

The RTFO sustainability reporting approach makes use of existing voluntary agri-environment and social accountability schemes to minimise the cost and administrative burden of compliance. These existing schemes have been benchmarked against the RTFO Biofuel Sustainability Meta-Standard. The Meta-Standard comprises seven principles identified in Table 1 and includes a number of criteria and indicators (as set out in Annex C) to assess the extent to which the feedstock produced in accordance with each scheme can be considered sustainable.

**Table 1 Environmental and social principles**

<b>Environmental principles</b>
1. Biomass production will not destroy or damage large above or below ground carbon stocks
2. Biomass production will not lead to the destruction or damage to high biodiversity areas
3. Biomass production does not lead to soil degradation
4. Biomass production does not lead to the contamination or depletion of water sources
5. Biomass production does not lead to air pollution
<b>Social principles</b>
6. Biomass production does not adversely affect workers rights and working relationships
7. Biomass production does not adversely affect existing land rights and community relations

The RFA also monitors the wider environmental and social principles that are not within the control of the supply chain, including indirect land-use change and competition with food prices and separately report on these. The RFA has published a report on these potential effects as part of its [Annual Report](#) to Parliament.

The RFA also commissioned work to develop a methodology that can objectively distinguish biofuels from energy crops with a low risk of indirect effects. The methodology aims to enable individual companies to initiate projects that can demonstrate that the resultant biofuel has a low risk of causing indirect land-use change. The methodology is included as an option for suppliers to use from April 2010. Details are in Annex E. Suppliers are required to report on whether they have initiated such projects as well as other specified activities to support sustainable biofuels in their annual report. Details are in Chapter 4 of this guidance.

The RED sets mandatory minimum sustainability requirements on the following elements:

- **Biodiversity (Article 17.3):** Biofuels may not be made from raw material obtained from land with **high biodiversity value** in or after January 2008. (Further detail is expected from the EC on the definition of highly biodiverse grassland.)
- **Carbon stock (Article 17.4 and 17.5):** Biofuels may not be made from raw material obtained from land with **high carbon stock** or land that was undrained peatland in or after January 2008.
- **Cross compliance (Article 17.6):** Biofuel feedstocks grown in the European Community must be cultivated according to the EC's 'Cross Compliance' requirements (part A and point 9 of Annex II to Council Regulation (EC) No 73/2009 of 19 January 2009).

The RFA has benchmarked a comprehensive range of existing sustainability standards and certification schemes<sup>18</sup>, as illustrated in Table 2. Benchmarked standards that meet the required level of sustainability are called Qualifying Standards. Some benchmarked standards meet the full RTFO Social Meta-Standard, but none currently fully meet the RTFO Environmental Meta-Standard, or the full RTFO Biofuel Sustainability Meta-Standard.

The RFA will benchmark additional standards as they become available and will also review the effectiveness of existing standards on a regular basis. Suppliers are able to report

---

<sup>18</sup> Note a 'standard' is a document that sets out system and/or performance norms (in this case sustainability principles and criteria). In many cases a standard is a key component of a broader certification scheme. A 'certification scheme' typically includes a standard, a mechanism for certification and an accreditation system. The RFA has benchmarked both sustainability standards (e.g. Basel criteria) and certification schemes (e.g. RSPO).

Unless specified otherwise, the term sustainability standard as used in this Technical Guidance refers to both standards and certification schemes which have been benchmarked by the RFA.

compliance with any standard that has been benchmarked against the RTFO Meta-Standard in Table 2 and Table 3.

Qualifying Standards meet most, but not all, of the RTFO Biofuel Sustainability Meta-Standard criteria (the full criteria are described in Annex C). The criteria which are not fully met by a Qualifying Standard are called 'gap criteria'. Suppliers are able to provide evidence of additional supplementary checks against these gap criteria to demonstrate that feedstock complies with all the Meta-Standard criteria and therefore meet the highest sustainability level.

The RFA has also benchmarked existing Environmental Qualifying Standards against the Renewable Energy Directive wording of the mandatory biodiversity criterion. The existing Environmental Qualifying Standards in general show a good coverage of the current wording of the criterion (see Table 2)<sup>19</sup>. Reporting an Environmental Qualifying Standard that covers the RED biodiversity criterion or the full RTFO Meta-Standard can be used to demonstrate RED-readiness against the biodiversity criterion. Note: The benchmarks will be repeated once final details are available on the EC biodiversity criterion.

The RFA also intends to allow independent audit against the EC biodiversity criterion itself (RED Biodiversity Audit). This will only become possible once further details are made available by the EC.

Existing Environmental Qualifying Standards do not currently show a good coverage of the EC carbon stock criterion. Reporting against the carbon stock criterion is enabled through the previous land-use column of the monthly reports. Additional land-use types have been added (see Annex H).

---

<sup>19</sup> Note that a benchmark of non-Qualifying Standards showed that none of these currently cover both the RED biodiversity criterion and meet the norm for audit quality.

**Table 2 Benchmarked standards that meet at least Qualifying Standard level**  
(see Annex A for further details)

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Criterion?	RTFO Environmental Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental Standard?	Qualifying Social Standard?
Assured Combinable Crops Scheme (ACCS)	Yes	No	No	No	Yes	No
Basel criteria for soy (Basel)	-	-	No	No	Yes	Yes
Better Sugar Cane Initiative (BSI) <sup>20</sup>	-	-	No	Yes	No	Yes
Forest Stewardship Council (FSC)	No	No	No	No	Yes	No
Genesis Quality Assurance (Genesis QA)	Yes	No	No	No	Yes	No
Linking Environment And Farming Marque (LEAF)	No	No	No	No	Yes	No
Roundtable on Sustainable Palm Oil (RSPO)	Yes	No	No	No	Yes	Yes
Round Table on Responsible Soy (RTRS) <sup>21</sup>	No	No	No	Yes	Yes	Yes
Sustainable Agriculture Network/Rainforest Alliance (SAN/RA)	Yes	No	No	No	Yes	Yes

Those benchmarked standards that do not meet the Qualifying Standard level can still be reported. Reporting these non-qualifying standards will count towards the target for data reporting, but will not count towards the Qualifying Standard target. The standards to which this applies are shown in Table 3.

<sup>20</sup> BSI is a standard in development. The benchmark results refer to Version 2 of the standard. It is envisaged that a Final standard version will be available in April 2010, which will then be benchmarked by the RFA.

<sup>21</sup> RTRS is a standard in development. The current standard version, published in May 2009, is undergoing field testing. It is envisaged that a final standard version will be available in June 2010, which will then be benchmarked by the RFA.

**Table 3 Benchmarked standards that do not meet Qualifying Standard level**  
(see Annex A for further details)

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Criterion?	RTFO Environmental Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental Standard?	Qualifying Social Standard?
FEDIOL	-	-	No	No	No	No
German Qualität und Sicherheit (QuS)	-	-	No	No	No	No
GlobalGAP	-	-	No	No	No	No
International Federation of Organic Agriculture Movements (IFOAM)	-	-	No	No	No	No
ProTerra	-	-	No	No	No	No
Scottish Quality Crops (SQC)	-	-	No	No	No	No
Social Accountability 8000 (SA8000)	-	-	No	No	No	No

To minimise the burden on business the RFA does not currently require suppliers to report on criteria from by-products where the risk of adverse direct sustainability impacts has been thought to be minimal. An objective, risk-based metric has been used to develop this principle. Where a feedstock represents less than 10% of the farm or factory gate value it is considered a by-product (see Annex B).

The RFA has published a [report](#) on a methodology for quantifying the indirect greenhouse gas impacts of using 'wastes' for biofuels or bioenergy, which includes case studies of UK tallow, MSW, straw and molasses.

In line with the RED all by-products<sup>22</sup> shall be attributed with zero GHG emissions at the point at which they are collected for processing into biofuels (see Paragraph 18 of Annex V).

<sup>22</sup> In the RTFO 'by-products' describes such products as tallow, used cooking oil and molasses (see Annex B for a full listing). The RED does not use such a classification and instead refers to these types of products as 'wastes' and 'residues'. As these are not yet fully defined in the RED, the RFA intends to continue using the term by-products in the RTFO for the 2010/11 reporting year.

## 3 Monthly reporting

This chapter sets out the requirements for monthly C&S reporting by fuel suppliers to the RFA. It illustrates the format for monthly reporting and describes how monthly reporting relates to the issuing of RTFCs.

For simplicity, the C&S reports included in an application for RTFCs are referred to as 'monthly' reports throughout this chapter to distinguish them from Annual Reports.

Some of the sustainability data requirements are not applicable to certain feedstocks: recommended instructions are provided on reporting in these cases.

This chapter is likely to be of particular interest to obligated suppliers and any other fuel suppliers who wish to claim RTFCs.

Key changes to this chapter:

- Change of land-use reference date to 1 January 2008
- Introduction of the following new columns in the monthly report:
  - (If EU feedstock) whether feedstock is from NUTS 2 compliant region
  - Plant in operation on 23 January 2008 (for 'grandfathering' clause)

### 3.1 Reporting frequency and timetable

C&S reports are required as part of any application for certificates. Monthly reports must be submitted to the RFA in the month after the month in which the duty payment on the fuel was reported to HM Revenue and Customs. Further detail of reporting frequencies and timetables are found within the Operational Guidance on the RTFO.

## 3.2 What to report

C&S reports on biofuels must be per 'administrative batch',<sup>23</sup> where an administrative batch is any amount of product with identical sustainability characteristics which are:

- Fuel type
- Biofuel feedstock
- Process by which the biofuel was produced
- Country of origin
- (If EU feedstock) whether feedstock is from NUTS 2 compliant region
- Standard(s) (including supplementary checks where these have been performed)
- Land-use on 1 January 2008<sup>24</sup>
- Plant in operation on 23 January 2008

The **total volume of the administrative batches in a C&S report should equal the volume of fuel reported in the application for certificates** i.e. the volume of renewable fuel supplied in the period.

The RFA requires a C&S report for every application for an RTFC, and will not issue RTFCs where no such report has been provided.

## 3.3 Reporting on the sustainability of renewable fuels

The reporting scheme aims to make maximum use of existing voluntary agri-environmental and social accountability schemes. It therefore encourages transport fuel suppliers to demonstrate that their biofuel feedstock is produced in accordance with the criteria of the RTFO Biofuel Sustainability Meta-Standard, through certification where possible to an existing accountability scheme, such as the Assured Combinable Crops Scheme (ACCS).

Through a benchmarking process that compares existing schemes against the Meta-Standard; two different levels of feedstock sustainability for the RTFO have been defined. Existing accountability schemes have been classified as meeting either:

---

<sup>23</sup> The RED uses the term 'consignment'. As this term is not yet fully defined, the RFA will continue to use 'batches' for the 2010/11 reporting period.

<sup>24</sup> Note this date is updated to be in line with the EC requirements

- The 'Qualifying Standard' for social and/or environmental criteria - representing an acceptable level of sustainability; or
- The 'RTFO Biofuel Sustainability Meta-Standard' - representing a higher level of sustainability - by meeting fully the requirements of the RTFO Biofuel Sustainability Meta-Standard.

The RFA has also benchmarked existing Environmental Qualifying Standards against the RED wording of the mandatory biodiversity criterion. Reporting an Environmental Qualifying Standard that covers the RED biodiversity criterion, the full RTFO Meta-Standard, or a RED Biodiversity Audit<sup>25</sup> can be used to demonstrate RED-readiness on the biodiversity criterion.

Transport fuel suppliers are able to report that their feedstock meets an accountability scheme that does not achieve these levels of performance, provided it has been benchmarked against the Meta-Standard and is listed in Table 3 or Annex A.

### 3.3.1 The Qualifying Standard

#### **What is it?**

Existing standards which meet most, but not all, of the RTFO sustainability criteria underlying the principles outlined in Chapter 2 are accepted as proof of an acceptable level of sustainability. These standards are called Qualifying Standards.

The RTFO Biofuel Sustainability Meta-Standard criteria which are not fully met by a Qualifying Standard are called 'gap criteria'. The number of criteria that an existing standard must address to be accepted as a Qualifying Standard is described in Annex A.

Several existing standards only address either environmental issues or social issues. Therefore the Qualifying Standard is defined separately for environmental and social criteria. If the existing standard sufficiently addresses both environmental and social criteria it can be an environmental Qualifying Standard and a social Qualifying Standard.

Current standards which meet at least the Qualifying Environmental Standard level are:

- Assured Combinable Crops Scheme (ACCS)
- Basel Criteria for Soy (Basel)
- Forest Stewardship Council (FSC)

---

<sup>25</sup> It is intended to allow a specific independent audit against the RED biodiversity criterion. However, insufficient detail is currently available from the RED to enable this option.



- Genesis Quality Assurance (Genesis QA)
- Linking Environment and Farming (LEAF)
- Roundtable on Sustainable Palm Oil (RSPO)
- Round Table on Responsible Soy (RTRS)<sup>26</sup>
- Sustainable Agriculture Network/Rainforest Alliance (SAN/RA)<sup>27</sup>

Current standards which meet at least the Qualifying Social Standard level are:

- Basel Criteria for Soy (Basel)
- Better Sugar Cane Initiative (BSI)<sup>28</sup>
- Roundtable on Sustainable Palm Oil (RSPO)
- Round Table on Responsible Soy (RTRS)<sup>26</sup>
- Sustainable Agriculture Network/Rainforest Alliance (SAN/RA)<sup>27</sup>

For further details on all the standards that have been benchmarked and can be reported see Annex A.

### How to claim a Qualifying Standard

There are three methods a party can use to demonstrate compliance with the Qualifying Standard level:

- a) Using an existing Qualifying Standard;
- b) Using a non-Qualifying Standard with evidence of successful independent audit against gap criteria; or
- c) Successful independent audit against the full RTFO Meta-Standard, in which it is found that the farm/plantation meets the Qualifying Standard level<sup>29</sup>.

For a biofuel supplier to claim that its feedstock was grown in accordance with a Qualifying Standard that is an operational certification scheme, it must be able to show that the farm from which the feedstock originates has a certificate which proves that it

---

<sup>26</sup> RTRS is a standard in development. The current standard version, published in May 2009, is undergoing field testing. It is envisaged that a final standard version will be available in June 2010, this will then be benchmarked by the RFA.

<sup>27</sup> Note that this benchmark result refers to the SAN standard and its addendum, which were published in April 2009. The addendum includes additional sustainability criteria for a number of key biofuel feedstocks (sugar cane, oil palm, soy and sunflower).

<sup>28</sup> BSI is a standard in development. The benchmark results refer to Version 2 of the standard. It is envisaged that the Final standard version will be available in April 2010, which will then be benchmarked by the RFA.

<sup>29</sup> See [Guidance](#) on the interpretation of field audit results for RFA reporting, written by ProForest.

is certified to the Qualifying Standard level. In the case where the Qualifying Standard operates a book and claim system with tradable certificates (which has been approved for use by the RFA), the biofuel supplier must be able to show sufficient of the relevant certificates for the amount of biofuel claimed. For more details, see Chapter 6 on the chain of custody<sup>30</sup>.

If the Qualifying Standard is an operational standard with no associated certification scheme, companies must provide evidence of a successful third party independent audit against the standard's criteria. The audit must meet the requirements of the RFA's Norm for Audit Quality (see section A.5 in Annex A), with the exception of criteria 2 (Management of the audit programme) and 7 (Accreditation process for Accreditation Bodies). Minor musts in the norm should be treated as recommendations only.

It is also permissible to report that a feedstock was grown to a Qualifying Standard level if a non-Qualifying Standard (from those listed in Table 3) is complemented by supplementary checks on the 'gap criteria' which show that the farm meets the Qualifying Standard level. In this case proof must be provided of certification against the non-Qualifying Standard in addition to documented proof of a successful audit against the gap criteria as they relate to the Qualifying Standard claimed. In this case, both certification against the existing standard and the supplementary checks must meet the RFA's Norm for Audit Quality (see section A.5 in Annex A), with the exceptions listed above. Minor musts in the norm should be treated as recommendations only.

The RFA **strongly recommends** that in cases where an existing Qualifying Standard is operational, parties do not look to carry out independent audits against the RTFO Biofuel Sustainability Meta-Standard (option c).

For situations where there is no operational Qualifying Standard, or standards are still under development (e.g. the Better Sugarcane Initiative (BSI) and the Round Table on Responsible Soy (RTRS)), short term solutions are recommended for sustainability reporting under the RTFO. These are described in Annex A.

---

<sup>30</sup> Note that the RED does not currently approve the use of a Book and claim chain of custody system (Article 18.1). The European Commission will review the Book and claim system in 2010 to determine whether it can be accepted as a chain of custody system. The RFA therefore intend to accept the Book and claim system for the 2010/11 obligation period, after which its further use will be dependent on the outcome reached by the European Commission in its review.

### 3.3.2 The RTFO Biofuel Sustainability Meta-Standard

#### What is it?

The RTFO Biofuel Sustainability Meta-Standard sets out the aim for sustainability performance under the RTFO in the medium term. It comprises five environmental and social principles which are set out in Table 1. These are sub-divided into a number of criteria and indicators which are set out in Annex C.

A number of voluntary sustainability standards have been benchmarked against the RTFO Meta-Standard. Currently, no existing standards meet the full RTFO Meta-Standard for the environmental criteria. Two standards in development meet the full RTFO Meta-Standard for Social criteria. However, it is recognised that for many feedstocks there are no operational standards that meet the full RTFO Meta-Standard requirements. It is anticipated that, where available, companies will focus on using the mechanisms developed by existing sustainability assurance schemes and will primarily aim to report a Qualifying Standard. It is hoped that existing Qualifying Standards and non-Qualifying Standards will address the gap criteria within their standard (e.g. by establishing a reference year for land-use change) and will thereby develop towards full equivalence with the RTFO Biofuel Sustainability Meta-Standard.

Standards which meet the full RTFO Social Meta-Standard level are:

- Better Sugar Cane Initiative (BSI)<sup>28</sup>
- Round Table on Responsible Soy (RTRS)<sup>26</sup>

For further details on all the standards that have been benchmarked and can be reported see Annex A.

#### How to claim the RTFO Biofuel Sustainability Meta-Standard

It is recognised that the RTFO Biofuel Sustainability Meta-Standard level is currently not available for a wide range of biofuel feedstocks. However, there are four alternative methods a party can use to demonstrate compliance with the full RTFO Biofuel Sustainability Meta-Standard:

- a) Using a standard that meets the full RTFO Meta-Standard;
- b) Using an existing Qualifying Standard with evidence of successful independent audit against gap criteria to reach full RTFO Meta-Standard level;
- c) Using a non-Qualifying Standard with evidence of successful independent audit against gap criteria to reach full RTFO Meta-Standard level; or

- d) Successful independent audit against the full RTFO Meta-Standard<sup>31</sup>.

In the same way as claiming an existing Qualifying Standard above, a party can provide evidence of certification against an existing operational sustainability certification scheme which meets the full RTFO Meta-Standard.

A party can alternatively provide proof of certification against one of the Qualifying Standards listed in Table 2, and proof of a successful audit against the gap criteria between the Qualifying Standard reported and the RTFO Meta-Standard level.

In such cases, supplementary checks must be performed by a body which is accredited to the Qualifying Standard and with qualifications relevant to the gap criteria.

Parties may also provide proof of certification against one of the benchmarked standards that does not meet a Qualifying Standard level, listed in Table 3, and proof of a successful audit against the gap criteria between the benchmarked standard reported and the RTFO Meta-Standard level. In this case, both certification against the existing standard and the supplementary checks must meet the requirements of the RFA's Norm for Audit Quality (see section A.5 in Annex A), with the exception of criteria 2 (Management of the audit programme) and 7 (Accreditation process for Accreditation Bodies). Minor musts in the norm should be treated as recommendations only.

Parties may also carry out an independent third party audit against the full RTFO Biofuel Sustainability Meta-Standard criteria, in which the requirements of the RFA's Norm for Audit Quality (see section A.5 in Annex A) are met, with exceptions as listed above. Minor musts in the norm should be treated as recommendations only.

The RFA **strongly recommends** that in cases where an existing standard which meets the full RTFO Meta-Standard level or the Qualifying Standard is operational, parties do not look to carry out independent audits against the RTFO Biofuel Sustainability Meta-Standard (option d).

---

<sup>31</sup> See [Guidance](#) on the interpretation of field audit results for RFA reporting, written by Proforest.

### 3.3.3 How are biofuels produced from by-products treated?<sup>32</sup>

For by-products such as manure and tallow, data on the sustainability characteristics (sustainability standard and land-use) of the by-product are not required. Annex B sets out the list of those considered by-products for RTFO C&S reporting.

In a monthly report, suppliers are required to complete the general batch information columns with information on biofuel feedstock and country of origin, and to report 'by-product' for the sustainability information columns. Reporting the carbon intensity of the biofuel is still required and can be derived using the default values in Annex G or calculated using Part 2 of this document.

Reporting 'by-product' in the relevant fields achieves both the Environmental and Social Qualifying Standard level.

### 3.3.4 The Renewable Energy Directive

#### What are the requirements?

The RED and FQD will set mandatory minimum requirements on the following elements:

- **GHG emissions savings (Article 17.2):** Biofuels must achieve at least a 35% GHG emissions saving, increasing to at least 50% from 1 January 2017, and 60% from 1 January 2018 for biofuels and bioliquids produced in installations which started production on or after 1 January 2017. Biofuels produced in installations<sup>33</sup> that were already operational on 23 January 2008 do not have to meet the 35% GHG saving threshold until 1 April 2013.
- **NUTS 2<sup>34</sup> (Article 19.3):** for EU feedstocks, parties are only allowed to use the RED GHG default values if the feedstock is from a region where the typical GHG emissions from cultivation of agricultural raw materials can be expected to be lower than

---

<sup>32</sup> Note that under the EU RED wastes and residues, are set to be 'double counted' towards Member States' renewable transport targets. This implies that one litre of biofuel produced from the above by products may earn two RTFCs when the RED is implemented into UK law.

<sup>33</sup> Note that in the absence of further guidance from the EC at the time of writing, the RFA recommends that companies interpret the RED text to refer to the biofuel production installation being in operation on 23 January 2008, acknowledging that the EC may publish a wider definition of which installation(s) in the biofuel supply chain count towards the grandfathering clause in due course.

<sup>34</sup> Nomenclature of territorial units for statistics, level-2:  
[http://ec.europa.eu/eurostat/ramon/nuts/home\\_regions\\_en.html](http://ec.europa.eu/eurostat/ramon/nuts/home_regions_en.html)

or equal to the emissions in the default value. Regions are defined at the 'NUTS 2' level. The UK Government will publish a list of such regions in the UK in due course. Actual data on cultivation emissions is required in the case that a NUTS 2 region has typically higher emissions than those in the default value.

- **Biodiversity (Article 17.3):** Biofuels may not be made from raw material obtained from land with **high biodiversity value** in or after January 2008. (Further detail is expected from the EC on the definition of highly biodiverse grassland.)
- **Carbon stock (Article 17.4 and 17.5):** Biofuels may not be made from raw material obtained from land with **high carbon stock** or land that was undrained peatland in or after January 2008.
- **Cross compliance (Article 17.6):** Biofuel feedstocks grown in the European Community must be cultivated according to the EC's 'Cross Compliance' requirements (part A and point 9 of Annex II to [Council Regulation \(EC\) No 73/2009](#) of 19 January 2009).

### How to claim RED-readiness

From 15 April 2010 obligated parties will be able to report biofuels as being RED-ready. Note: as the full details of the RED requirements are not known in time to be included in this Technical Guidance for year three of the RTFO, biofuels cannot yet be claimed to be RED compliant. During the RED-ready period, all reported biofuels will still be eligible to earn RTFCs.

A party can demonstrate RED-readiness if they meet all three of the following elements:

a) GHG threshold:

- Reporting a carbon intensity of 54.47 gCO<sub>2</sub>e/MJ or less (equivalent to a minimum 35% GHG emission saving); or
- Reporting that the biofuel was produced by an installation that was already operational on 23 January 2008<sup>35</sup>.

Note on NUTS 2:

---

<sup>35</sup> Further detail on which installation(s) in the biofuel supply chain will qualify for this exemption are expected to be published in the European Commission's forthcoming Communication. In the absence of further guidance from the EC at the time of writing, the RFA recommends that companies interpret the RED text to refer to the biofuel production installation being in operation on 23 January 2008, acknowledging that the EC may publish a wider definition of which installation(s) in the biofuel supply chain count towards the grandfathering clause in due course. Note: from 1 April 2013 this exemption will no longer apply and all biofuels will have to meet the minimum GHG saving threshold.

- For EU feedstocks, parties may also report whether the feedstock is from a NUTS 2 compliant region or not. When the RED is implemented, EU biofuels not from a NUTS 2 compliant region will not be allowed to use a carbon default value and will have to report actual carbon values for the cultivation stage.<sup>36</sup>
- During the RED-ready period the RFA will continue to allow parties to report default carbon values.
- In this interim period before individual Member States have published which NUTS 2 regions are compliant and which not, parties may demonstrate tentative RED-readiness by reporting the actual NUTS 2 region that the feedstock is from.

b) Biodiversity:

- Reporting a Qualifying Environmental Standard that covers the RED biodiversity criterion (see Table 2); or
- Reporting a benchmarked non-Qualifying Standard that covers the RED biodiversity criterion<sup>37</sup>; or
- Reporting the RTFO Environmental Meta-Standard level; or
- Independent audit against the RED biodiversity criterion<sup>38</sup>; or
- Reporting 'cropland – non-protected' as the land-use on 1 January 2008.

c) Carbon Stock:

- Reporting a land-use on 1 January 2008 that does not have a high carbon stock ('cropland – non-protected', 'cropland – protected', 'grassland with agricultural use' or 'grassland without agricultural use') or 'by-product'.<sup>39</sup>
- Note: reporting 'unknown' will not meet this criterion.
- Note that the RED carbon stock criterion does not apply if the land has the same status now as it did on 1 January 2008.

---

<sup>36</sup> When the RED is implemented, EU biofuels wishing to use the GHG defaults will therefore be required to provide evidence that their feedstock is from a NUTS 2 compliant region. It is not clear from the Directive whether information on the NUTS 2 region will also be required if actual carbon values are used. In the RED-ready period the RFA will not require NUTS 2 information for EU biofuels using actual carbon data. The RFA has no intention of reporting NUTS 2 regional information for individual suppliers.

<sup>37</sup> Currently there are no such standards that the RFA has benchmarked.

<sup>38</sup> It is intended to allow a specific independent audit against the RED biodiversity criterion. However, insufficient detail is currently available from the RED to enable this option.

<sup>39</sup> Land-use type definitions are provided in Table 35 in Annex H.



Note that the European Commission has not yet published details on how biofuels should demonstrate compliance with the Cross Compliance criterion. As such the RFA do not intend to require information related to this at this stage.

## 3.4 Filling in the monthly report

Table 4 and the following text provide a summary of the information that is required within the monthly C&S report. An example summary of reported batches is shown in Table 8 to illustrate particular points.

### 3.4.1 Providing general and country of origin batch information

Table 4 describes the general information which should be provided for each batch of biofuel, as well as which of these data fields are required, and which are optional. The optional fields are new for Year 3 of the RTFO and may influence whether a batch can be identified as RED-ready.

**Table 4 General information data fields for C&S reporting on the RFA Operating System (ROS)**

ROS data field and description	Compulsory or optional?
<b>Administrative Batch number</b> Each batch number will be unique and generated automatically by the RFA Operating System (ROS). The batch refers to an administrative batch, not necessarily a physical batch. An administrative batch is any amount of fuel with homogeneous sustainability characteristics (biofuel feedstock, biofuel production process, country of origin, NUTS 2 compliant region, standard, land-use on 1 January 2008, plant in operation on 23 January 2008).	n/a – automatically generated
<b>Internal batch number</b> Optional data field for the supplier to record their own batch number for reference purposes.	Optional
<b>Quantity of fuel</b> Expressed in standard litres for liquid fuel or kilograms in the case of gas. In the case of BioETBE only the renewable component (47% of the volume) should be reported in line with HMRC requirements.	Compulsory



ROS data field and description	Compulsory or optional?
<b>Fuel type</b> Biodiesel, bioethanol, or biogas. Note that BioETBE should be reported as bioethanol in line with HMRC requirements.	Compulsory
<b>Biofuel feedstock</b> The feedstock type from which the fuel is made e.g. used cooking oil, wheat.	Compulsory – ‘unknown’ permitted
<b>Biofuel production process</b> Process-specific carbon default values are provided under the RED. The relevant process is dependent on the feedstock, but could be, for example: <ul style="list-style-type: none"> <li>• Lignite, natural gas or straw as process fuel in CHP plant for bioethanol from wheat, or</li> <li>• Methane capture (or not) for biodiesel from palm (see Table 34).</li> </ul>	Optional
<b>Country of origin</b> The country of origin of the feedstock.	Compulsory – ‘unknown’ permitted
<b>NUTS 2 compliant region</b> In order to claim RED-readiness, for EU feedstocks, parties should report whether or not the feedstock is from a region where the typical GHG emissions from cultivation of agricultural raw material can be expected to be lower than or equal to the emissions in the RED default value, a so-called ‘NUTS 2 compliant region’. (Member States are each due to publish this information for their regions during 2010. The RFA will make the information available to parties as it becomes available.) If the feedstock is not from a NUTS 2 compliant region actual carbon values should be used for the feedstock cultivation stage in order to be RED-ready. <b>During the RED-ready period, however, the RFA will continue to allow parties to report default carbon intensity values.</b> In this interim period before individual Member States have published which NUTS 2 regions are compliant, parties may report the actual NUTS 2 region that the feedstock is from.	Optional – defaults to ‘n/a’ for non-EU countries and by-products

ROS data field and description	Compulsory or optional?
<p><b>Plant in operation on 23 Jan 2008</b></p> <p>Under the RED, biofuel from installations<sup>40</sup> that were already operational on 23 January 2008 are not obliged to meet the 35% GHG threshold until 1 April 2013. Therefore, to claim RED-readiness for a biofuel that does not meet the GHG threshold the supplier will need to demonstrate that the biofuel plant was in operation on 23 Jan 2008. Y/N can be reported.</p>	Optional

### 3.4.2 Providing sustainability information for each administrative batch

Suppliers can report any standard benchmarked against the RTFO Biofuel Sustainability Meta-Standard. Table 2 and Table 3 contain the full list of standards available to be reported, and whether they are qualifying or non-qualifying.

---

<sup>40</sup> Note that in the absence of further guidance from the EC at the time of writing, the RFA recommends that companies interpret the RED text to refer to the biofuel production installation being in operation on 23 January 2008, acknowledging that the EC may publish a wider definition of which installation(s) in the biofuel supply chain count towards the grandfathering clause in due course.

**Table 5 Sustainability information data fields for C&S reporting on the RFA Operating System (ROS)**

ROS data field and description	Compulsory or optional?
<p><b>Standard</b></p> <p>This column is used to report the sustainability standard to which the feedstock reported was produced.</p> <p>If the feedstock is not certified, report 'none – feedstock not certified', or if the data is not known, report 'unknown' (as shown in Batch 33007 in Table 8).</p> <p>If the feedstock is a by-product, report 'by-product' (as shown in Batch 33010 and 33011 in Table 8).</p> <p>If a specific audit has been carried out on the farm/plantation against the RTFO Meta-Standard criteria (in the absence of an available standard) report 'RTFO Biofuel Sustainability Meta-Standard' (as shown in Batch 33004 in Table 8).</p> <p>If a specific audit has been carried out against the RED biodiversity criterion (in the absence of an available standard) report 'RED-Biodiv.' (as shown in Batch 33002 in Table 8)<sup>41</sup>.</p>	<p>Compulsory – 'unknown' permitted. Automatically defaults to 'byproduct' for byproducts.</p>
<p><b>'Env Level' and 'Social Level'</b></p> <p>The two entry fields labelled 'Env Level', for environmental level, and 'Social Level' identify the level of sustainability achieved against the environmental and social criteria of the RTFO Meta-Standard, respectively. This defaults to either a Qualifying Standard (shown as 'QS'), RTFO Biofuel Sustainability Meta-Standard (shown as 'RTFO'), or blank if the standard reported does not meet either the Qualifying Standard or the RTFO Meta Standard.</p> <p>If supplementary checks have been performed successfully on all of the gap criteria within the existing standard, the 'Env Level' and/or the 'Social Level' fields should illustrate the new level attained - either 'QS' or 'RTFO'.</p>	<p>Automatically generated from the 'Standard' column. Can be overwritten where a gap audit has been undertaken.</p>

<sup>41</sup> It is intended to allow a specific independent audit against the RED biodiversity criterion. However, insufficient detail is currently available from the RED to enable this option.

ROS data field and description	Compulsory or optional?
<p>Where a specific audit has been carried out on the farm/plantation against the RTFO Meta-Standard and the full RTFO Biofuel Sustainability Meta-Standard level has been reached, 'RTFO' should be reported in this field.</p> <p>Where a specific audit has been carried out on the farm/plantation against the RTFO Meta-Standard and the equivalent of a Qualifying Standard level has been reached, 'QS' should be reported in this field.</p> <p>For by-products, 'QS' should be reported in the 'Env Level' and 'Social Level' fields.</p>	
<p><b>Land-use</b></p> <p>This field is used to report the land-use relevant to the feedstock on 1 January 2008, For guidance on how to determine the land-use on 1 January 2008, see Annex H.</p> <p>If the feedstock is considered a by-product (see Annex B) fill in: 'by-product'.</p>	<p>Compulsory – 'unknown' permitted.</p> <p>Automatically defaults to 'byproduct' for byproducts.</p>

### 3.4.3 Unknown reporting

For any data field in the general or sustainability information sections for which verifiable information is not available, 'unknown' should be reported. It should be noted that the RED will require the introduction of mandatory sustainability standards. Once this is implemented at the national level 'unknown' reporting is unlikely to be acceptable for biofuel feedstock, NUTS 2 compliant region (within EU, unless actual cultivation data is provided), and land-use on 1 Jan 2008.

### 3.4.4 Providing carbon information for each administrative batch

Fuel suppliers are required to report the carbon intensity of all renewable fuels, including by-products.

**Table 6 Carbon information data fields for C&S reporting on the RFA Operating System (ROS)**

ROS data field and description	Compulsory or optional?
<p><b>Carbon intensity</b></p> <p>This entry field is used to report the carbon intensity expressed in gCO<sub>2</sub>e/MJ<sup>42</sup>. The carbon intensity calculation, and therefore the figure reported, includes the impact of any direct land-use change.</p> <p>For EU feedstocks, if the feedstock is not from a NUTS 2 compliant region, actual carbon values should be used for the cultivation stage in order to claim RED-readiness. Note that in the RED-ready period the RFA will continue to allow the use of default values.</p> <p>Reporting a carbon intensity of 54.47 gCO<sub>2</sub>e/MJ or less is equivalent to the RED threshold of a minimum 35% GHG emission saving.</p> <p>For guidance on assessing the carbon intensity of an administrative batch of biofuel see Annex G.</p> <p>For guidance on assessing the carbon intensity of the impact of land-use change see Annex H.</p>	<p>Compulsory - the CI number will be automatically generated; however, suppliers can overwrite this number if an Accuracy Level greater than 2 is claimed.</p>
<p><b>Accuracy Level</b></p> <p>The accuracy level is a measure of the type of data used to derive the carbon intensity of a batch of biofuel. For guidance on establishing the Accuracy Level see Annex I.</p>	<p>Compulsory – this automatically defaults to 0 (where only fuel type is known), 1 (where the feedstock is known) or 2 (where the process is known). Accuracy Level 2 can be overwritten if suppliers are claiming a higher Accuracy Level.</p>

<sup>42</sup> Grams of carbon dioxide equivalent per megajoule.

### 3.4.5 Indicative RED-ready columns

Each of the three columns in the 'Indicative RED-ready' refers to one of the mandatory RED criteria. The fourth column indicates overall RED-readiness.

The columns will automatically fill to indicate whether the biofuel batch is RED-ready, reading from information already reported.

**Table 7 Indicative RED-ready data fields for C&S reporting on the RFA Operating System (ROS)**

ROS data field and description	Compulsory or optional?
<p><b>GHG threshold</b></p> <p>This column reads from the 'NUTS 2 compliant region', 'Carbon intensity', 'Accuracy level' and 'Plant in operation on 23 Jan 2008' columns.</p> <p>Note that if the actual NUTS 2 region is reported (in the absence of data from Member States about which regions will be compliant and which not) this will count as being tentatively RED-ready;</p>	n/a – automatically generated
<p><b>Biodiversity</b></p> <p>This column reads from the 'Standard' column and is met for those standards that meet the RED biodiversity criteria (see Table 2). This is also met if the previous land-use is 'Cropland – non-protected'. If 'Cropland – protected' is reported, parties must be able to provide evidence that the production of the biofuel feedstock did not interfere with the nature protection purposes of the land – this can be achieved through reporting a Qualifying Standard that meets the RED biodiversity criterion or through the RED Biodiversity Audit<sup>43</sup>.</p>	n/a – automatically generated

<sup>43</sup> It is intended to allow a specific independent audit against the RED biodiversity criterion. However, insufficient detail is currently available from the RED to enable this option.

ROS data field and description	Compulsory or optional?
<b>Carbon Stock</b> This column reads from the 'Land-use on 1 Jan 2008' column. Note that the RED carbon stock criterion does not apply if the land has the same status now as it did on 1 January 2008.	n/a – automatically generated
<b>RED ready (indicative)</b> This column reads from the three previous columns, showing whether the biofuel batch is RED-ready.	n/a – automatically generated

**Table 8 Illustrative monthly reporting requirement for C&S information – example data**

General information						Country of origin information		Sustainability information				Carbon information		Plant in operation on 23 Jan 2008?	Indicative RED-ready			
Batch No.	Internal Batch no. (optional)	Fuel type	Quantity of fuel (litres)	Biofuel Feedstock	Biofuel Production Process	Country	NUTS 2 compliant region	Standard	Env Level	Social Level	Land-use on 1 Jan 2008	Carbon intensity g CO <sub>2</sub> e / MJ	Accuracy level		GHG	Biodiversity	C-stock	RED-ready
33001		Bioethanol	250,000	Wheat	Unknown	UK	Y	LEAF	QS	-	Cropland – non-protected	70	1	Y	Y	Y	Y	Y
33002		Bioethanol	100,000	Wheat	Natural gas CHP	France	FR51	RED - Biodiv.	-	-	Cropland – protected	44	2	N	Y	Y	Y	Y
33003		Bioethanol	250,000	Sugar beet	-	UK	N	ACCS	QS	-	Cropland – non-protected	35	6	Y	Y	Y	Y	Y
33004		Bioethanol	1,000,000	Sugar cane	-	Brazil	N/A	RTFO Meta-Standard	RTFO	RTFO	Cropland – non-protected	24	1	Y	Y	Y	Y	Y
33005		Bioethanol	500,000	Unknown	-	Unknown	Unknown	Unknown	-	-	Unknown	115	0	Y	Y	N	N	N
33006		Biodiesel	1,000,000	Oilseed rape	-	UK	Y	ACCS	RTFO	RTFO	Cropland – non-protected	52	1	Y	Y	Y	Y	Y
33007		Biodiesel	250,000	Oilseed rape	-	Unknown	Unknown	Unknown	-	-	Unknown	52	1	Y	Y	N	N	N
33008		Biodiesel	500,000	Palm oil	Methane capture	Malaysia	N/A	RSPO	QS	QS	Cropland – non-protected	37	2	Y	Y	Y	Y	Y
33009		Biodiesel	500,000	Soy	-	Argentina	N/A	RTRS	QS	RTFO	Grassland – ag. use	94	1	Y	Y	N	Y	N
33010		Biodiesel	250,000	UCO	-	UK	N/A	By-product	QS	QS	By-product	14	1	N	Y	Y	Y	Y
33011		Biogas	150,000	Dry manure	-	UK	N/A	By-product	QS	QS	By-product	15	1	Y	Y	Y	Y	Y
Automatically generated.	Optional column for company's internal reference number.	For standard terminology see Annex J. BioETBE is reported as bioethanol.	Report in litres for liquid biofuel, and kg for gaseous biofuel.	For standard terminology see Annex J or RFA website.	For process options see Annex G.	Country of feedstock origin. See Annex J or RFA website.	See section 3.3.4 for explanation of NUTS 2 region.	See Annex A for standards. See Annex J for standard terms.	See section 3.3 for explanation of sustainability levels.		See Annex H for land-use categories.	See Annex G for default values and Annex I for Accuracy Level.		Optional, only if do not meet RED GHG threshold.	Automatic – see section 3.4.2.			



## Explanations of example data in Table 8 – the summary monthly data report

**Batch 33001** represents 250,000 litres bioethanol from wheat of UK origin.

- The biofuel supplier can provide verifiable evidence that the wheat is LEAF certified - 'LEAF' is reported in the 'Standard' column.
- LEAF is an environmental Qualifying Standard (see Annex A). The 'Env Level' therefore contains 'QS'. LEAF is not a social Qualifying Standard therefore the 'Social Level' is blank. ROS will populate this automatically.
- The supplier knows the feedstock and country of origin of the biofuel. The supplier also knows that the wheat is from a NUTS 2 compliant region – i.e. the UK region has been identified as one in which the typical GHG emissions associated with cultivation of wheat can be expected to be lower than or equal to the emissions in the default value. The supplier has used the RED GHG default values. The supplier does not, however, know anything about the biofuel production process. Using all these pieces of information ROS will autopopulate the Carbon Intensity field. The supplier may also look up the relevant default value in Annex G.
- As the land-use was 'Cropland – non-protected' on the reference date the default tables in Annex H provide a default for the impact of LUC as 'zero' and the combined carbon intensity figure for fuel and the impact of land-use can be reported. Annex I identifies the Accuracy Level used for the carbon intensity figure as 1 which is reported in the relevant field.
- The bioethanol production plant was already operational on 23 Jan 2008 so a 'Y' should be entered in the 'Plant in operation on 23 Jan 2008?' column.
- The default carbon intensity for wheat is 70 g CO<sub>2</sub>e / MJ. This equates to a GHG saving of 16% when compared to fossil petrol, which is below the GHG savings threshold of 35% specified in the RED. However, as the plant was operational prior to 23 Jan 2008 the biofuel still meets the RED's GHG requirement. ROS therefore generates a 'Y' in the RED-ready GHG column.
- The supplier reported that the land-use on 1 Jan 2008 was 'Cropland – non-protected' and so ROS automatically generates a 'Y' in the 'Biodiversity' and 'Carbon stock' (C-Stock) columns.
- Since the biofuel has fully met all of the RED-ready requirements, ROS automatically generates a 'Y' in the 'RED-ready' column.

**Batch 33002:** represents 100,000 litres bioethanol from wheat of French origin.

- In this hypothetical situation, France has not yet published data on which regions in the country are NUTS 2 compliant and which not. The supplier knows the NUTS 2 region in which the wheat was cultivated and reports the region's code – 'FR51'. The RFA will allow suppliers to report the carbon default values, although if at a later date that particular region is found to be not NUTS 2 compliant, the supplier would have to use actual carbon data for the cultivation stage for that batch to be RED-ready.
- This time the supplier knows that the biofuel production process used natural gas as the process fuel in a CHP plant. The supplier is therefore able to use a process-level default value – accuracy level 2. From Annex G the default carbon intensity to report is 44 g CO<sub>2</sub>e/MJ – which will autopopulate in ROS based on the information provided. This corresponds to a carbon saving of 47%, above the GHG savings threshold of 35% specified in the RED. In this case, the plant was not operational prior to 23 Jan 2008.
- As the GHG default is above the RED GHG saving threshold, ROS generates a 'Y' in the GHG column. However, the box colours amber instead of green to represent tentative RED-readiness, due to the uncertainty about the status of the NUTS 2 region.
- The feedstock is from an area of cropland that is designated for nature protection purposes (see column 'Land-use on 1 January 2008'). However, the supplier has carried out a successful independent audit against the RED biodiversity criterion and is able to provide evidence that the feedstock production did not interfere with the nature protection purposes of the land. 'RED-Biodiv.' is therefore reported in the Standard column. ROS automatically generates a 'Y' in the Biodiversity column.
- 'Cropland-protected' meets the RED carbon stock criterion and ROS automatically generates a 'Y' in the C-Stock column.
- Overall the biofuel scores an amber-coloured 'Y' for RED-readiness, as compliance with the GHG criterion is tentative.

**Batches 33003 and 33006:** both represent biofuel from the UK from ACCS certified feedstock.

- Batch 33003 represents a standard ACCS case - ACCS is an Environmental Qualifying Standard and therefore 'QS' is reported in the Env Level column. ACCS is not a Social Qualifying Standard or Qualifying Standard therefore the Social Level column is blank.

- The feedstock is known to be from a region which is not NUTS 2 compliant. Actual cultivation data has therefore been used to carry out the carbon calculation in Batch 33003. Annex I illustrates that Accuracy Level 6 should be reported where actual data is used for cultivation. The carbon intensity reported is 35 g CO<sub>2</sub>e/MJ which meets the RED-ready GHG threshold. The GHG column will therefore autopopulate with 'Y'.
- The RED-ready Biodiversity column autopopulates with 'Y' because ACCS (indicatively) meets the RED biodiversity criterion. The previous land-use is 'Cropland – non protected', which would also meet the RED-ready Biodiversity criterion. The previous land-use reported also meets the RED C-stock criterion.
- Since the biofuel has fully met all of the RED-ready requirements, ROS automatically generates a 'Y' in the overall 'RED-ready' column.
- In the case of batch 33006, supplementary checks have been carried out on all gap criteria by the ACCS auditor and the farm also complies with all the criteria of the RTFO Biofuel Sustainability Meta-Standard. This is illustrated by reporting 'RTFO' in the Environment and Social columns.
- The feedstock is known to be from a NUTS 2 compliant region. The supplier is therefore permitted to use the RED GHG default value of 52 g CO<sub>2</sub>e/MJ which achieves the RED-ready GHG threshold. The GHG column will therefore autopopulate with 'Y'. For the same reasons as for batch 33003 above, this batch meets all three RED-ready criteria and is therefore overall RED-ready.

**Batch 33004:** represents bioethanol from sugar cane of Brazilian origin.

- The sugar cane is not certified by any standard; however, a full audit has been carried out against all the criteria of the RTFO Biofuel Sustainability Meta-Standard. 'RTFO Biofuel Sustainability Meta-Standard' is reported in the 'Standard' field. The appropriate level of sustainability achieved following the audit should then be reported in the 'Env Level' and 'Social Level' columns. In this case the full RTFO Biofuel Sustainability Meta-Standard has been achieved.
- The NUTS 2 compliant column is not applicable in this case as the feedstock is from outside the EU. The suppliers has used the GHG default values.
- The carbon intensity reported (24 g CO<sub>2</sub>e/MJ) delivers a GHG saving which is above the RED threshold', the RTFO Meta-Standard indicatively meets the RED biodiversity criterion, and reporting 'Cropland – non-protected' meets both the

Biodiversity criterion and the C-stock criterion. This batch is therefore RED-ready.

**Batches 33005 and 33007:** represent batches with some unknown data.

- For the general and sustainability sections 'unknown' is reported; although the feedstock is known for batch 33007.
- The default values from Annex G are used to report the carbon intensity and the default value in Annex H defines the default value of zero in the case of unknown land-use.
- For batch 33005, the highest level default value for bioethanol is reported as this is all that is known about the fuel (accuracy level 0). The carbon intensity reported (115 g CO<sub>2</sub>e/MJ) does not meet the RED GHG threshold. However, the biofuel production plant was in operation on 23 Jan 2008 and therefore the grandfathering clause applies – ROS autopopulates 'Y' in the GHG column. As no further information is known about the fuel, it does not meet any of the other RED criteria and the batch is not RED-ready.
- For batch 33007, an Accuracy Level 1 carbon default can be reported as both the fuel and feedstock are known. The carbon intensity reported (52 g CO<sub>2</sub>e/MJ) does meet the RED GHG threshold (in addition, the biofuel production plant was in operation on 23 Jan 2008) so ROS autopopulates 'Y' in the GHG column.
- Note that reporting 'unknown' will not be permitted once the RED becomes mandatory (for feedstock, NUTS 2 compliant region (within the EU, unless actual cultivation data is provided), and land-use on 1 Jan 2008). Reporting the highest level default, as reported in batch 33005, will not be permitted once the RED is fully implemented.

**Batch 33008:** the Malaysian palm oil is verified as being RSPO certified.

- RSPO is both an environmental and social Qualifying Standard and therefore 'QS' will autopopulate in both the 'Env Level' and 'Social Level' columns.
- The supplier has evidence that there is methane capture at the oil mill the feedstock was processed at and is therefore able to use a process-level carbon default value – accuracy level 2.
- The NUTS 2 column is not applicable as the feedstock is from outside the EU.
- The carbon intensity reported (37 g CO<sub>2</sub>e/MJ) is above the required RED threshold, RSPO indicatively meets the RED biodiversity criterion, and reporting 'Cropland – non-protected'

meets both the Biodiversity criterion and the C-stock criterion. This batch is therefore RED-ready.

**Batch 33009:** represents biofuel reported with land-use change.

- The land-use on 1 January 2008 has been identified as Grassland – agricultural use (definitions provided in Annex H). Table 34 gives the default chain carbon intensity, which is 58 g CO<sub>2</sub>e / MJ for soy biodiesel and Table 37 gives the default value land use change impact for soy biodiesel which is 36 g CO<sub>2</sub>e / MJ. The total, which should be reported, is 94 g CO<sub>2</sub>e/MJ. This carbon intensity does not meet the RED GHG threshold, however as the biofuel production plant was operational on 23 Jan 2008, the grandfathering clause applies and ROS autopopulates a 'Y' in the GHG column.
- RTRS, the standard reported, meets the Env QS level and the full Social Meta-Standard level. ROS autopopulates this information. However, current RFA benchmark results (see Table 2) indicate that RTRS does not meet the RED biodiversity criterion. The previous land-use reported also does not meet the RED biodiversity criterion. ROS therefore autopopulates an 'N' in the Biodiversity column.
- Grassland is not one of the high carbon stock land categories as defined by the RED, so the batch does meet the C-stock criterion.
- Overall, however, the batch is not RED-ready due to non-compliance with the biodiversity criterion.

**Batches 33010 and 33011:** represent biofuels from feedstocks considered by-products.

- The country of origin of the by-product is reported. The NUTS 2 column is only relevant to agricultural feedstocks and is therefore not applicable for by-products.
- 'By-product' should then be entered in the 'Standard' and 'Land-use' fields. 'QS' will autopopulate in both the 'Env Level' and 'Social Level' fields. 'By-product' should also be reported in the 'Land-use on 1 Jan 2008' column.
- No detailed information was available to calculate the carbon intensity therefore Annex G is used to look up the relevant default value. Annex I is used to identify the relevant Accuracy Level undertaken for the calculations – in this case Accuracy Level 1.
- The carbon intensity reported for each batch is 15 g CO<sub>2</sub>e/MJ." write "The carbon intensity reported for batch 33010 is 14 g CO<sub>2</sub>e / MJ and for batch 33011 it is 15 g CO<sub>2</sub>e / MJ. This is above the required RED GHG threshold and both batches are

therefore RED-ready for GHG, despite the biofuel plant not being in operation on 23 Jan 2008 for batch 33010.

- By-products automatically meet both the RED biodiversity and C-stock criteria.
- Both of these batches are therefore RED-ready overall.
- **Batch 33011** is biogas, and so the mass is entered, expressed in kilograms not litres.

### 3.5 Further guidance

For further guidance on environmental and social sustainability standards, see Annex A.

For a full list of criteria and indicators of the RTFO Biofuel Sustainability Meta-Standard, see Annex C.

A detailed overview of the results of the benchmark of existing standards is provided in Annex D. This Annex also illustrates the gap criteria for each benchmarked standard.

### 3.6 Changing C&S data after the monthly reporting deadline

If new evidence about the C&S characteristics of a fuel emerges after a monthly report has been submitted but before RTF certificates have been awarded, the data can be corrected by editing the submitted reports. However, if certificates have already been awarded, suppliers will need to obtain permission from the RFA to change the data. This will involve resubmitting the entire data set for the month.

Permission from the RFA may be sought to submit revised C&S data until 28 September following the end of the obligation period in which the C&S information was submitted.

### 3.7 Reporting on purchased certificates

Account holders who purchase an RTFC do not have any C&S reporting requirements with respect to the purchased RTFCs.

## **3.8 Publication of information**

The RFA publishes reports on individual supplier performance in the categories of carbon intensity and sustainability of the biofuels supplied. This includes a comparison with the targets set out by Government. The RFA may also choose to make available other information on the environmental impact of the RTFO as a whole, including information from monthly C&S reports which identifies individual suppliers.

The RFA currently reports monthly on the RTFO as a whole, and quarterly on the performance of individual suppliers.



## 4 Annual Reporting

Transport fuel suppliers are required to submit Annual C&S Reports as evidence to support the C&S information included in applications for RTFCs. This chapter sets out the requirements for Annual Reporting, including the information that fuel suppliers are expected to report on in their Annual Reports. This chapter also includes details on how the RFA may use the C&S information provided.

Key changes to this chapter:

- RTFCs issued to suppliers taking advantage of the small supplier exemption may not be eligible for 'carry-over' into future obligation periods.
- Concept of biofuel projects with a low risk of iLUC replaces the concept of 'idle land'
- Columns to report 'NUTS 2 compliant region' and 'RCA' added to Table

### 4.1 Small supplier exemption

Suppliers applying for fewer than 450,000 RTFCs during an obligation period are not required to submit an Annual Report. However, it should be noted that although the exemption for the annual report and related requirement to have C&S data independently verified is maintained for the 2010/11 reporting period, the RFA anticipates that a verifier's statement will be required for all RTFCs used in future obligation periods. Therefore, RTFCs issued to suppliers that take advantage of the exemption may not be valid to 'carry-over' into subsequent periods.<sup>44</sup> This is due to the anticipated implementation of the RED mandatory C&S criteria into UK legislation. The Department for Transport will be consulting on legislation in 2010 to implement the RED.

---

<sup>44</sup> Under the RTFO, obligated suppliers may meet up to 25% of their obligation with RTFCs that were issued in the previous period. The Department for Transport have proposed that this 'carry-over' facility may be maintained for future obligation periods for RTFCs issued to biofuels that meet the RED carbon and sustainability criteria.



## 4.2 What to report

The core information in the Annual Report from the fuel supplier consists of the aggregated data from monthly reports over a single obligation period (15 April to 14 April inclusive). This aggregated quantitative data must incorporate any changes that have been made by a supplier submitting an edited or revised report (see section 3.6). The Annual Report also requires fuel suppliers to provide additional qualitative information relevant to the sustainability and GHG saving of their renewable transport fuels.

While the information detailed below is a requirement of Annual Reports, the structure as outlined below is not essential but is provided for guidance.

**Chapter 1:** Introduction. A general introduction setting out the scope and context of the report and the overall approach and philosophy of the supplier in sourcing renewable transport fuels.

**Chapter 2:** Should contain the aggregate summaries of the C&S characteristics of the fuel supplied during the obligation period (from the monthly data sheets) in the formats illustrated in Table 9 and Table 10.

**Chapter 3:** This chapter should include information on the following items (where information is available):

- Fuel supplier information:
  - Past year's and planned activities to improve the proportion of sustainably sourced feedstock and reduce average carbon intensity;
  - Past year's and planned activities to support standard development for sustainable biofuel feedstock (membership of RSPO, RTRS, BSI, etc);
  - Past year's and planned activities to promote biofuel projects with a low risk of iLUC and, where possible, an indication of the volume of biofuel originating from such projects. Detail of the methodology for identifying such areas is in Table 200;
  - Past year's and planned activities to improve the type of carbon data which is being used – e.g. the different default values or actual data;
  - Environmental management system certificates;
  - Successful prosecutions for breaches of compliance with any environmental and/or social regulations related to biofuels activities;
  - Existing verified environmental or corporate responsibility reports.

- Information on other parties within the supply chain:
  - Where fuel suppliers have information on their main crop producers, information should be provided on the percentage of that company's total production which meets respected sustainability standards. If parties do not wish to disclose the identity of crop producers and intermediate processors, anonymous information can be reported. The information has to be verifiable by the verifier but the identity will not be published;
  - Environmental management system certificates held, e.g. ISO14001;
  - Successful prosecutions for breaches of compliance with any environmental and/or social regulations related to biofuels activities.

Suppliers are free to include any additional information they deem relevant in their Annual Reports including any comments specific to the verification exercise.

*In addition*, a verifier's opinion must be submitted to the RFA along with the Annual Report. For further guidance on verification, see Chapter 7 and the separate guidance document for verifiers (available on the [RFA website](#)).

Supplier's Annual Reports should be emailed to [C-and-S@rfa.gsi.gov.uk](mailto:C-and-S@rfa.gsi.gov.uk).

**Table 9 Annual Report table A. Summary of C&S data by feedstock**

Summary of feedstock mix; percentage of verifiable data reported; percentage of feedstock which meets the Qualifying Standards and/or RTFO full Biofuel Sustainability Meta-Standard; average carbon intensity and corresponding GHG savings. This table contains example data.

Feedstock	General		Environmental	Social		Carbon
	% Fuel supplied by feedstock type (by volume)	% Data reported on biofuel characteristics	% Meeting Qualifying and/or RTFO standard	% Meeting Qualifying and/or RTFO standard	Average carbon intensity, g CO <sub>2</sub> e / MJ	Average % GHG saving
Biodiesel						
Palm oil	10	30	50	50	37	56
Rapeseed oil	70	40	85	85	52	38
Soy oil	20	40	40	40	58	31
Bioethanol						
Sugar cane	20	20	10	10	24	71
Corn	10	30	70	70	43	49
Wheat	40	50	80	80	44	47
Sugar beet	20	60	75	75	40	52
Unknown	10	0	0	0	115	-36
Weighted average (all fuels)		39	65	65	49	42
Target (2010/11)	-	90	80	-	-	50

## 4.2.2 How to fill in Table 9: Annual Summary Table

### Percentage fuel supplied by feedstock type (by volume)

This column is a summary of the feedstock mix for the whole obligation period. The feedstock mix for each different biofuel should be shown separately. Unknown feedstocks must be included in the table under the appropriate biofuel and the total feedstock mix per biofuel type must add up to 100% including any unknown percentage.

Example: Biodiesel supply during this period was 10% palm oil, 70% rapeseed oil and 20% soy oil.

### Percentage of data reported

This column shows how much actual data has been reported by the supplier, instead of reporting 'unknown', for the following fields: 'biofuel feedstock', 'country of origin', 'standard' and 'land-use on 1 Jan 2008'. Reporting 'none – feedstock not certified' in the standard name field does not count towards data capture.

The percentages are calculated on the volume of fuel for which actual data has been reported, not on the number of batches.

Example: A supplier supplies a volume of renewable fuel that represents 80% biodiesel and 20% bioethanol. The biodiesel comprises palm (30%), soy (20%) and oilseed rape (50%).

100% of the palm is from a known feedstock;

60% of the palm is from a known country of origin;

50% of the palm met a sustainability standard; and

0% of palm was from a known previous land-use.

Therefore  $(100\% + 60\% + 50\% + 0\%) / 4 = 52.5\%$  of data has been reported for the palm biodiesel. Palm represents 30% of the volume of biodiesel supplied and biodiesel makes up 80% of the total volume of renewable fuel supplied. Therefore, the contribution of palm to the total data capture target for all supplied renewable fuels for this party is  $52.5 \times 30\% \times 80\% = 12.6\%$ . The same calculation is carried out for the other biodiesel feedstocks as well as the bioethanol feedstocks. The sum of the contributions of all feedstocks is reported as the weighted average for all renewable fuels supplied.

## Percentage of feedstock which meets the Environmental and Social Qualifying Standards

Percentages are calculated for each feedstock as a percentage of the total volume of biofuel from that feedstock for which a Qualifying Standard or RTFO Biofuel Sustainability Meta-Standard has been reported in the monthly data reports. The percentage meeting the Environmental Qualifying Standard is not necessarily the same as the percentage meeting the Social Qualifying Standard. The percentages meeting a Qualifying Standard should include the fraction of feedstock which meets the full RTFO Biofuel Sustainability Meta-Standard.

The percentages are weighted averages with the volume of fuel providing the weighting.

### Average carbon intensities

Average carbon intensities are weighted averages, with the volume of fuel providing the weighting. By way of an example consider the first row of the table: two batches of palm oil biodiesel have been supplied:

Batch 1: 1,000 litres, carbon intensity = 50 g CO<sub>2</sub>e / MJ;

Batch 2: 2,000 litres, carbon intensity = 40 g CO<sub>2</sub>e / MJ.

Batch one contributes 33% of the total volume ( $1000 / (1000 + 2000) = 33\%$ ) and Batch 2 contributes 67% of the total volume ( $2000 / (1000 + 2000) = 67\%$ ). Therefore, the weighted average carbon intensity is 43.3 g CO<sub>2</sub>e / MJ as:  $(33\% \times 50) + (67\% \times 40) = 43.3$ .

### Average GHG saving

Average GHG saving is a comparison of the average carbon intensity of the renewable fuel described above against that of the relevant fossil fuel. See Annex G for the relevant fossil reference value.

**Table 10 Annual Report table B. C&S characteristics of each feedstock**

This table contains example data for C&S characteristics for palm oil.

General information	Country of origin information	Sustainability information				Carbon information	
% of total palm oil	Country	Standard	Env Level	Social Level	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e /MJ)	GHG Saving
20	Malaysia	RSPO	QS	QS	Cropland – non-protected	37	62
60	Malaysia	Unknown	-	-	Unknown	68	36
20	Indonesia	Unknown	-	-	Unknown	68	36

### How to fill in Table 10: Feedstock specific information

A separate table must also be included in the Annual Report for each feedstock type supplied in the obligation period, e.g. palm oil, rapeseed oil etc (unless the feedstock represented is less than 3% of the annual total volume of biofuel supplied). These tables aggregate all the administrative batches, with weighted average carbon intensity for each aggregation. Any batches of fuel with identical country of origin and sustainability information may be aggregated into a single row in the table.

- ‘Percentage of total feedstock’ column - for each individual feedstock, e.g. palm oil. This is the amount of fuel, expressed as a percentage of the total fuel supplied from this feedstock, with the characteristics described.
- The remaining columns correspond directly to the columns in the monthly data reports: Country of origin, NUTS 2 compliant region, Standard, Env level, Social level, Land-use on 1 January 2008, and Carbon intensity information.
- Any batches of fuel with identical sustainability information that contributed less than 3% of the fuel from this feedstock may be aggregated or can be identified separately.

Note: carbon data should be presented as a weighted average. See Annex G for default carbon intensity figures for different fuel chains.

In the example in Table 10: 20% of the total palm oil biodiesel from the company was of Malaysian origin and was RSPO certified (RSPO is both an environmental and social Qualifying Standard); 60% of the palm oil biodiesel was of Malaysian origin but with unknown sustainability characteristics; and the remaining 20% palm oil biodiesel was of Indonesian origin with unknown sustainability characteristics.

## **4.3 When to report**

Each Annual C&S Report should cover one obligation period. The Annual C&S Report is due by 28 September after the end of the obligation period which it covers.

## **4.4 How do the RFA use Annual Reporting data?**

Suppliers' Annual Reports are used by the RFA in preparing its Annual Report to Parliament on the operation of the scheme (published by 31 January in the year following the end of each obligation period). The Supplier's Annual Reports do not influence the award of RTFCs, but are used as evidence of information supplied in application for RTFCs. Supplier's Annual Reports are published on the RFA website. They are used to provide information for comparing supplier performance against the performance targets set by the Government.

## 5 Expected reporting levels and targets

This chapter defines the expected reporting level targets established by the Government and how to report against them.

The Government, through the Secretary of State for Transport, has set targets relating to three aspects of the C&S data. There will be no legal penalty for failing to meet the targets, but the targets are intended to illustrate the level of performance which the Government (and the RFA) expects fuel suppliers to deliver. The Government and RFA will keep these targets under review to ensure that they remain challenging but realistic, and to take account of the development of new standards for individual feedstocks. While the targets are the responsibility of the Government, the RFA will provide relevant information to Government to assist in the review of the targets.

No changes are made to the expected reporting levels and targets.

### 5.1 Sustainability performance targets

The first set of targets relate to the percentage of fuel supplied in each obligation period that should meet a Qualifying Environmental Standard (or higher).

The targets are overall targets for all feedstock reported by a fuel supplier.

**Table 11 Supplier target– sustainability standard**

<b>Annual supplier target</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>
Percentage of feedstock meeting a Qualifying Environmental Standard	30%	50%	<b>80%</b>

The percentage of feedstock that meets at least the environmental Qualifying Standard level is calculated as an overall percentage for all feedstock.



*Example: A supplier supplies a volume of renewable fuel that consists of 80% biodiesel and 20% bioethanol. The biodiesel comprises palm (30%), soy (20%) and oilseed rape (50%). All of the palm oil is RSPO certified, none of the soy meets a Qualifying Environmental Standard and 10% of the oilseed rape is certified to ACCS. Therefore  $(100\% \times 30\%) + (10\% \times 50\%) = 35\%$  meets at least a Qualifying Environmental Standard. The bioethanol comprises 100% sugar beet, which is all ACCS certified. The overall percentage of the renewable fuel supplied meeting at least a Qualifying Environmental Standard is therefore  $(35\% \times 80\%) + (100\% \times 20\%) = 48.0\%$ .*

## 5.2 Greenhouse gas (GHG) saving

The second set of targets relate to the overall level of GHG saving achieved by the biofuel supplied in each obligation period.

**Table 12 Supplier target – GHG saving**

Annual supplier target	2008/09	2009/10	2010/11
Annual GHG saving of fuel supplied	40%	45%	<b>50%</b>

The level of GHG saving is an overall target for all fuels and feedstocks reported by a fuel supplier.

*Example: A supplier supplies a volume of renewable fuel that represents 80% biodiesel and 20% bioethanol. The biodiesel comprises palm (30%). The combined carbon intensity of all the palm oil supplied = 37g CO<sub>2</sub>e/MJ.*

*The reference value for the carbon intensity of fossil fuels is 83.8 g CO<sub>2</sub>e/MJ. The average GHG saving would be  $(83.8 - 37) / 83.8 = 56\%$ . Palm represents 30% of the total volume of biodiesel therefore  $30\% \times 56\% = 16.8\%$  GHG saving. Biodiesel represents 80% of the fuel supplied  $(16.8\% \times 80\% = 13.4\%)$ . The resulting GHG saving is reported as a combined percentage across all fuels and feedstocks.*

## 5.3 Data reporting on biofuel characteristics

The third Government target is for the amount of actual data provided by transport fuel suppliers as opposed to reporting

'unknown' against the four sustainability requests: Biofuel Feedstock, Country of Origin, Standard, and Land-use on 1 January 2008. The target is an overall target based on the portfolio of fuels supplied in the obligation period.

**Table 13 Supplier target – data capture**

Annual supplier target	2008/09	2009/10	2010/11
Data reporting of renewable fuel characteristics	50%	70%	<b>90%</b>

Whilst 'unknown' reporting is currently permitted, suppliers will be encouraged to identify and report accurate information about the feedstocks used.

Where a by-product has been used as the feedstock, reporting information on the Biofuel Feedstock and reporting 'by-product' for the remaining general information and sustainability information fields will be counted as a completed report. Reporting a non-Qualifying Standard (from Annex E) is also counted as a completed data field for the Standard column. Where 'unknown' or 'none – feedstock not certified' is reported this does not count towards the data capture target.

*Example: A supplier supplies only biodiesel and that comprises palm (30%), soy (20%) and oilseed rape (50%).*

*100% of the palm has reported on Biofuel Feedstock;*

*60% of the palm has also reported on the Origin;*

*50% of the palm has also reported a standard; and*

*0% of palm has reported anything under land-use (unknown has been reported).*

Therefore  $(100\% + 60\% + 50\% + 0\%) / 4 = 52.5\%$  has been reported for palm. Palm represents 30% of the volume of renewable fuel supplied. Therefore the contribution of palm to the total data capture target for all supplied renewable fuels for this party is  $52.5 \times 30\% \times 80\% = 12.6\%$ . The same calculation is carried out for the other biodiesel feedstocks. The sum of the contributions of all feedstocks is reported as the weighted average for all renewable fuels supplied.

## 6 The chain of custody

Reported C&S data must be verifiable. Therefore the C&S data reported by the fuel supplier has to be traceable back to the party or parties who generated the information. This chapter explains which types of chain of custody systems are permitted and gives specific guidance for setting up a (temporary) chain of custody where none yet exists.

Key changes to this chapter:

- Additional guidance on:
  - How to define a 'site' (noting that the RED text suggests that the EC may require a mass balance to operate at the 'tank' level)
  - How to allocate C&S data to different 'feedstock-derived products'
  - Timeframe over which a mass balance should operate
- Note that the RED currently does not allow book and claim chains of custody, but will publish a report to review this decision. The RFA intend to continue to allow book and claim systems until confirmation is received otherwise.

### 6.1 General

#### 6.1.1 Terminology

Throughout this chapter the following terminology will be used:

- Administrative batch: any amount of product with identical sustainability characteristics. The sustainability characteristics are:
  - Fuel type;
  - Biofuel feedstock;
  - Biofuel production process;
  - Country of Origin;
  - NUTS 2 compliant region (for EU feedstocks only)
  - Standard(s) (including any supplementary checks where these have been performed);
  - Land-use on 1 January 2008.

- Input: any physical input sourced by any party in the supply chain. For example rapeseed sourced by a rapeseed crusher or rapeseed oil sourced by a biodiesel producer.
- Output: any physical output supplied by any party in the supply chain. For example rapeseed supplied by a rapeseed farm or rapeseed oil supplied by a rapeseed crusher.
- Conversion factor: refers to the amount of output produced per unit of input. For example, the oil extraction rate or the amount of biodiesel produced per unit of vegetable oil.
- Inventory: refers to a stock of physical product or C&S data.
- Chain of custody: for the purpose of the RTFO C&S Technical Guidance, a chain of custody is a system which links the reported volumes of biofuel with certain C&S characteristics to the volumes of feedstocks which possess the same C&S characteristics. An essential aspect of the chain of custody system, therefore, is that it must be able to guarantee that for each unit of biofuel with certain carbon and sustainability characteristics reported to the RFA an equivalent amount of feedstock with the same sustainability characteristics has been added to the market.

### 6.1.2 Aggregating multiple administrative batches

Multiple batches can be aggregated at any point in the supply chain provided the individual batches have identical sustainability characteristics as defined above. Administrative batches with different carbon intensities but identical sustainability characteristics can be aggregated – the resulting carbon intensity is calculated as a weighted average of the individual batches (based on volume for liquid products) – see Annex G.

## 6.2 Which chain of custody systems are permitted for C&S reporting under the RTFO?

To validate the accuracy of C&S reports a chain of custody must be established from the party which generates the C&S information to the reporting party. In general, three different types of chain of custody systems are distinguished:

- Bulk commodity systems (physical segregation);
- Mass balance systems (units in = units out);

- Book and claim systems (tradable certificates)<sup>45, 46</sup>.

The chain of custody must operate reliably and prevent abuse such as double counting. It must also be relevant to the feedstock which is used in the production of the biofuel. For example, a biodiesel producer which produces biodiesel from 100% oilseed rape is not permitted to report the fuel as being sourced from palm oil.

Where existing certifiable systems are in operation that cover the chain of custody (as identified in Table 14) they can be used under the RTFO. Where they are not in operation a mass balance approach should be used<sup>47</sup>.

Few book and claim chain of custody systems are currently operational for biofuel feedstocks. As and when such systems become available and are made known to the RFA, the RFA intend to assess the reliability of the chain of custody and determine whether the system is permitted to be used in making C&S claims under the RTFO.

To date, one book and claim system has been benchmarked by the RFA and accepted for inclusion in the RTFO:

GreenPalm (RSPO certified palm oil)<sup>48</sup>

---

<sup>45</sup> If approved by the RFA. To request that a new book and claim system be considered for approval please contact the RFA directly.

<sup>46</sup> The RED does not currently approve the use of book and claim (Article 18.1). The European Commission will be reviewing the book and claim system in 2010 to determine whether it can be accepted as a chain of custody system. The RFA therefore intend to accept the book and claim system for the 2010/11 obligation period, after which its further use will be dependent on the outcome reached by the European Commission in its review.

<sup>47</sup> The RFA intends the mass balance approach to be operated at least at the level of a site that a company owns/operates. i.e. the RFA does NOT allow companies to operate one single mass balance (units in = units out) approach over their whole global operations. Although final details are not yet available from the European Commission on the approach that will be permitted under the EU RED, the current text suggests that the mass balance will have to be operated at least at the tank level.

<sup>48</sup> In June 2008 the RFA assessed GreenPalm's book and claim system for use within the RSPO. GreenPalm was found to be a reliable chain of custody system and was approved for use in making C&S claims during the 2008/09 RTFO obligation period, provided a number of recommendations were met by the end of 2008. A second review took place in January 2009, which confirmed that these recommendations had been met. Due to the limited uptake of the system in 2008, this review will now take place in April 2010 and will focus on the operational performance in 2009. Further details can be found at the Greenpalm [website](#).

## 6.3 When to set up a chain of custody

Several existing Qualifying Standards, such as the Forest Stewardship Council (FSC), have defined their own chain of custody. In this case a certified chain of custody already exists and can be used. The supplier must be able to provide proof that its producer sourced the relevant feedstocks through the certified chain of custody of the existing standard.

However, there are several limitations in using a chain of custody system of an existing standard:

- At the time of writing, a number of the Qualifying Standards do not have an operational chain of custody, see Table 14.
- Existing Qualifying Standards currently do not contain GHG data and therefore no claims can be made concerning performance in these cases. RFA fuel chain carbon default must be used, or the GHG data should be independently verified.
- The chain of custody may not be in place between the biofuel producer and the ultimate supplier who is applying for RTFCs.

**Table 14 Existing chain of custody for several standards and initiatives**

Standard name	Bulk commodity	Mass balance	Book and claim
Assured Combinable Crops Scheme (ACCS)	-	-	-
Better Sugar Cane Initiative (BSI)	Under development		
Forest Stewardship Council (FSC)	Yes	Yes	-
Genesis Quality Assurance (Genesis QA)	-	-	-
Linking Environment And Farming (LEAF)	-	-	-
Roundtable on Sustainable Palm Oil (RSPO)	Yes	Yes	Yes
Round Table on Responsible Soy (RTRS)	Under development		
Sustainable Agriculture Network/ Rainforest Alliance (SAN/RA)	Yes	-	-

These limitations imply that it will be necessary for many suppliers to set up their own chain of custody: at least until existing standards develop their own chain of custody. For these situations more detailed guidance on operating a reliable mass balance type of chain of custody is given below. The mass balance type of chain of custody is expected to provide the least number of obstacles to short term implementation.

Suppliers may set up different types of chains of custody, if they wish to do so, provided it can be shown a) that they function reliably and are permitted by the RFA and b) are accepted by the standards for which they are used.

## **6.4 Guidance for operating a mass balance type of chain of custody**

### **6.4.1 Scope**

Each party in the biofuel supply chain, who is at any point the legal owner of the product, needs to put in place the administration necessary to maintain the chain of custody. If any party in the supply chain, who takes legal ownership over the product, does not keep the required records, the chain of custody stops at this point and no claims related to C&S data can be made by parties further downstream. The consequences of a break in the chain of custody are that the fuel supplier will have to use the default values to report carbon intensity and may have to state that the provenance of their biofuel is 'unknown'.

### **6.4.2 Responsibilities and procedures**

Each company in the chain of custody should:

- Appoint a person or position with overall responsibility for compliance with the chain of custody procedures explained below;
- Have written procedures or work instructions to ensure implementation of the requirements as explained below.

### **6.4.3 Selling products with C&S data**

Records of commercial transactions should enable parties in the supply chain, and the verifier appointed by the obligated party to

trace back through the supply chain to verify any C&S claims made.

It is suggested that a company that sells products with C&S data should specify the C&S data on the invoice or on a document to which the invoice refers. The invoice or relevant document should include the following information:

- The name and address of the buyer;
- The date on which the invoice was issued;
- Description of the product – this must correspond to the description of the product given in the input and output records;
- The quantity of the products sold with specific C&S data. If the invoice contains products with different C&S data, these shall be identified separately in such a way that it is clear to which products the C&S data refers.

A party in the chain of custody cannot sell more output with certain C&S data than its sourced input with the same C&S data (taking into account the relevant conversion factor). The periodic inventory of C&S data must not be negative.

#### 6.4.4 Level at which the mass balance should operate

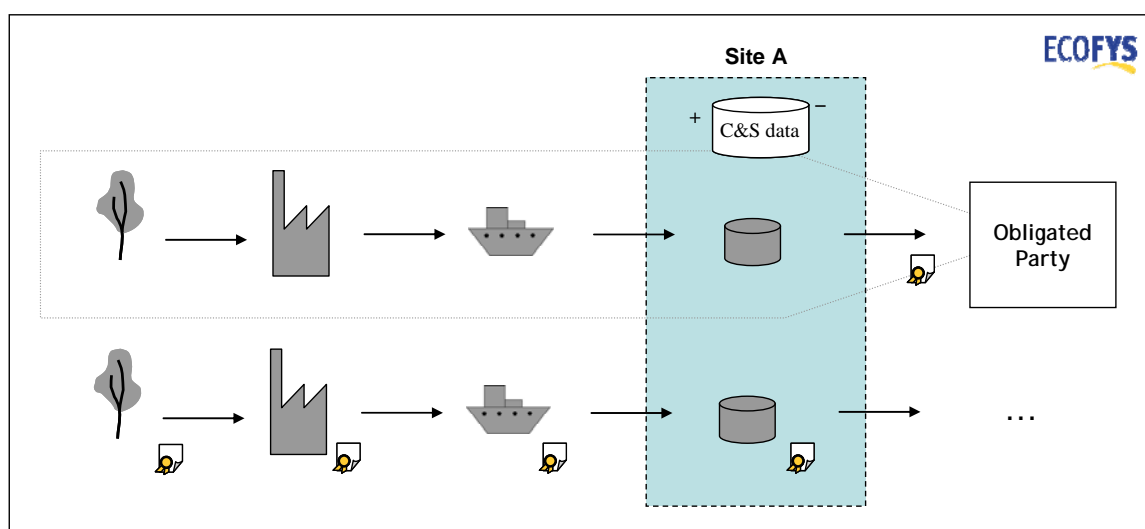
The RFA currently intends the mass balance approach to be operated at least at the level of a site that a company owns/operates<sup>49</sup>. I.e. the RFA does NOT intend companies to operate one single mass balance (units in = units out) approach over their whole global operations.

A 'site' is one facility on one geographical location. In other words, a site is NOT a collection of facilities that are located in different geographical locations, even if that is in the same region. A facility can include multiple silos/tanks, for example, as long as they are at the same physical site Figure 1 presents an example of the Mass Balance system at site level.

---

<sup>49</sup> Although final details are not yet available from the European Commission on the approach that will be permitted under the EU RED, the current text suggests that the mass balance may have to be operated at least at the tank level.





**Figure 1 Example of a mass balance system at site level**

The certificate represents the flow of C&S data.

#### 6.4.5 Timeframe

For any transaction, the traded amount of C&S data cannot exceed the traded amount of physical product. The periodic inventory (see section 6.4.6 below) of C&S data should not be negative – i.e. C&S data cannot be sold until it has first entered a company's books.

#### 6.4.6 Record keeping

It is suggested that each party in the chain of custody should keep the following records that should concur with the information on the invoices, to enable C&S data claims to be traced back through the supply chain:

- Input and output records of C&S data. Input records refer to the C&S data of products purchased from a supplier. Output records refer to the C&S data of products sold to a buyer. For each administrative batch these records should include at least:
  - Invoice reference(s)
  - A description of the physical product to which the C&S data refer
  - The volume of physical input/output to which the C&S data refer
  - The supplying/receiving company
  - Transaction date
  - Any C&S data

- Conversion factor records. These records refer to the conversion factor of inputs to outputs (e.g. rapeseed to rapeseed oil). Each party in the supply chain can maintain records of its own conversion factors. A party may have more than one conversion factor. If no records are kept for the conversion factor the default value for the respective conversion factor must be used. For each conversion factor it must be clear from the records:
  - To which input product it refers
  - To which output product it refers
  - The units in which the conversion factor is expressed
  - The value of the actual conversion factor
  - When the specific conversion factor was valid. The period of validity is one year
  - The conversion factors may also be integrated in the input, output or inventory records as long as the requirements listed here are met
- Periodic inventory of C&S data. These records provide an insight into the balance of C&S data. Besides helping a company to manage its input-output balance these records also assist in the verification of a party's chain of custody records. The period between inventories must be no longer than one month (or three months in the case of quarterly reporters) and records should include:
  - The inventory of C&S data at the beginning of the respective period (including the carbon intensity of the stock). It must be clearly specified whether this is expressed in input-equivalents (before conversion factor) or output-equivalents (after conversion factor);
  - The volumes of inputs with identical C&S data in the respective period. These volumes must coincide with the input records described above;
  - The volume of outputs with identical C&S data in the respective period. These volumes must coincide with the output records described above;
  - The conversion factor(s) used in the respective period;
  - The inventory of C&S data at the end of the respective period (including the carbon intensity of the stock). It must be clearly specified whether this is expressed in input-equivalents (before conversion factor) or output-equivalents (after conversion factor).

Example formats for the records described above are illustrated in Annex F

### 6.4.7 Records to keep of products from unknown origin

When the origin of the inputs is unknown, the only information required in the input record is the product description (e.g. rapeseed or rapeseed oil) and the volume.

### 6.4.8 Proportionate feedstock reporting

In passing C&S information through the supply chain, it is permitted to use a mass balance approach to freely allocate C&S data to outgoing batches *within a feedstock type* (e.g. oil palm or rapeseed oil). However, information on feedstock type must be representative of the actual feedstock mix of the consignment from which the batch was drawn<sup>50</sup>.

#### *Example*

Q: Party A sources biodiesel which contains a mixture of palm biodiesel (PME) and oilseed rape biodiesel (RME). It sells half of this for consumption in the UK and the other half is exported to France. Can A sell the biodiesel for consumption in the UK with only RME data or does the C&S data of each outgoing batch need to be representative of the actual feedstock mix?

A: No. Parties must practice 'proportionate feedstock reporting'

#### *Terminology*

- Reporting representative feedstock information will be called '**proportionate feedstock reporting**'.
- If parties allocate only RME data to an outgoing batch which contains both RME and PME, this is called '**non-proportionate feedstock reporting**'.

The RFA requires that for the purposes of C&S reporting under the RTFO, each physical batch taken out of a consignment be supplied with feedstock data which is representative of the actual feedstock mix of the fuel in the consignment. **Within a feedstock type** C&S data can be allocated freely from the C&S data a company holds.

Companies should employ a transparent and consistent approach to reporting the proportion of different feedstocks in the fuel that they bring to the market.

<sup>50</sup> It is not clear at the time of writing what the RED will specify on this, although early indications suggest stringent chain of custody requirements.

**Note that companies who only supply biofuel into the RTFO will automatically fulfil this requirement and no further steps need to be taken.** Companies may, however, be required to show that they only supply biofuel into the RTFO.

Under a proportionate feedstock reporting approach companies are free to use their own internal systems to track the feedstock mix of the fuel they supply<sup>51</sup>. Companies can calculate the 'actual' feedstock mix of the fuel as it exits a mixed-feedstock consignment either on a continuous or a discrete basis:

- **Continuous** calculation of the feedstock mix would involve calculating the feedstock proportions in a consignment each time a new batch enters the tank. The feedstock proportions reported for an outgoing batch then represent the actual feedstock mix in that tank at that point in time;
- Calculation on a **discrete** basis is designed to involve less frequent re-calculation. When a tank is 'full' the overall feedstock mix and volume in the tank is recorded. That feedstock proportion is then used for all the outgoing batches until the tank is 'empty'.

---

<sup>51</sup> The requirement for proportionate feedstock reporting does not necessarily preclude companies from using their existing methods for tracking biofuel such as 'first in first out' (FIFO). For example, FIFO may be appropriate if companies are supplying only to the UK market, or if used to track movements of blends of biofuel which already meet the technical fuel specifications. In this situation blends of feedstock types representative of supply onto the UK market are then reported.

However, FIFO may not be appropriate to use for the tank in which different feedstock types that do not all meet the technical specifications are blended. In this situation parties would input batches of biofuel from single feedstock types, blend them to meet the technical specifications, but then report 'output' batches of biofuel of a single feedstock type (matching the input batches). As different feedstock types have both different economic characteristics and different sustainability risk profiles, this would give rise to a risk of an unfair competitive advantage to companies who operate internationally and would be able to report certain feedstock types on the UK market and others outside the UK, while in fact they are supplying a blend of those feedstocks to the UK market.

## Example

A theoretical tank holds 1,000 litres. The feedstock proportion is determined and recorded when 1,000 litres have been added to the tank. This feedstock proportion is assigned to the next 1,000 litres that exit the tank. The process is then repeated for the next (for example) 1,000 litres added to the tank. Note that this methodology can still be used when fuel is continuously inputted and outputted from a tank – the concept of the tank being filled and emptied is purely for administrative purposes.

### 6.4.9 Flexible allocation of C&S data over different ‘feedstock-derived products’

Flexible allocation of C&S data between different ‘feedstock-derived products’ that are produced at the same site is permitted<sup>52</sup>.

Different feedstock-derived products are *different products* that are produced from the *same feedstock* – e.g. sugar and bioethanol are two different types of products that are both produced from the same feedstock, namely sugar cane. In the same way, palm stearin and olein are two different feedstock-derived products from crude palm oil. Also EU-spec bioethanol and Brazilian-spec bioethanol can be considered two different feedstock-derived products.

The following two examples clarify this rule.

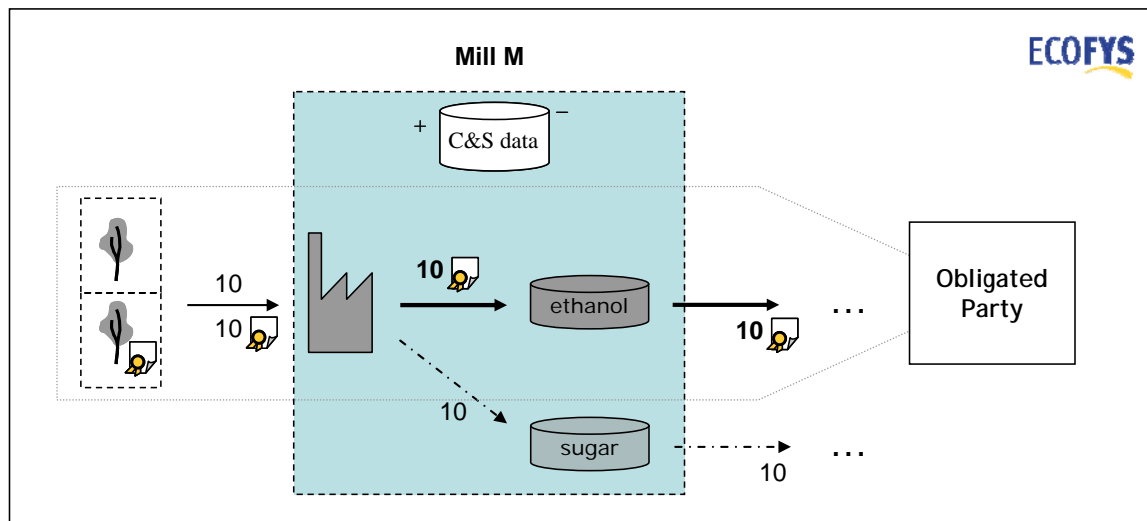
#### **Example 1) Flexible allocation of C&S data between sugar and bioethanol produced at the same mill.**

‘Mill M’ produces and sells sugar cane derived products (sugar and bioethanol). It produces equal amounts of sugar and bioethanol from sugar cane. Mill M has two dedicated plantations, of which only one meets the RTFO Biofuel Sustainability Meta-Standard. In total, this mill produces twenty units of sugar cane derived products: ten units of sugar and ten units of bioethanol. The obligated party to which M sells its bioethanol wishes to claim that the ten units of sugar cane bioethanol it put on the market all meet the RTFO Meta-Standard level. This is permitted and the obligated party does not have to ensure that the other sugar cane estate, from which Mill M sources the other 10 units of sugar cane, also meets the RTFO Meta-Standard level. After all, in this example, no more sustainable bioethanol was sold by Mill A, than the amount of

<sup>52</sup> It is not clear at the time of writing what the RED will specify on this, although early indications suggest potentially more stringent chain of custody requirements.

sustainable sugar cane it sourced (taking into account relevant conversion factors).

Of course, the sugar produced by mill M cannot be sold with a claim of meeting the RTFO Meta-Standard level, as that would be double counting.



**Figure 2 Example of a transfer of C&S data between different feedstock-derived products that is allowed under the RTFO from 2010/2011.**

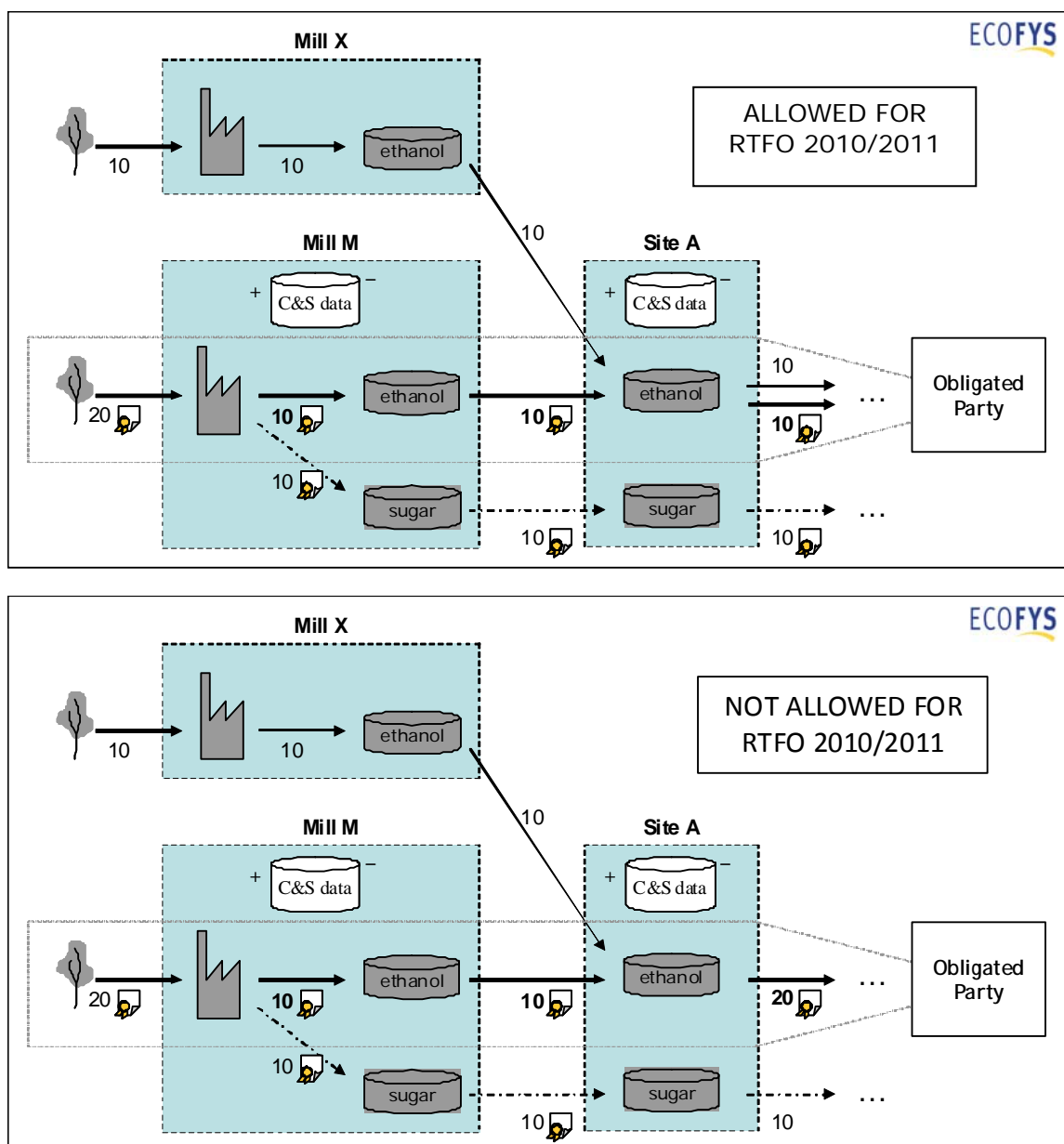
The certificate represents the flow of certified products.

### **Example 2) Allocation of C&S data between sugar and bioethanol produced at different mills.**

Company A ('Site A') stores and trades in sugar cane derived products (sugar and bioethanol)<sup>53</sup>. It sources from several sugar cane mills. One of the sugar cane mills ('Mill M') produces equal amounts of sugar and bioethanol from sugar cane. It has a dedicated plantation that meets the RTFO Meta-Standard level. In total, this mill produces twenty units of sustainable sugar cane derived products (ten units of sugar and ten units of bioethanol). Site A also received ten units of sugar cane bioethanol from another mill (Mill X, that does not meet the RTFO Meta-Standard level). Of the total 20 units of bioethanol that Site A sells to the obligated party, only ten can be claimed to meet the RTFO Meta-Standard level. Site A is not permitted to transfer the sustainability claim of the sugar it sourced from Mill M to the bioethanol it sourced from Mill X because such flexible allocation between different feedstock-derived products is only permitted if the different feedstock-derived products were produced at the same site. Otherwise the mass balance would effectively be run over

<sup>53</sup> This may be a somewhat constructed situation, but it serves to demonstrate the issue that is relevant here.

several sites, thereby violating the RTFO requirement that the mass balance is run at the site level.



**Figure 3 Example of a transfer of C&S data between different feedstock-derived products which are and are not allowed for the RTFO in 2010/2011.**

The certificate represents the flow of certified products.

## 6.5 Equivalence trading

'Equivalence trading' refers to the practice under the Common Agricultural Policy of the EU where crops grown under contract for energy use (either grown on set-aside or claiming the EU Energy Aid Payment) can be substituted by other material from within the EU which has not been grown under an energy contract.

Under the RTFO C&S Technical Guidance, the C&S characteristics of the feedstock may be substituted in this exchange. Therefore, the C&S characteristics of the contracted farm, which does not actually deliver the physical feedstock, may be used for C&S reporting.

Note: this practice is in principle a book and claim type chain of custody system, which is not currently an approved system under the RED. As such, the RFA intend to permit the continued use of equivalent trading for the 2010/11 obligation period only, unless otherwise directed by the EC.

### 6.5.1 Rules for C&S data in the case of equivalence trading

The following requirements must be met to practice C&S data swapping in an equivalence trade:

- All requirements as defined in the Common Agricultural Policy for equivalence trading need to be met.
- Data swapping is only permitted within the same feedstock in an equivalence trade.
- Trade of C&S data through equivalence trading only takes place between the farm providing the data and the first buyer of the feedstock. From the first buyer onwards the trade in C&S data should continue with the certified chain of custody where it exists or through the mass balance approach described in this chapter.
- All the C&S data reported must originate from the same contracted farm (i.e. it is not permitted to use carbon intensity data from one farm and sustainability information from the other). In calculating the carbon intensity of the fuel the default transportation distance should be used.
- A verifiable system is in place at the farm which provides the C&S data to prevent double counting of C&S data. If, for example, the farm is LEAF certified and this is claimed by the biofuel chain through equivalence trading, the LEAF mark cannot be claimed again with the sale of the physical product.



## 7 Verification of company reporting

This chapter provides guidance on the verification requirements for suppliers who submit Annual C&S Reports as part of the RTFO, and provides examples of good practice to assist with verification procedures.

Further guidance for verifiers is available on the [RFA website](#).

No significant changes have been made to the verification requirements and procedures at this point. The RFA's understanding is that the current requirements should meet the current RED requirements, but this will be kept under review.

It should be noted that although the small suppliers' exemption from the requirement to have their C&S data independently verified is maintained for the 2010/11 reporting period, the RFA anticipates that a verifier's statement will be required for all RTFCs to be used in future obligation periods. This is due to the anticipated implementation of the RED mandatory C&S criteria into UK legislation.

### 7.1 General

In order to provide confidence in the C&S reports of suppliers, information submitted in the Supplier's Annual Report will be subject to independent verification<sup>54</sup>. The RFA may impose a civil penalty on any supplier that does not supply the required independent verification.

Information in the Annual Report will include aggregated monthly C&S data, as amended by any variance reports received, and other qualitative information about the operations of the fuel supplier as set out in Chapter 4. The verification is likely to be undertaken through a risk-based sampling approach and therefore not every single piece of data will be checked.

Following verification, the verifier will provide the fuel supplier with a formal limited-assurance opinion (a verification statement) about

---

<sup>54</sup> The term 'verification' used here refers to providing assurance on the claims made by an obligated party in their Annual Report.

the quality of the Annual Reporting. The term 'limited-assurance' is defined in the International Standard on Assurance Engagements (ISAE 3000).

It is the responsibility of reporting suppliers to provide an independent assurance providers' opinion on the Annual Report to the RFA by 28 September after the end of the obligation period which it covers. This opinion must be supplied regardless of the conclusion reached. Organising the verification is the responsibility of the fuel supplier.

## 7.2 Setting up a system for Carbon and Sustainability reporting

To be able to produce data that is of sufficient quality for reporting, fuel suppliers need to ensure that they and others in their supply chain have effective systems for C&S reporting and obtain and retain sufficient and appropriate evidence to support their C&S reporting.

Fuel suppliers should appoint a single point of contact with responsibility for C&S reporting.

### 7.2.1 Good practice

It is good practice to:

- Liaise with the supply chain to ensure awareness of the need for co-operation and for a chain of custody;
- Produce data in a manner that is transparent and is as consistent as possible between years (allowing for improvements in method);
- Remove unnecessary complexity from the reporting system;
- Organise internal checks of the data;
- Ensure all people supplying data are aware of the rigour required and that responsibility for supplying the data is allocated;
- Map the data flow within the organisation, such as between spreadsheets;
- Minimise the manual transfer of data;
- Ensure adequate controls around the data;
- Document the system (who does what, when etc.);
- Track data over time to help identify any misstatement.

## 7.3 Which data will be verified?

There is no requirement to pass physical evidence (such as copies of invoices etc) from farms, processors or other suppliers along the supply chain. The party which generates the carbon and/or sustainability data retains this evidence. In verifying the C&S data reported by a fuel supplier, the verifier may expect to work back up the supply chain to the source data using the chain of custody records. The co-operation of those in the supply chain is therefore vital.

With respect to sustainability data, certificates of benchmarked standards are sufficient proof of compliance with the criteria and indicators of that standard. If it is claimed that the RTFO Biofuel Sustainability Meta-Standard is met, documented proof from the checks will be required as evidence. Similarly, documented proof is needed of assessment against gap criteria in the case they are used to claim the Qualifying or RTFO Meta-Standard level.

Other C&S data is subject to verification, for example:

- Carbon data;
- Evidence of Land-use on 1 January 2008;
- Chain of custody records;
- Other information provided in the Annual Report.

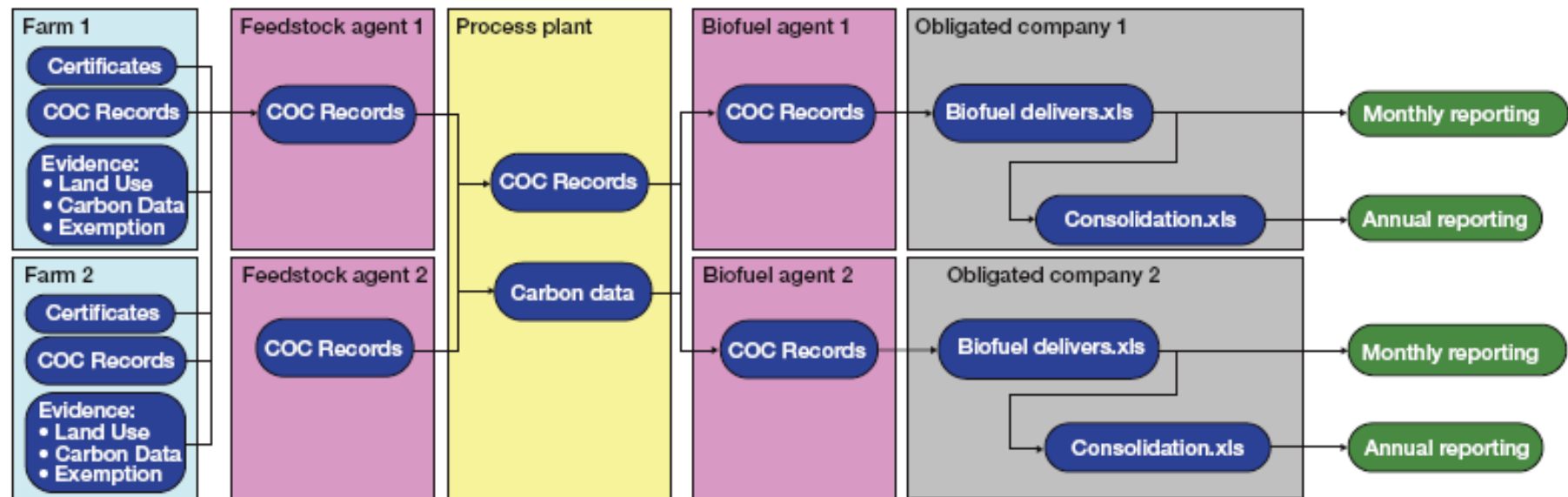
An example of the data flow within a simplified supply chain is shown in Figure 4.

Note that each party keeps chain of custody records, but that evidence does not need to be passed to parties downstream in the chain of custody. Through the chain of custody records, the verifier will be able to trace back to the party that generated the carbon and/or sustainability data to check the evidence.

### 7.3.1 Good systems reduce the cost of verification

The greater the confidence that can be placed on controls the less effort that needs to be given to verifying the data for the same level of assurance. The cost of verification can, therefore, be reduced if the verifier has confidence in the system that produced the data. Evidence of the effectiveness of controls can come from internal sources, such as management reviews and internal audits, as well as external audits, for example, of the chain of custody.

**Figure 4 Example of the records kept by each party in the supply chain**



## 7.4 How to organise the verification

The fuel supplier is responsible for engaging a verifier approved to carry out a **limited-assurance** engagement of the Annual C&S Report. The term 'limited-assurance' is defined in the International Standard on Assurance Engagements (ISAE 3000).

In selecting a verifier, suppliers may wish to consider the following guidance. For example, the verification body could be required to demonstrate that it:

- Is independent of organisations involved in the production of biofuels;
- Has established and maintains personnel records, which demonstrate that the verification personnel are competent;
- Has effective procedures for the training and recruitment of competent staff (employees and contractors);
- Ensures that the personnel involved in verification are competent for the functions they perform;
- Has systems to monitor the performance of verifiers and reviewers, which are reviewed regularly;
- Keeps up with verification best practice.

Limited assurance engagements aim to provide moderate assurance that the Annual C&S Report is without material misstatement. As such verifiers need to state that nothing has come to their attention to indicate material misstatement, given an appropriate level of investigation. ISAE 3000 provides guidance to verifiers about how they must go about the engagement. It should normally be possible for verifiers to obtain moderate assurance from a site visit to the fuel supplier and telephone interviews along the supply chain.

Verification of the Annual Report will require the fuel supplier to go through the following steps:

- a) Engage a verification body approved to carry out a limited-assurance engagement of the Annual C&S Report as set out in ISAE 3000;
- b) Submit the draft Annual C&S Report to the verifier;
- c) Submit supporting information and evidence held by the fuel supplier;
- d) Host any visits from the verifier;

- e) Respond to any verifier questions;
- f) Correct any material misstatement identified by the verifier;
- g) Submit the verification opinion with the Annual Report.

The verifier will wish to visit the fuel supplier. The verifier will review the consolidation process and meet the person responsible for the submission.

The verifier will work along the supply chain, tracing the data flow and testing controls. The verifier may select a risk-based approach; therefore, not every organisation in the supply chain is likely to be contacted. The exact approach may vary with each verifier and supply chain.

The duration of the verification process may be a number of weeks, particularly if the supply chain is complex or long and responses to information requests from the verifier are delayed. It is recommended that suppliers engage the verifier long before the deadline date for submission of the Annual Report and verification statement to the RFA. The verifier may wish to carry out tests during the year to reduce any end of year bottlenecks.

#### 7.4.1 Good practice

It is good practice to engage a verifier as early as possible in the process to maximise a company's opportunity to learn from the verifier and to help identify any mistakes early on. Common verification practice is for data to be supplied to the verifier in an organised evidence pack. This would be expected to include:

- The draft Annual C&S Report;
- High-level description of the supply chain (as is known, to help the verifier);
- Chain of Custody records;
- Contact details of the organisations in the previous stages in the supply chain (at least);
- Calculation spreadsheets (preferably supplied electronically so that verifiers can test the formulae);
- Physical evidence to support qualitative statements which refer to the fuel supplier itself.

All the above information would be needed to verify the data. If not provided in an ordered fashion, the verifier will need to request information, which increases the verification effort required.

## 7.5 Verifier opinions

The verifier will submit an opinion on the Annual C&S report. The verifier's opinion forms part of the annual reporting requirements set out in Chapter 4.

The verifier will use their experience and judgement to determine if they believe that there may, or may not, be material errors in the Annual Report or the data used to compile monthly reports.

An 'unqualified' opinion for the Annual C&S Report could be worded, for example, as below:

'Nothing has come to our attention to cause us to believe that the data has not been prepared, in all material respects, in accordance with the criteria.'

If there is material misstatement, the opinion could be worded, for example, as below:

'Nothing has come to our attention that causes us to believe that internal control is not effective, in all material respects, with the exception of:

- X
- Y
- Z

Where it is deemed that there is insufficient evidence to make certified C&S claims, data should be reported as 'unknown'. The data submitted in the Annual Report to the RFA must match the data held by the RFA in the RFA's database (ROS - from suppliers' monthly returns).

It is standard practice for the verifier to submit a report, in addition to the opinion, to the client. It is considered good practice if this report includes information on the overall effectiveness of the system in place to generate C&S data as well as recommendations for improvement. Such information is intended to assist both the RFA and parties submitting verified Annual Reports to understand the process and improve performance. In addition, such information maximises the knowledge transfer of the verifier to the party submitting their verified Annual Reports.

## 7.6 Further guidance

Further guidance for verifiers has been developed, which adds detail to the information contained in this chapter and is available on the [RFA website](#). The additional guidance is aimed at verifiers for the Annual Reports, though it may also be a useful resource for

obligated and other parties preparing for verification. The guidance includes:

- An overview of the purpose of verification;
- A description of the assurance process, including the key features of ISAE 3000 and the steps in an assurance engagement for RTFO reports;
- The criteria for undertaking an RTFO assurance engagement;
- The testing procedures that will be required;
- The evidence that should be obtained;
- An overview of the main features of an assurance statement; and
- A description of the competencies for verifiers



## Annex A Guidance on sustainability standards

Key changes to this section:

- Benchmark results added for the RFA's initial assessment of existing Qualifying Standards against RED biodiversity and carbon stock criteria.
- Any future assessments by the EC of voluntary feedstock standards against the RED criteria will take precedence over RFA assessments against the RED.
- Temporary solution for RSPO can continue to be used in countries where the national interpretation has not yet been developed.
- RTRS 'Field Testing Version' meets the full RTFO Social Meta-Standard level, as well as the Qualifying Environmental Standard level.
- ACCS and Genesis QA no longer meet the full RTFO Environmental Meta-Standard level and now only meet the Qualifying Environmental Standard level.

### A.1 Benchmarked standards

A selection of existing standards has been benchmarked against the RTFO Biofuel Sustainability Meta-Standard. Those that meet an acceptable level of sustainability are called Qualifying Standards. The results of the benchmarking exercise are shown in Annex D. Any standard that is listed can be reported under the RTFO and will count towards a company's data capture target, but only standards that meet at least the Qualifying Standard count towards a company's Qualifying Environmental Standard target.

The detailed results of the benchmarking exercise are included in Annex D. More standards will be benchmarked by the RFA as appropriate.

The RFA has also carried out an initial benchmark of existing Qualifying Standards against the mandatory RED biodiversity and carbon stock criteria (see Table 8). As these criteria are mandatory, the standards have been scored either a 'Yes' implying a full compliance, or a 'No' implying a non-compliance in these benchmarks. This contrasts to the benchmarks against the RTFO

criteria where standards can also be scored a 'Partial' compliance. For full benchmark results, see [RFA website](#).

Note that the EC may assess voluntary standards against the RED criteria. Where this is done, the EC assessment results will be adopted by the RFA.

**Table 15 List of benchmarked standards**

The table illustrates whether the standard is an environmental or social Qualifying Standard or neither, and whether the standard meets the RED criteria on biodiversity and carbon stocks. Notes on standards are below the table.

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Stocks Criterion?	RTFO Environmental Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental Standard?	Qualifying Social Standard?
<b>Standards that meet Qualifying Standard level</b>						
Assured Combinable Crops Scheme (ACCS)	Yes	No	No	No	Yes	No
Basel criteria for soy (Basel)	-	-	No	No	Yes	Yes
Better Sugar Cane Initiative (BSI) <sup>A</sup>	-	-	No	Yes	No	Yes
Forest Stewardship Council (FSC)	No	No	No	No	Yes	No
Genesis Quality Assurance (Genesis QA)	Yes	No	No	No	Yes	No
Linking Environment And Farming Marque (LEAF) <sup>B</sup>	No	No	No	No	Yes	No
Roundtable on Sustainable Palm Oil (RSPO)	Yes	No	No	No	Yes	Yes
Round Table on Responsible Soy (RTRS) <sup>C</sup>	No	No	No	Yes	Yes	Yes
Sustainable Agriculture Network/Rainforest Alliance (SAN/RA) <sup>D</sup>	Yes	No	No	No	Yes	Yes

Benchmarked standard	Indicative RED Biodiversity Criterion?	Indicative RED Carbon Stocks Criterion?	RTFO Environmental. Meta-Standard?	RTFO Social Meta-Standard?	Qualifying Environmental. Standard?	Qualifying Social Standard?
<b>Standards that do not meet Qualifying Standard level<sup>55</sup></b>						
FEDIOL <sup>E</sup>	-	-	No	No	No	No
German Qualität und Sicherheit (QuS) <sup>F</sup>	-	-	No	No	No	No
GlobalGAP <sup>G</sup>	-	-	No	No	No	No
International Federation of Organic Agriculture Movements (IFOAM) <sup>H</sup>	-	-	No	No	No	No
ProTerra <sup>I</sup>	-	-	No	No	No	No
Scottish Quality Crops (SQC) <sup>J</sup>	-	-	No	No	No	No
Social Accountability 8000 (SA8000) <sup>K</sup>	-	-	No	No	No	No

## Notes on standards

A) BSI is a standard in development. The benchmark result refers to Version 2 (Public Consultation) of the standard. An updated and final standard is due to be released by BSI in April 2010, which the RFA intend to benchmark.

B) Approximately 10% of LEAF Marque certificates are issued by non-accredited certification bodies. LEAF can only be reported as a Qualifying Environmental Standard if the certificate has been issued by an accredited body.

C) RTRS is a standard in development. The benchmark result refers to the Field Testing version of the standard, published in May 2009. An updated and final standard is due to be released by RTRS in June 2010, which the RFA intend to benchmark.

D) The SAN standard contains all relevant social criteria to meet the full Social RTFO Meta-Standard level. However for certification to be awarded, a plantation must meet 14 critical criteria and at least 80% of the other criteria. The 14 critical criteria do not cover all RTFO social criteria. The RFA therefore considers that there is not sufficient guarantee that certified produce would meet all the social criteria of the RTFO Meta-Standard, and therefore SAN/RA is considered to meet only the Qualifying Social Standard level.

Note: this benchmark result refers to the SAN standard and its addendum which were published in April 2009. The addendum includes additional sustainability

<sup>55</sup> These standards have been benchmarked against the RTFO Biofuel Sustainability Meta-Standard, but not found to meet the Qualifying Standard level. The standards can currently be reported under the RTFO and therefore be counted towards a company's data capture target, but they will not count towards a company's Qualifying Environmental Standard target.

criteria and indicators for a number of key biofuel feedstocks (sugar cane, oil palm, soy and sunflower).

E) FEDIOL's Code of Practice serves as voluntary industry guidelines for quality management, food safety and control in the value chain of the oilseed processing industry. It is not intended as a sustainability standard or certification scheme and (sustainable) feedstock production is not part of the code's scope.

F) The German Qualität und Sicherheit (QuS) guidelines have a strong focus on food safety, quality assurance and traceability. The main attention of the standard is on fertiliser and pesticide use. It is not intended as a sustainability standard and contains mainly recommendations and relatively few mandatory requirements.

G) Although GlobalGAP did not meet the requirements for either an Environmental or Social Qualifying Standard, it was found to come very close to meeting the requirements of a Qualifying Environmental Standard.

H) IFOAM itself is a meta-standard; it focuses on accrediting other standards for organic agriculture according to the general requirements set out by IFOAM. Unfortunately, several important criteria are only included as recommendations in IFOAM, thereby giving no guarantees of compliance. While these have not been benchmarked, some of the organic standards accredited by IFOAM may actually include stricter criteria and could therefore meet the Qualifying Standard level.

I) The ProTerra criteria and indicators alone suggest that the standard could meet the Qualifying Standard level. However, most of the criteria included in ProTerra are not mandatory for certification with no set deadline for meeting them. Therefore, ProTerra certification currently does not guarantee that these important criteria are complied with. Furthermore, the ProTerra standard does not offer an independent accreditation process, and as such does not guarantee the audit quality. It is therefore not currently a Qualifying Standard.

J) Scottish Quality Crops currently does not meet the criteria required to be either an Environmental or Social Qualifying Standard. The standard is directed more towards food safety than broader sustainability for the purposes of feedstock cultivation for bioenergy.

K) The Social Accountability 8000 standard provides a good coverage of worker rights and working relationship concerns, but does not cover land rights or community relations sufficiently well for it to meet the Social Qualifying Standard level.

## A.2 Short term solutions for standards in development

Several of the benchmarked standards are not yet fully operational. To offer a short term solution for these cases, the RFA accepts the alternatives detailed in this section for the purposes of reporting under the RTFO.

Note the RFA **strongly recommends** that once a certification scheme becomes fully operational for a particular feedstock, parties should aim to move away from the short term solution and look to

operate within the certification scheme as soon as possible. The RFA intends to phase out temporary solutions for particular feedstocks after an operational certification scheme for that feedstock becomes available that meets at least the Qualifying Standard level. The RFA will engage with stakeholders to determine an appropriate time frame over which such phasing out should occur. As a guideline, the RFA expects this to be about 12 months.

**Palm oil:** the Roundtable on Sustainable Palm Oil (RSPO) developed into a fully operational standard, including its auditing, verification, and chain of custody systems, during 2008. The GreenPalm book and claim chain of custody system has been assessed and approved for use within the RTFO (see section 6.2). The RSPO is fully operational in some countries, but in others the necessary national interpretations have not yet been developed. Where a national interpretation has not yet been developed, the following temporary solution remains acceptable as meeting the RSPO criteria and thereby the Qualifying Environmental and Social Standard level of sustainability for the RTFO:

- Successful independent third party audit against the RSPO criteria and indicators; and
- Feedstock producer (or justified equivalent) is a member of the RSPO or equivalent.

**Soy oil:** the Round Table on Responsible Soy (RTRS) is not fully operational at the time of writing (January 2010). The RTRS published a 'Field Testing Version' of the standard in May 2009 following a consultation in March 2009. The RFA benchmarked this version and it was found to meet the Environmental Qualifying Standard level and the full RTFO Social Meta-Standard level (subject to the development of the auditing and certification requirements). RTRS are due to publish their final standard version in June 2010, which the RFA intend to benchmark.

The Basel Criteria for Soy is a standard which covers soy, but this is not intended to develop into a full certification scheme. The following are currently accepted as meeting the Qualifying Environmental and Social Standard level of sustainability for the RTFO:

- Successful independent third party audit against the Basel criteria and indicators, (criterion 2.3 on genetically modified material is not required); or
- Successful independent third party audit against the RTRS criteria and indicators (Field Testing Version<sup>56</sup>); and

---

<sup>56</sup> Successful audit against the Field Testing Version would meet the Qualifying Environmental Standard level and the full RTFO Social Meta-standard level. The RFA intends to benchmark the Final Version of the RTRS criteria and indicators when

- (For both) feedstock producer (or justified equivalent) is a member of the RTRS or equivalent.

**Sugar cane:** the Better Sugarcane Initiative (BSI) is in development. Version 2 of the standard was benchmarked by the RFA in November 2009 and was found to meet the RTFO Social Meta-Standard level (subject to the development of the auditing and certification requirements). BSI is due to publish the Final standard version in April 2010, which the RFA intend to benchmark. The following is currently accepted as meeting the RTFO Biofuel Sustainability Meta-Standard level:

- Successful independent third party audit against the BSI criteria and indicators (Version 2<sup>57</sup>), plus successful independent third party audit against gap criteria (see Annex D); and
- Feedstock producer (or justified equivalent) is a member of the Better Sugarcane Initiative (BSI) or equivalent.

The independent third party audits must meet the requirements of the RFA's Norm for Audit Quality (see section A.5 in Annex A), with the exception of criteria 2 (Management of the audit programme) and 7 (Accreditation process for Accreditation Bodies). Minor musts in the norm should be treated as recommendations only.

## A.3 Benchmarking additional standards

A company or standard owner can request that the RFA benchmarks an additional certification scheme that it wishes to be considered for use within the RTFO<sup>58</sup>. The request should be to [C-and-S@rfa.gsi.gov.uk](mailto:C-and-S@rfa.gsi.gov.uk) and include the following information:

- The formal description of the standard;
- The most recent version of the standard's criteria and indicators;
- The most recent version of the standard's procedures and requirements for the auditing/certification process; and

---

published in 2010. If the Final Version is still found to meet the Qualifying Environmental level and full RTFO Social Meta-standard level or above, this version will replace the Field Testing Version as the appropriate standard to audit against.

<sup>57</sup> The RFA intends to benchmark Version 3 of BSI once published in 2010. If this version still meets the full RTFO Social Meta-standard level or above, this version will replace Version 2 as the appropriate standard to audit against.

<sup>58</sup> The RFA will give due consideration as to whether a benchmark of the requested standard or certification scheme is appropriate, but is not obliged to conduct a full benchmark. Appropriate standards or certification schemes are likely to be third party sustainability certification schemes that can be used to certify feedstocks of relevance to the biofuels market.

- The most recent version of the standard's accreditation procedures and requirements for certification bodies.

The RFA will acknowledge the receipt of the e-mail within ten working days and publish an announcement on its website that a benchmark will be performed for this certification scheme. The RFA will then begin the technical review of the certification scheme (i.e. benchmark of sustainability Principles and Criteria, Audit quality).

An overview of the procedure for benchmarking of additional standards is available on the RFA website.

In a similar manner, a company or standard owner can request that the RFA benchmarks a new version of a sustainability standard or certification scheme that has previously been benchmarked against the RTFO.

Note that the EC may assess voluntary standards against the RED criteria. Where this is done, the EC assessment results will be adopted by the RFA. Where another Member State benchmarks a standard against the RED, the RFA is not obliged to accept this result, although the RFA will endeavour to review additional standards benchmarked in this way.

## **A.4 The norm for Qualifying Standards**

The following norms are used for conducting the benchmarks of sustainability principles and criteria.

To become a Qualifying Environmental Standard the following criteria requirements must be met:

- Full compliance with all criteria referring to compliance with national legislation (2.1, 3.1, 4.1, 5.1);
- On all principles one 'partial compliance' criterion is permitted per principle, with a maximum of three in total.

Full compliance with a criterion is only awarded if the RTFO criterion is met by a corresponding mandatory criterion in the benchmarked standard.

To become a Qualifying Social Standard the following criteria requirements must be met:

- Of the 11 minimum requirement criteria of principle 6, seven must be fully complied with;
- On principle 7 on land right issues and community relations, one partial compliance is permitted.



Full compliance with a criterion is only awarded if the RTFO criterion is met by a corresponding mandatory criterion in the benchmarked standard.

Note that the benchmark also considers how a certification decision is made within a scheme. For a criterion to be fully met, the certification process must guarantee that the criteria required to meet the Qualifying Standard or full RTFO Meta-Standard level are all met for certification to be awarded, or at least that there is a provision for all relevant criteria to be met over a specified period of time.

## A.5 The norm for Audit Quality

A norm for audit quality has also been developed (Table 16). The norm is based on 7 criteria, with each criterion assigned a conformance level of either 'major must' or 'minor must'.

For a Standard to be accepted as a Qualifying Standard it must be in compliance with all major musts. The minor musts are optional, but highly recommended criteria.

**Table 16 Norm for Audit Quality**

Criterion	Norm	Conformance
<b>Certification</b>		
1. Requirements for Certification Bodies (CBs)	ISO Guide 65: 1996, ISO 17021: 2006, or justified equivalents.	Major must
<b>Audit</b>		
2. Management of the audit programme	ISO 19011: 2002, or justified equivalent.	Minor must
3. Audit frequency	Once every 5 years for a full certification audit and once a year for a surveillance audit.	Major must
4. Audit competency	ISO 19011: 2002, or justified equivalent. Specific requirements relevant to the product that the CB is certifying should be added as training requirements where appropriate.	Major must Major must
5. Stakeholder consultation	To include a range of relevant stakeholders.	Minor must



Criterion	Norm	Conformance
6. Public summaries of the certification audit	To include overall findings of the certification audit, any details of non-compliance and any issues identified during the stakeholder consultation. Information should be available in both English and the relevant local language(s), if applicable.	Minor must
<b>Accreditation</b>		
7. Accreditation process for Accreditation Bodies (ABs)	'Commitment to comply' with ISO 17011: 2004, or justified equivalent, independently peer-reviewed and approved by an auditor that is recognised by either ISEAL or the IAF.	Major must

The existing Qualifying Standards have been benchmarked against the norm for audit quality, the results of which are detailed in Annex D. Existing Qualifying Standards have a period of 12 months to address any non-conformances (i.e. until the end of the 2009/10 obligation period). Note that, given the allowed 12 month period, all existing Qualifying Standards will continue to be accepted for use in the RTFO for the obligation period 2009/2010.

For new standards, if the standard is not compliant with all major musts when being benchmarked for inclusion in the RTFO, then it will not be accepted as a Qualifying Standard. In this case, the standard can address the non-conformances and re-apply to have the audit quality benchmarked for inclusion in the RTFO.

Further details on the norm can be found at the [RFA website](#).

## A.6 Procedure for downgrading a standard

Should an existing Qualifying Standard be amended and found not to meet the norm for audit quality or sustainability criteria, the standard owner will be informed by the RFA and given a period of 12 months to address the non-conformance. Failure to do so will result in the standard no longer being accepted as a Qualifying Standard or full RTFO Meta-Standard in the RTFO. The RFA reserves the right to disqualify standards at shorter notice for serious non-conformances.

## Annex B Eligible by-products

Key changes to eligible by-products:

- Sulphite liquor is added to the list of by-products.

Definition: a feedstock that represents less than 10% of the farm or factory gate value.

Note that the RED does not use such a classification and instead refers to these type of products as 'wastes' and 'residues'. The RFA intends to continue using the term 'by-products' in the RTFO for the third year of the obligation.

The biofuel producer purchasing these by-products will have little influence on the sustainability of the production process for the original product. For example, a biofuel producer buying tallow will have little or no influence on the standards applied to rearing the cattle.

For the purpose of the Technical Guidance, the following products are considered by-products:

- Corn oil;
- Cheese by-products;
- Manure;
- Molasses;
- Municipal solid waste;
- Sulphite liquor;
- Tallow;
- Used cooking oil.

Note that under the EU RED wastes and residues, are set to be 'double counted' towards Member States' renewable transport targets. This implies that one litre of biofuel produced from the above by-products may earn two RTFCs when the RED is implemented into UK legislation.

## **Annex C RTFO Biofuel Sustainability Meta- Standard criteria and indicators**

Key changes to RTFO Biofuel Sustainability Meta-Standard criteria:

- Reference date for carbon stocks (criterion 1.1) and high biodiversity (criterion 2.2) are changed to 1 January 2008, to be in line with the RED.
- Inclusion of forest lands in the examples of soils with a large risk of significant soil stored carbon (criterion 1.1).

### **C.1 Environmental criteria and indicators**

The tables below illustrate the environmental sustainability criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard. All criteria and indicators must be met for the RTFO Biofuel Sustainability Meta-Standard. The 'recommended' criteria and indicators listed at the bottom of each table are not required for the RTFO Biofuel Sustainability Meta-Standard, but are considered good practice. They indicate where the RTFO Biofuel Sustainability Meta-Standard should develop in the long term.

The RFA will keep the criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard under review to ensure their continuing relevance. The status of mandatory and recommended criteria will also be kept under review.

**Table 17 Environmental criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard**

<b>Principle 1: CARBON CONSERVATION</b>	<b>Biomass production will not destroy or damage large above or below ground carbon stocks</b>
Criterion	Indicators
1.1 Preservation of above and below ground carbon stocks (reference date 01-01-2008).	<p>Evidence that biomass production has not caused direct land-use change with a carbon payback time exceeding 10 years<sup>59</sup>.</p> <p>Evidence that the biomass production unit has not been established on soils with a large risk of significant soil stored carbon losses such as forest lands, peat lands, mangroves, wetlands and certain grasslands.</p>

<b>Principle 2: BIODIVERSITY CONSERVATION</b>	<b>Biomass production will not lead to the destruction or damage of high biodiversity areas</b>
Criterion	Indicators
2.1 Compliance with national laws and regulations relevant to biomass production in the area and surroundings where biomass production takes place.	<p>Evidence of compliance with national and local laws and regulations with respect to:</p> <ul style="list-style-type: none"> <li>• Environmental Impact Assessment</li> <li>• Land ownership and land-use rights;</li> <li>• Forest and plantation management;</li> <li>• Protected and gazetted areas;</li> <li>• Nature and wild life conservation;</li> <li>• Land-use planning;</li> <li>• National rules resulting from the adoption of CBD<sup>60</sup> and CITES<sup>61</sup>.</li> </ul> <p>The company should prove that:</p> <ul style="list-style-type: none"> <li>• It is familiar with relevant national and local legislation</li> <li>• It complies with these legislations</li> <li>• It remains informed on changes in legislation</li> </ul>

<sup>59</sup> Guidance on the 'carbon pay back time' is given in Annex H.

<sup>60</sup> <http://www.biodiv.org/com/convention/convention.shtml>

<sup>61</sup> <http://www.cites.org/eng/disc/text.shtml>

<b>Principle 2: BIODIVERSITY CONSERVATION</b>	<b>Biomass production will not lead to the destruction or damage of high biodiversity areas</b>
Criterion	Indicators
2.2 No conversion of high biodiversity areas after 1 January 2008.	<p>Evidence that production does not take place in gazetted areas.</p> <p>Evidence that production does not take place in areas with one or more HCV areas<sup>62</sup>:</p> <ul style="list-style-type: none"> <li>• HCV 1, 2, 3 relating to important ecosystems and species;</li> <li>• HCV 4, relating to important ecosystem services, especially in vulnerable areas;</li> <li>• HCV 5, 6, relating to community livelihoods and cultural values.</li> </ul> <p>Evidence that production does not take place in any areas of high biodiversity.</p>
2.3 The status of rare, threatened or endangered species and high conservation value habitats, if any, that exist in the production site or that could be affected by it, shall be identified and their conservation taken into account in management plans and operations.	<p>Documentation of the status of rare, threatened or endangered species (resident, migratory or otherwise) and high conservation value habitats in and around the production site.</p> <p>Documented and implemented management plan on how to avoid damage to or disturbance of the above mentioned species and habitats.</p>

### **Recommendation only:**

#### **Criterion:**

Preservation and/or improvement of surrounding landscape.

#### **Indicators:**

---

<sup>62</sup> The definition of the 6 High Conservation Values can be found at <http://www.hcvnetwork.org>

Currently no comprehensive maps exist which define HCV areas. For many areas it will therefore still be necessary to assess whether HCVs are present or not.

The following initiatives are helpful in defining areas with one or more HCVs:

- Conservation International – Biodiversity Hotspots
- Birdlife international – Important Bird Areas
- The WWF G200 Eco-regions: the regions classified ‘vulnerable’ or ‘critical/endangered’.
- European High Nature Value Farmland

Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

<b>Principle 3: SOIL CONSERVATION</b>	<b>Biomass production does not lead to soil degradation</b>
Criterion	Indicators
3.1 Compliance with national laws and regulations relevant to soil degradation and soil management.	<p>Evidence of compliance with national and local laws and regulations with respect to:</p> <ul style="list-style-type: none"> <li>• Environmental Impact Assessment;</li> <li>• Waste storage and handling;</li> <li>• Pesticides and agro-chemicals;</li> <li>• Fertiliser;</li> <li>• Soil erosion.</li> </ul> <p>Compliance with the Stockholm convention (list of forbidden pesticides).</p> <p>The company should prove that:</p> <ul style="list-style-type: none"> <li>• It is familiar with relevant national and local legislation;</li> <li>• It complies with these legislations;</li> <li>• It remains informed on changes in legislation.</li> </ul>

<b>Principle 3: SOIL CONSERVATION</b>	<b>Biomass production does not lead to soil degradation</b>
Criterion	Indicators
<p>3.2 Application of good agricultural practices with respect to:</p> <ul style="list-style-type: none"> <li>• Prevention and control of erosion;</li> <li>• Maintaining and improving soil nutrient balance;</li> <li>• Maintaining and improving soil organic matter;</li> <li>• Maintaining and improving soil pH;</li> <li>• Maintaining and improving soil structure;</li> <li>• Maintaining and improving soil biodiversity;</li> <li>• Prevention of salinisation.</li> </ul>	<p>Documentation of soil management plan aimed at sustainable soil management, erosion prevention and erosion control.</p> <p>Annual documentation of applied good agricultural practices with respect to<sup>63</sup>:</p> <ul style="list-style-type: none"> <li>• Prevention and control of erosion;</li> <li>• Maintaining and improving soil nutrient balance;</li> <li>• Maintaining and improving soil organic matter;</li> <li>• Maintaining and improving soil pH;</li> <li>• Maintaining and improving soil structure;</li> <li>• Maintaining and improving soil biodiversity;</li> <li>• Prevention of salinisation.</li> </ul>

### Recommendation only

#### Criterion:

The use of agricultural by-products does not jeopardize the function of local uses of the by-products, soil organic matter or soil nutrients balance.

#### Indicators:

- Documentation that the use of by-products does not occur at the expense of important traditional uses (such as fodder, natural fertiliser, material, local fuel etc.) unless documentation is available that similar or better alternatives are available and are applied.
- Documentation that the use of by-products does not occur at the expense of the soil nutrient balance or soil organic matter balance.

---

<sup>63</sup> Recommendations only

Records of annual measurements of:

- Soil loss in tonnes soil/ha/y
- N,P,K balance
- SOM and pH in top soil
- Soil salts content

<b>Principle 4: SUSTAINABLE WATER USE</b>	<b>Biomass production does not lead to the contamination or depletion of water sources</b>
Criterion	Indicators
4.1 Compliance with national laws and regulations relevant to contamination and depletion of water sources.	<p>Evidence of compliance with national and local laws and regulations with respect to:</p> <ul style="list-style-type: none"> <li>• Environmental Impact Assessment;</li> <li>• Waste storage and handling;</li> <li>• Pesticides and agro-chemicals;</li> <li>• Fertiliser;</li> <li>• Irrigation and water usage.</li> </ul> <p>The company should prove that:</p> <ul style="list-style-type: none"> <li>• It is familiar with relevant national and local legislation</li> <li>• It complies with these legislations</li> <li>• It remains informed on changes in legislation.</li> </ul>
4.2 Application of good agricultural practices to reduce water usage and to maintain and improve water quality.	<p>Documentation of water management plan aimed at sustainable water use and prevention of water pollution.</p> <p>Annual documentation of applied good agricultural practices with respect to:</p> <ul style="list-style-type: none"> <li>• Efficient water usage;</li> <li>• Responsible use of agro-chemicals;</li> <li>• Waste discharge.</li> </ul>

### Recommendations only

Records of annual measurements of:

- Agrochemical inputs (input/ha/y), such as fertilisers and pesticides (specified per agrochemical);
- Water sources used (litres/ha/y);
- BOD level of water on and nearby biomass production and processing.



<b>Principle 5: AIR QUALITY</b>	<b>Biomass production does not lead to air pollution</b>
Criterion	Indicators
5.1 Compliance with national laws and regulations relevant to air emissions and burning practices.	<p>Evidence of compliance with national and local laws and regulations with respect to:</p> <ul style="list-style-type: none"> <li>• Environmental Impact Assessment;</li> <li>• Air emissions;</li> <li>• Waste management;</li> <li>• Burning practices.</li> </ul> <p>The company should prove that:</p> <ul style="list-style-type: none"> <li>• It is familiar with relevant national and local legislation;</li> <li>• It complies with these legislations;</li> <li>• It remains informed on changes in legislation.</li> </ul>
5.2 No burning as part of land clearing or waste disposal.	Evidence that no burning occurs as part of land clearing or waste disposal, except in specific situations such as described in the ASEAN guidelines on zero burning or other respected good agricultural practices.

### List of protected areas referred to in criterion 2.2

UNESCO World Heritage Sites<sup>64</sup>;

IUCN List of Protected Areas categories I, II, III and IV<sup>65</sup>, according to the list available from 2003<sup>66</sup> or more up to date lists or national data;

RAMSAR sites (wetlands under the Convention on Wetlands)<sup>67</sup>, according to the available list<sup>68</sup> of more up to date lists or national data.

<sup>64</sup> <http://whc.unesco.org/en/list>

<sup>65</sup> IUCN defines a protected area as: an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means, and subdivides protected areas into six categories: I a) Strict nature reserve/wilderness protection area; I b) Wilderness area; II) National park; III) Natural monument; IV) Habitat/Species management area; V) Protected landscape/seascape; VI) Managed resource protected area. Source: [www.wwf.de/fi\\_leadadmin/fm-wwf/pdf-alt/waelder/WWF-position\\_Protected\\_Areas\\_03.pdf](http://www.wwf.de/fi_leadadmin/fm-wwf/pdf-alt/waelder/WWF-position_Protected_Areas_03.pdf)

<sup>66</sup> [http://www.unep-wcmc.org/wdpa/unlist/2003\\_UN\\_LIST.pdf](http://www.unep-wcmc.org/wdpa/unlist/2003_UN_LIST.pdf)

<sup>67</sup> <http://www.ramsar.org/>

<sup>68</sup> [http://www.ramsar.org/index\\_list.htm](http://www.ramsar.org/index_list.htm)

## C.2 Social criteria and indicators

Table 18 illustrates the social criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard. The RFA will keep these criteria and indicators under review to ensure their continuing relevance. The status of mandatory and recommended criteria will also be kept under review.

**Table 18 Social criteria and indicators for the RTFO Biofuel Sustainability Meta-Standard**

All the listed criteria and indicators must be met for the RTFO Biofuel Social Sustainability Meta-Standard.

<b>Principle 6: WORKERS RIGHTS</b>	<b>Biomass production does not adversely affect workers rights and working relationships</b>
Criteria	Indicators
6.1 Compliance with national law on working conditions and workers rights.	Certification applicant must comply with all national law concerning working conditions and workers rights.
6.2 Contracts	Certification applicant must supply all categories of employees (incl. temporary workers) with a legal contract in which the criteria below are registered.
6.3 Provision of information.	Certification applicant must show evidence that all workers are informed about their rights (incl. bargaining rights).
6.4 Subcontracting	When labour is contracted or subcontracted to provide services for the certification applicant, the certification applicant must demonstrate that the subcontractor provides its services under the same environmental, social and labour conditions as required for this standard.
6.5 Freedom of association and right to collective bargaining.	Certification applicant must guarantee the rights of workers to organise and negotiate their working conditions (as established in ILO conventions 87 and 98). Workers exercising this right must not be discriminated against or suffer repercussions.

<b>Principle 6: WORKERS RIGHTS</b>	<b>Biomass production does not adversely affect workers rights and working relationships</b>
Criteria	Indicators
6.6 Child labour	Certification applicant must guarantee that no children below the age of 15 are employed. Children are allowed to work on family farms if not interfering with children's educational, moral, social and physical development (the workday, inclusive of school and transport time, to be a maximum of 10 hours).
6.7 Young workers	The work carried out shall not be hazardous or dangerous to the health and safety of young workers (age 15 -17). It shall also not jeopardise their educational, moral, social and physical development.
6.8 Health and safety	All certification applicants must meet basic requirements including potable drinking water, clean latrines or toilettes, a clean place to eat, adequate protective equipment and access to adequate and accessible (physically and financially) medical care. Accommodation, where provided, shall be clean, safe, and meet the basic needs of the workers.
	All certification applicants shall ensure that workers have received regular health and safety training appropriate to the work that they perform.
	All certification applicants shall identify and inform workers of hazards, and adopt preventive measures to minimise hazards in the workplace and maintain records of accidents.
6.9 Wages/ compensation	Wageworkers must be paid wages at least equivalent to the legal national minimum wage or the relevant industry standard, whichever is higher.
	Workers must be paid in cash, or in a form that is convenient to them and regularly.

<b>Principle 6: WORKERS RIGHTS</b>	<b>Biomass production does not adversely affect workers rights and working relationships</b>
Criteria	Indicators
6.10 Discrimination	In accordance with ILO Conventions 100 and 111, there must be no discrimination (distinction, exclusion, or preference) practised that denies or impairs equality of opportunity, conditions, or treatment based on individual characteristics and group membership or association like: race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, age, marital status, those with HIV/AIDS, seasonal, migrant and temporary workers.
6.11 Forced Labour	Standards shall require that the certification applicant not engage in or support forced labour including bonded labour as defined by ILO conventions 29 and 105. The company must not retain any part of workers' salary, benefits, property, or documents in order to force workers to remain on the farm. The company must also refrain from any form of physical or psychological measure requiring workers to remain employed on the farm. Spouses and children of contracted workers should not be required to work on the farm.

<b>Principle 7: LAND RIGHTS</b>	<b>Biomass production does not adversely affect existing land rights and community relations</b>
Criteria	Indicators
7.1 Land right issues	The right to use the land can be demonstrated and does not diminish the legal or customary rights of other users and respects important areas for local people.
7.2 Consultation and communication with local stakeholders	Procedures are in place to consult and communicate with local populations and interest groups on plans and activities that may negatively affect the legal or customary rights, property, resources, or livelihoods of local peoples.

### **List of recommended only social criteria**

These recommended criteria and indicators are not required for the RTFO Biofuel Sustainability Meta-Standard, but are considered good practice. They indicate the direction the RTFO Biofuel Sustainability Meta-Standard should develop in the long term.

#### **Criteria: Wages and compensation**

- The certification applicant must pay the workers for unproductive time due to conditions beyond their control.
- Housing and other benefits shall not be deducted from the minimum wage/or relevant industry wage as an in kind payment without the expressed permission of the worker concerned.
- Where the certification applicant uses pay by production (piecework) system, the established pay rate must permit the worker to earn the minimum wage or relevant industry average (whichever is higher) during normal working hours and under normal operating conditions).

#### **Criteria: Working hours**

- Usual working hours shall not exceed eight hours a day and 48 hours a week.
- Workers must have a minimum of 24 hours rest for every seven day period.
- Overtime during seasonal peaks allowed, needs to be voluntary, should be paid at premium rate. Adequate breaks (every 6 h, 30 minutes). For heavy or dangerous work shorter periods and longer breaks should be allowed.

#### **Criteria: Growers and mills should deal fairly with smallholders and other local businesses**

- Current and past prices for produce are publicly available.
- Pricing mechanisms for produce, inputs and services are documented.
- Evidence is available that all parties understand the contractual agreements they enter into, and that contracts are fair, legal and transparent and that all costs, fees and levies are explained and agreed in advance.
- Agreed payments are made in a timely manner.

## Annex D Benchmarks of standards

Key changes to detailed benchmark results:

- Detailed benchmark result tables now included in separate document on RFA website.

New tables on the RFA website include:

- Benchmarks of updated versions of SAN/RA, RSPO, RTRS and BSI
- Benchmark results have been downgraded for ACCS and Genesis QA. The two standards formerly met the RTFO Environmental Meta-Standard level, but now meet the Qualifying Environmental Standard level.

This detailed benchmark result tables from this annex have been removed from the Technical Guidance to enable ease of reading and updating. They can now be found on the [RFA website](#).

## Annex E Methodology for projects with low risk of iLUC

This Annex is new and replaces the previous Annex on 'Guidance on definition of Idle land'

In follow up to the Gallagher Review recommendation to identify demonstrably sustainable biofuels, the RFA commissioned work to develop a methodology that can objectively distinguish biofuels from energy crops with a low risk of indirect effects. The [full report](#) contains details of six real life case studies.

The methodology developed, detailed in this section, aims to enable individual companies to initiate projects that can demonstrate that the feedstock cultivated, and hence the resultant biofuel, has a low risk of causing indirect land-use change.

This section sets out the framework of the methodology, the criteria that a project should comply with to claim that the project has a low risk of causing iLUC, and how compliance with these criteria could be demonstrated and verified.

The methodology is one of potentially a number that could demonstrate biofuels with a low risk of iLUC. The methodology is designed to empower companies who wish to develop new biofuel projects, to do so in a way that can demonstrate a low risk of iLUC.

The RFA is including this methodology in this Technical Guidance as an option for fuels supplied under the RTFO from April 2010. The methodology will also be put forward for consideration for inclusion in other biofuel sustainability schemes such as the Roundtable on Sustainable Biofuels (RSB) and policies such as the RED.

**Parties wishing to use this methodology are encouraged to contact the RFA to register the project and, where necessary to discuss aspects of the proposed methodology.**

**Companies are required to report whether they have undertaken specified measures to improve the sustainability of biofuels in their annual report, including projects to minimise risks of iLUC in line with this methodology.**

## E.1 Scope

### Focus on indirect effects from energy crops

The scope of the methodology is limited to minimising the risk of unwanted indirect effects from biofuel production from energy crops. For biofuel production to be sustainable unwanted direct effects also have to be prevented (e.g. loss of biodiversity) but this has been the focus of other work and is the key focus of the RTFO Meta-Standard. Mechanisms for direct effects are more easily assessed and monitored as they can be directly observed at the location of production; existing mechanisms such as certification schemes already exist for this purpose. Preventing unwanted direct effects will therefore always be necessary alongside minimising the risk of unwanted indirect effects. This methodology focuses on indirect effects only. Furthermore, this methodology focuses on biofuels from energy crops. The RFA has undertaken separate work on the indirect effects of biofuels from residues and wastes. The report on this work can be found on the [RFA website](#)

#### a) Focus on three types of project-level approaches

In line with the case studies, the methodology focuses on three main approaches:

- i) The use of land without current (and future) provisioning services<sup>69</sup>.
  - E.g. oil palm on 'unused'<sup>70</sup> Imperata grassland
- ii) Increasing land productivity through integration with non-bioenergy-feedstock systems
  - E.g. increasing cattle density through integration with sugar cane
- iii) Increasing the land productivity of existing bioenergy-feedstock systems
  - E.g. increasing the yields of existing sugar cane plantations

---

<sup>69</sup> The Millennium Ecosystem Assessment distinguishes four categories of ecosystem services: provisioning services, regulation services, cultural services and supporting services. Provisioning services are defined as harvestable goods such as fish, timber, bush meat, genetic material, etc. (Commission for Environmental Assessment, 2006).

<sup>70</sup> The term 'unused' land is intended to signify land that is unused from an agricultural perspective but it is recognised that land is unlikely to ever be truly unused. Defining unused land is considered in the section on next steps.



The methodology thereby takes a project-level approach, in which a low risk of indirect effects can be claimed by individual production units if certain requirements are met<sup>71</sup>.

b) Focus on the period up to 2020

The methodology proposed here is primarily focussed on the obligation period of the EU RED. That is the period until 2020. This is relevant in discussions on the time period over which the proposed solutions must be effective in terms of minimising the risk of unwanted effects.

## E.2 Mitigation criterion for unwanted indirect effects

Indirect effects of additional biofuel feedstock production are the result of a displacement of existing production on land that was already in use for other purposes. E.g. existing palm oil production that was previously used for the food sector and is now used for biodiesel production<sup>72</sup>, or land previously used for cattle that is now used for sugar cane production for bioethanol.

Displacement of existing production on land that is already in use for other purposes is therefore at the heart of the concept of indirect effects. Preventing displacement, by realising additional production instead of displacing existing production, is therefore at the heart of the solution to minimise the risk of indirect effects.

The proposed criterion therefore is:

***Additional production has been realised without displacing existing provisioning services of the land.***

---

<sup>71</sup> The term 'project-level' is used to refer to a specific activity or set of activities under the control of single party – it does not necessarily imply a biofuel only 'project' as some fuel chains such as soy or palm oil do not necessarily fit in such an easily identifiable and vertically integrated 'biofuel' project.

<sup>72</sup> Note that different indirect effects may result from this. E.g. production is increased elsewhere potentially leading to a LUC, or consumption in other sectors may reduce (e.g. reduced food consumption).

## E.3 Demonstrating compliance: Baseline, additionality and registration

The above criterion states that additional production must be realised to prevent displacement effects. To be able to demonstrate compliance with this criterion the following is required:

- a) Determine the **baseline production** levels of the project area. The increased production levels will be compared to this baseline after implementation of the project activity. The increase in production levels above the baseline is eligible for crediting.
- b) Determine whether the project activity is **additional**, i.e. that in absence of the biofuel feedstock demand the project activity would not have been implemented during the crediting period<sup>73</sup>.
- c) The project must be **registered** with the RFA.

### E.3.1 Setting the baseline

Two options exist for setting the baseline production levels:

- a) **Static baseline** in which the baseline production levels are set equal to the current production levels.
- b) **Dynamic baseline** in which the baseline production levels change over time, e.g. by taking into account business-as-usual yield changes.

The table below provides guidance on how the baseline can be set depending on the project type and the whether the baseline is static or dynamic.

---

<sup>73</sup> For a definition of the crediting period, see *The crediting period*, page 119.

**Table 19 Guidance on how to set the baseline**

A distinction is made for when the baseline is static or dynamic.

Project type	Static baseline	Dynamic baseline
The use of land without provisioning services	Zero The land currently provides no provisioning services.	Zero The additionality test must demonstrate that the land would not be taken into production in the crediting period.
Increasing the land productivity of existing bioenergy-feedstock systems	Current production levels of existing bioenergy feedstock system (yield) based on a multi-year average, OR; Production levels that would be achieved with BAU practices. In case of rotational systems, the production levels are averaged to a per annum basis.	Projected production levels of existing bioenergy feedstock system (yields) based on historic yield trend line, OR; Production levels that would be achieved with BAU practices. In case of rotational systems, the production levels are averaged to a per annum basis.
Increasing land productivity through integration with non-bioenergy-feedstock systems	Current production levels of existing non-bioenergy feedstock system (yield) based on a multi-year average, OR; Production levels that would be achieved with BAU practices. In case of rotational systems, the production levels are averaged to a per annum basis.	Projected production levels of existing non-bioenergy feedstock system (yields) based on historic yield trendline, OR; Production levels that would be achieved with BAU practices. In case of rotational systems, the production levels are averaged to a per annum basis.

### E.3.2 Proving additionality

To prevent displacement effects, the project activity that increases production levels must be additional. To demonstrate such additionality for the three different types of solutions, the following would be needed:

- The use of land without provisioning services: demonstrate that in absence of the biofuel feedstock demand, land with certain characteristics would not have been used for the supply of other provisioning services (i.e. it would not have been taken into production)<sup>74</sup>. E.g. for the oil palm case study in Indonesia, this could be land that lies outside the area destined for development by the Indonesian government. Because the land is classified as forest land by the government, it would be very difficult to obtain a permit.
- Increasing the land productivity of existing bioenergy-feedstock systems: demonstrate that in the absence of the biofuel feedstock demand, the yield increasing measure (e.g. drip irrigation) would not have been implemented.
- Increasing land productivity through integration with non-bioenergy-feedstock systems: demonstrate that in the absence of the biofuel feedstock demand, the integration model (e.g. sugar cane-cattle) would not have been implemented.

Several methods can be used to demonstrate additionality of the project activity. These include:

- **Regulatory Surplus Analysis** demonstrating that the project activity is not a requirement of existing law or regulation.
- **Common Practice Analysis** demonstrating that the new project activity is not common practice in the relevant sector in the relevant region.
- **Barrier Analysis** demonstrating that one or more barriers exist that prevent the implementation of the project activity in absence of the project.

#### Regulatory Surplus Analysis

The regulatory surplus analysis must demonstrate that the proposed activity is not already required by existing law or

---

<sup>74</sup> To gain a reliable insight in the actual provisioning services of an area, local stakeholder consultation will always be needed. One could not rely only on secondary data sources such as national land classifications. Also, the fact that the land is not used at a particular point in time does not mean the land has no provisioning services. The land may be used in a rotational scheme with long fallow periods.

legislation. If the project activity is already required by existing law or legislation, it is not additional.

### **Common Practice Analysis**

The common practice analysis assesses to what extent similar project activities have already been implemented or are currently underway in the same sector in the relevant geographical area. Other projects that are registered as having a low risk of indirect effects are not to be included in this analysis: i.e. these projects are not treated as common practice projects in the common practice analysis of later projects.

If similar activities are identified, then these must be compared with the proposed project to assess whether there are essential differences between the proposed activity and the existing activities. If differences exist it must be demonstrated that these differences explain why the existing activities did not face the barriers being faced by the proposed project activity. If this can be demonstrated, the proposed project activity can still be considered additional.

### **Barrier analysis**

In most carbon emission-based schemes, a barrier analysis is performed to demonstrate additionality. The concept is that the project should demonstrate that barriers exist to the implementation of the project because of which the project is unlikely to be implemented in the baseline scenario. Barriers can be financial (e.g. the project is less economic than alternatives), technical (e.g. lack of availability of the technology in the region), but can also be of another nature (e.g. institutional, organisational or customary barriers – see the case studies for examples). Note the case studies in the [full report](#) showed that barriers do indeed exist for all the cases reviewed. They also showed that often these barriers are not of an economic nature.

### **Demonstrating additionality and transaction costs**

The RFA recognises that a potential issue with the additionality tests is the potentially high transaction costs. There are at least two methodological choices that have a large impact on these transaction costs:

- a) The required additionality tests. At least two options exist:
  - iv) Regulatory Surplus Analysis + Common Practice Analysis
  - v) Regulatory Surplus Analysis + Common Practice Analysis + Barrier Analysis

- b) The level at which the additionality tests are performed. Again, at least two options exist:
  - vi) One barrier analysis required for each individual project: e.g. for each sugar cane-cattle integration project in Brazil.
  - vii) One barrier analysis is required for a certain project type in a certain region: e.g. one barrier analysis would be performed for projects that integrate sugar cane with cattle in (a certain region of) Brazil. If this barrier analysis shows such a project to be additional, then all such project in (a certain region of) Brazil would be considered additional, without the need for each individual project to do its own barrier analysis. Of course, compliance with the displacement criterion (i.e. no displacement of provisioning services) must still be validated for each individual project. e.g. existing milk or beef production levels must be maintained. Also, compliance with any sustainability criteria on direct impacts (e.g. biodiversity or carbon stocks) will still have to be verified for each individual project.

In the choice between the above options a trade-off will have to be made between transaction costs and a potential erroneous conclusion on the additionality of an individual project.

**Parties are encouraged to contact the RFA to discuss any issues and work together to develop a pragmatic yet robust approach to additionality for individual projects.**

## E.4 Verification

For companies to be able to make a credible claim on the low risk of indirect effects of their biofuels, verification will be required. What exactly would need to be verified to be able to make such claims, is described in this section. The next section describes the claims that could be made.

- **Before the project is implemented:** verification of additionality and the baseline. This happens only once.
- **After the project is implemented:** verification of continued compliance with the criterion that the original provisioning services of the land are not displaced (during the crediting period). This differs for the three solution types.
- For the unused land option, all production is additional. This means only the actual production levels have to be monitored to ensure no more produce is claimed than is actually

produced on the project site. Note that this is common practice for all certification schemes.

- For the integration with non-bioenergy-feedstock systems, the provisioning services in the baseline scenario must be monitored to validate that they are maintained (e.g. milk production levels before project implementation, potentially increased by an annual percentage in the baseline scenario).
- For the increased productivity of existing bioenergy-feedstock systems, the realised production levels must be monitored for validation. The 'additional production without displacing the existing provisioning services of the land' then equals the realised production levels minus the production levels of the baseline scenario.

## E.5 Claims

### E.5.1 The quantity of product for which a claim can be made

What are the claims that can be made for projects of the three different approaches?

- a) The use of land without current provisioning services: all production from the land could be claimed to have a low risk of indirect effects.
- b) Integration with non-bioenergy-feedstock systems: all production of energy feedstock could be claimed to have a low risk of indirect effects (provided that baseline production levels of the non-bioenergy feedstock level are maintained).
- c) Increasing the land productivity of existing bioenergy-feedstock systems: all production of bioenergy feedstock above the baseline can be claimed to have a low risk of indirect effects.

### E.5.2 The crediting period

The crediting period is the finite length of time during which the project's claim of low indirect risks is valid, e.g. 5 or 10 years. The crediting period can be renewed, but this requires a new assessment of additionality and the baseline.

### Box: Comparison with the RED bonus for degraded land

The RED contains a GHG-bonus of 29 gCO<sub>2</sub>eq/MJ biofuel if biomass is obtained from restored degraded land. For this the land must meet the following conditions:

- Was not in use for agriculture or any other activity in January 2008: and
- Falls into one of the following categories:
  - Severely degraded land, including land that was formerly in agricultural use;
  - Heavily contaminated land.

These categories are defined further in the RED and further guidance still will be given by the EC following a Comitology process.

In comparison with the methodological framework discussed here, the RED degraded land provision would be a subset of the first approach: 'the use of land without current provisioning services'. Thereby the RED could be said to take 'degraded soil conditions' as a proxy for additionality. The approach discussed here allows companies to show other barriers than soil-conditions of the land to demonstrate such additionality. In addition, the RED does not contain provisions that award increases in land productivity, analogous to the second and third approach discussed here.

## E.6 Summary of the methodology

The table below summarises the methodology for the three different approaches. It summarises how additionality can be demonstrated, how the baseline can be established, what monitoring is required, and what claim can be made.



**Table 20 Summary of the methodology**

	<b>Land without provisioning services</b>	<b>Integration with non-bioenergy system</b>	<b>Increased productivity of existing bioenergy feedstock system</b>
Displacement criterion	Additional production has been realised without displacing existing provisioning services of the land		
Demonstrating additionality	Demonstrate the project activity that increases feedstock production is additional: i.e. in absence of the bioenergy feedstock demand the measure would not have been implemented during the crediting period.		
	i.e. the land would not have been taken into production.	i.e. the integration model would not have been implemented.	i.e. the yield increasing measure would not have been implemented.
Setting the baseline	Zero (land previously unused)	Business as usual (BAU) production levels of non-bioenergy system (e.g. milk or beef)	BAU production levels of existing bioenergy system
Monitoring	Monitoring of realised bioenergy feedstock production levels	Monitoring that baseline production levels of non-bioenergy feedstock are maintained	Monitoring of realised bioenergy feedstock production levels
Claim that can be made	All realised production has a low risk of indirect effects	All realised bioenergy feedstock production has a low risk of indirect effects	The additional production ('realised production' minus 'baseline production') has a low risk of indirect effects

## Annex F Example records for chain of custody

The following columns have been added or amended in the relevant example chain of custody tables (see Chapter 3, Monthly report for further explanation of the new columns):

- Biofuel production process
- NUTS 2 compliant region
- Land-use reference date is amended to 1 January 2008 to be in line with the RED
- Plant in operation 23 January 2008

**Table 21 Example of an output record from a farm<sup>75</sup> supplying certified rapeseed to crusher C1**

Order No.	Transaction date	Receiving Company	Quantity (tonne)	Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Crop yield (t/ha)	Nitrogen fertiliser (kg/ha)
22001	15-4-2008	C1	1,000	Rapeseed	UK	Y	LEAF	Cropland – non-protected	3.0	180

<sup>75</sup> Note: a farmer (or any other supply chain actor) has the option of passing either raw data or a calculated carbon intensity figure along the chain. In this example the farmer has chosen to provide raw data for crop yield and nitrogen fertiliser application rate – the oilseed crusher must then use default values for the remaining inputs to the carbon intensity calculation.

**Table 22 Example of an input record from a rapeseed crusher**

This crusher takes in certified rapeseed from farm F1 and F2 and non-certified rapeseed from farm F3

Order No.	Transaction date	Supplying company	Quantity (tonne)	Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e/MJ)
22001	15-4-2008	F1	1,000	Rapeseed	UK	Y	LEAF	Cropland – non-protected	29.3
22002	15-4-2008	F2	1,000	Rapeseed	UK	Y	LEAF	Cropland – non-protected	29.3
22001	15-4-2008	F3	1,000	Rapeseed	UK	Y	-	Cropland – non-protected	29.3

**Table 23 Example record of crusher conversion factor**

Name conversion factor	Rapeseed to rapeseed oil
Input	Rapeseed
Output	Rapeseed oil
Unit	kg rapeseed oil / kg rapeseed
Value	0.40
Valid from	1-1-2008
Valid until	1-6-2008

**Table 24 Example of an output record from a crusher**

This crusher supplies certified rapeseed oil to biofuel producer B (RSO = rapeseed oil)

Order Number	Transaction date	Receiving Company	Quantity (tonne)	Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e/MJ)
23001	20-4-2008	B	400	RSO	UK	Y	LEAF	Cropland – non-protected	32
23002	20-4-2008	B	400	RSO	UK	Y	-	Cropland – non-protected	32

**Table 25 Example of an input record from a biofuel producer**

This producer takes in certified rapeseed oil from crusher C1

Order Number	Transaction date	Supplying company	Quantity (tonne)	Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e/tonne)
23001	20-4-2008	C1	400	RSO	UK	Y	LEAF	Cropland – non-protected	32
23002	20-4-2008	C1	400	RSO	UK	Y	-	Cropland – non-protected	32

**Table 26 Example of an inventory record of C&S data for crusher C1**

Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e / MJ)	Inventory (tonne) 15-4-2008	Input (tonne)	Output (tonne)	Inventory (tonne) 15-5-2008
OSR	UK	Y	LEAF	Cropland – non-protected	32	1,000	800	400	1,400
OSR	Romania	N	-	Cropland – non-protected	32	2,000	0	0	2,000
OSR	UK	Y	-	Cropland – non-protected	32	0	400	400	0

**Table 27 Example of an input record from biofuel company B**

Company B takes in several batches of vegetable oil (CPO = Crude Palm Oil)

Order Number	Transaction date	Supplying company	Quantity (tonne)	Product	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e / MJ)
22001	20-4-2008	C1	1,200	RSO	UK	Y	LEAF	Cropland – non-protected	42.5
22002	20-4-2008	C1	4,800	RSO	Unknown	Unknown	-	Unknown	42.5
22005	20-4-2008	C2	400	CPO	Malaysia	N/A	RSPO	Cropland – non-protected	42.5
22006	20-4-2008	C2	600	CPO	Malaysia	N/A	-	Unknown	42.5

**Table 28 Example of an output record from biofuel company B**

Biofuel company B supplies 2,000 tonnes biodiesel to oil major X, of which 400 tonnes meet a reportable standard

Order No.	Transaction period	Receiving company	Quantity (tonne)	Fuel type	Feedstock	Biofuel production process	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e / MJ)	Plant in operation on 23 Jan 2008?
33001	4-2008	X	300	Biodiesel	RSO	-	UK	Y	LEAF	Cropland – non-protected	52	Yes
33002	4-2008	X	1,400	Biodiesel	RSO	-	Unknown	Unknown	-	Unknown	52	Yes
33005	4-2008	X	100	Biodiesel	CPO	No methane capture	Malaysia	N/A	RSPO	Cropland – non-protected	68	Yes
33006	4-2008	X	200	Biodiesel	CPO	Unknown	Unknown	N/A	-	Unknown	68	Yes

**Table 29 Example of an input record from oil major X**

Oil Major X receives 2,000 tonnes biodiesel from biodiesel producer B, of which 400 tonnes report a standard

Order Number	Transaction period	Supplying company	Quantity (tonne)	Fuel type	Feedstock	Biofuel production process	Country of Origin	NUTS 2 compliant region	Standard	Land-use on 1 Jan 2008	Carbon intensity (g CO <sub>2</sub> e / tonne)	Plant in operation on 23 Jan 2008?
33001	4-2008	B	300	Biodiesel	RSO	-	UK	Y	LEAF	Cropland – non-protected	52	Yes
33002	4-2008	B	1,400	Biodiesel	RSO	-	Unknown	Unknown	-	Unknown	52	Yes
33005	4-2008	B	100	Biodiesel	CPO	No methane capture	Malaysia	N/A	RSPO	Cropland – non-protected	68	Yes
33006	4-2008	B	200	Biodiesel	CPO	Unknown	Unknown	N/A	-	Unknown	68	Yes



## Annex G Assessing carbon intensity and calculating direct GHG saving

Key changes to this section:

- Fuel default values will be available for use until the RED is transposed
- Country-level default values are no longer available
- New 'Process' level default values are now available
- Default values are now set by the RED, or have been calculated in accordance with methodology specified in the RED.

This Annex briefly summarises how to assess the carbon intensity of an administrative batch of biofuel in order to submit carbon data for monthly reports.

The carbon intensity of a batch of biofuel can be assessed by:

- Collecting information about the way in which it was produced in order to calculate a 'known' carbon intensity; or
- Selecting an appropriate 'fuel chain default value' based on qualitative information about the fuel.

### G.1 Calculating and reporting a 'known' carbon intensity

Information about activities which take place during the production of a biofuel can be used to calculate its carbon intensity. The information collected could be either:

- Quantitative 'actual data' about inputs used during the production of a biofuel – for example, that 9,000 MJ of natural gas are used for every tonne of bioethanol produced; or
- Qualitative data about processes used during the production of a biofuel – for example, that the biofuel plant uses biomass to provide heat and power. This qualitative data also enables the use of 'selected defaults' – these are default values which are either

defined by the RFA or established by companies themselves or other stakeholders and made publicly available.

Parties who wish to calculate a known carbon intensity value should use the procedures set out in *Technical Guidance Part 2. Carbon Reporting - Default values and fuel chains*.

There is a large amount of data which companies could collect in order to derive a known carbon intensity. However, only a small number of data points can have a significant influence on the final carbon intensity of a biofuel. Table 30 highlights the data points which have the most influence on final carbon intensity and which should be the focus of data collection efforts.

**Table 30 Focus for data collection**

Step in the supply chain	Focus for data collection
Crop production	<ul style="list-style-type: none"> <li>• Nitrogen fertiliser application rate</li> <li>• Crop yield</li> <li>• Fuel consumption for cultivation</li> </ul>
Feedstock and liquid fuel transport	<ul style="list-style-type: none"> <li>• Transport distances</li> </ul>
Conversion – e.g. biofuel conversion or oilseed crushing	<ul style="list-style-type: none"> <li>• Yield<sup>76</sup></li> <li>• Fuel type and demand</li> <li>• Electricity demand</li> </ul>

## G.2 Reporting using the fuel chain default values

When information about how a biofuel was produced is not available, a fuel chain default value must be used in order to report its carbon intensity. There are three different types of fuel chain default values, the use of which depends on what is known about:

- The fuel type,
- The feedstock used to produce the fuel, and
- In some cases, the process by which the fuel was produced (e.g. a process in which a natural gas CHP plant is used at the biofuel plant).

<sup>76</sup> i.e. tonnes of product (e.g. biodiesel) per tonne of input (e.g. rapeseed oil)

Fuel level defaults are used where the feedstock and process (if relevant) are unknown, feedstock level defaults are used where the process (if relevant) is unknown, and process level defaults (if relevant) are used where all three categories of information are known. This is summarised in Table 31 together with a cross reference to the relevant default value table. The appropriate default value selected from the tables below is then reported in a supplier's monthly C&S report.

N.B. Fuel chain default values are defined 'conservatively' (i.e. a higher carbon intensity) in order to provide an incentive for companies to collect more data. The use of conservative default values means that the values in the tables below should not be interpreted as being an accurate assessment of the GHG saving potential of biofuels. It should be noted, however, that the default values do not take into account potential indirect land-use change impacts.

**Table 31 Cross-reference to relevant default value table**

Feedstock	Process (if relevant)	Type of default value	Default value table
Unknown	Unknown	Fuel	Table 32
Known	Unknown	Feedstock	Table 33
Known	Known	Process	Table 34

## G.3 Approach to setting default values

- a) For Fuel level defaults (i.e. unknown feedstock and process), the carbon intensity default value is equal to the fuel chain with the highest carbon intensity which is known to supply the UK market, taking into account country-specific practices. **It will not be possible to use Fuel level default values once the RED enters into force.**
- b) For Feedstock level defaults (i.e. known feedstock, unknown process), the carbon intensity default is equal to the Process level default value with the highest carbon intensity.

All fuel chain default values in the RED are 'conservative'. The approach taken by the European Commission to make a default value conservative is to add a multiplier to the 'conversion' stage GHG emissions. The multiplier is currently 1.4.

## G.4 Default value tables

**Table 32 Fuel default values**

Note that these figures are conservative. Fuel default values may not be allowed once the RED has been implemented into UK legislation.

Fuel	Carbon Intensity (grams CO <sub>2</sub> e/MJ)	Carbon saving (%)
Biodiesel	93	-8
Bioethanol, bio-ETBE <sup>77</sup> , bio-TAEE <sup>78</sup>	115	-36
Biogas	36	58
Fischer-Tropsch diesel	4	93
Pure plant oil	87	-1

See Section G.3 for details on how these default values are set.

<sup>77</sup> Renewable fraction only.

<sup>78</sup> Renewable fraction only.

**Table 33 Feedstock default values**

Note that these figures are conservative and do not represent typical practice.

Fuel	Feedstock	Carbon Intensity (grams CO <sub>2</sub> e / MJ)	Carbon saving (%)
Bioethanol, ETBE <sup>79</sup> , TAAE <sup>80</sup>	Barley	78	7
	Corn (Produced within the European Community)	43	49
	Corn (Produced outside the European Community)	62	26
	Farmed wood	25	70
	Molasses	61	27
	Spent sulphite liquor	8	91
	Sugar beet	40	52
	Sugar cane	24	71
	Waste wood	22	74
	Wheat	70	16
	Wheat straw	13	85
Bio-ETBE (ethyl tertiary butyl ether)	<i>Carbon intensities and GHG savings equal to those of the bioethanol production pathway</i>		
Bio-TAAE (tertiary amyl ethyl ether)	<i>Carbon intensities and GHG savings equal to those of the bioethanol production pathway</i>		
Biodiesel (Methyl Ester)	Coconut	47	44
	Corn oil	22	74
	Jatropha	31	63
	Oilseed rape	52	38
	Palm	68	19
	Soy	58	31
	Sunflower	41	51

<sup>79</sup> Renewable fraction only.

<sup>80</sup> Renewable fraction only.

Fuel	Feedstock	Carbon Intensity (grams CO <sub>2</sub> e / MJ)	Carbon saving (%)
	Tallow	17	80
	Used cooking oil	14	83
Biodiesel (Hydrotreated vegetable oil)	Coconut	49	42
	Jatropha	33	61
	Oilseed rape	44	47
	Palm	62	26
	Soy	60	28
	Sunflower	32	62
Biodiesel (Co-processed hydro-treated vegetable oil) <sup>81</sup>	Coconut	46	45
	Jatropha	31	63
	Oilseed rape	52	38
	Palm	68	19
	Soy	57	32
	Sunflower	41	51
	Tallow	21	75
Biogas	Dry manure	15	82
	Municipal solid waste	23	73
	Wet manure	16	81
FT diesel	Farmed wood	6	93
	Waste wood	4	95
Pure plant oil	Oilseed rape	36	57
	Soy	42	50

<sup>81</sup> Note: co-processed hydro-treated vegetable oil fuels are not accepted under the current Renewable Transport Fuel Order – the fuel chain results are included for information only.

**Table 34 Process default values**

Note that these figures are conservative and do not represent typical practice.

Fuel	Feedstock	Process characteristic	Carbon Intensity (grams CO <sub>2</sub> e/MJ)	Carbon saving (%)
Bioethanol	Wheat	Lignite as process fuel in CHP plant	70	16
		Natural gas as process fuel in conventional boiler	55	34
		Natural gas as process fuel in CHP plant	44	47
		Straw as process fuel in CHP plant	26	69
Biodiesel (Methyl ester)	Palm	No methane capture at oil mill	68	19
		Methane capture at oil mill	37	56
Biodiesel (Hydrotreated vegetable oil)	Palm	No methane capture at oil mill	62	26
		Methane capture at oil mill	29	65
Biodiesel (Co-processed Hydrotreated vegetable oil)	Palm	No methane capture at oil mill	68	19
		Methane capture at oil mill	38	55

## G.5 What to do if there is no appropriate default value

There may be certain situations in which an appropriate default value is not available for a batch of renewable fuel – for example, when a biofuel produced from a new feedstock (e.g. biodiesel from algae) or a new type of fuel is imported into the UK.

At the time of publishing this guidance, the European Commission had not specified how default values will be developed for these new fuel chains. The RFA will continue to calculate default values for new fuel chains unless the European Commission specifies alternative procedures.

The fuel supplier should inform the RFA in order that a new fuel chain is required. A new fuel chain will usually be developed when the expected volume of fuel to be supplied exceeds one million litres per quarter. Requests for new fuel chains should be made via the RFA contact email address<sup>82</sup>. The procedure the RFA uses for setting up new fuel chains is available on the [RFA website](#). The RFA will issue a temporary default value in the meanwhile based on the average carbon intensity for that type of fuel/feedstock combination.

Temporary default values will be valid until such time as a new value has been established and approved by the RFA.

## G.6 Calculating direct GHG saving using carbon intensity values

The direct GHG savings of a biofuel are established by comparing the biofuel's carbon intensity (CI) against the displaced fossil fuel's carbon intensity. This comparison must be done using carbon intensity values given on an energy basis i.e. grams CO<sub>2</sub>e / MJ. For all fuels it is assumed the energy efficiency (i.e. kilometres per MJ) of vehicles is the same and, therefore, that 1 MJ of biofuel displaces 1 MJ of fossil fuel.

The direct GHG saving (as a percentage) is calculated using the following formula:

$$\text{GHG saving} = 1 - \frac{\text{CI of fossil fuel displaced} - \text{CI of biofuel}}{\text{CI of fossil fuel displaced}} \times 100\%$$

---

<sup>82</sup> [C-and-S@rfa.gsi.gov.uk](mailto:C-and-S@rfa.gsi.gov.uk)



Note that a negative result denotes an increase in GHG emissions.

The carbon intensity of fossil fuel is defined by the RED. The current value for **all** fossil fuels (e.g. gasoline, diesel, etc) is 83.8 grams CO<sub>2</sub>e / MJ. This value will be updated over time as information on the lifecycle carbon emissions of fossil fuels is reported under the Fuel Quality Directive.

**Example: Bioethanol replaces gasoline**

A fossil fuel company blends bioethanol produced from sugar beet with gasoline. The percentage GHG saving is calculated as follows:

Carbon intensity of biofuel = 40 g CO<sub>2</sub>e / MJ

Carbon intensity of gasoline = 83.8 g CO<sub>2</sub>e / MJ

GHG saving =  $(83.8 - 40) / 83.8 \times 100 = 52\%$

## Annex H Assessing the impact of land-use change

Key changes to this section:

- Land-use reference date amended to 1 January 2008 to be in line with the RED.
- New land-use change categories:
  - Cropland divided into two sub-categories: 'non-protected' and 'protected'
  - Single land-use category 'forest' replaced with 'forest > 30%' (canopy cover) and 'forest 10-30%' to match RED definitions.
  - Additional land-use categories added for 'wetland', 'undrained peatland' and 'degraded land'.
  - 'Degraded land' is eligible to receive the RED GHG bonus
- The default values for fuel chains which include land-use change are based on a methodology consistent with the requirement of the RED, however, it is anticipated that they will be updated and expanded (for other land-use types) once the Commission publishes

This Annex summarises how to report on land-use and how to assess the impact of any changes in land-use on the carbon intensity of an administrative batch of biofuel.

### H.1 Land-use on 1 January 2008

The RFA will monitor both direct and indirect changes in land-use. Land-use on 1 January 2008 will also be used to demonstrate RED-readiness for the RED requirement not to permit biofuels from feedstocks grown on high carbon stock land. This column will also be used to report 'degraded land', once a definition is available from the European Commission. Degraded land reported will be eligible to receive a GHG bonus of 29 gCO<sub>2</sub>eq/MJ biofuel, in line with the RED. Fuel suppliers must therefore report on how the land-used to produce a biofuel was being used on 1 January 2008. Table 35 describes the different land-use categories which exist.

**For 2010 the single forest category has been replaced with the two variants from the RED. The categories 'wetland', 'undrained peatland' and 'degraded land' have also been added. The RFA intend to directly use the EC definitions for these land types once available.**

**Table 35 Land-use type definitions<sup>83</sup>**

Land-use	Description
Cropland – non-protected	This category includes cropped land, (including rice fields and set-aside <sup>84</sup> ), and agro-forestry systems where the vegetation structure falls below the thresholds used for the Forest Land category <sup>85</sup> . The Cropland is not in a nature-protected area as defined in RED Article 17(3b). This category of land automatically complies with the RED biodiversity criterion.
Cropland – protected	Same as above, but the Cropland is in a nature protection area as defined in RED Article 17(3b). If this category is reported, parties must provide evidence that the production of the biofuel feedstock did not interfere with the nature protection purposes of the land, in order for the biofuel to comply with the RED biodiversity criterion. This can be achieved through reporting a Qualifying Standard that meets the RED biodiversity criterion or the RED Biodiversity Audit <sup>86</sup> .

<sup>83</sup> The definitions for 'Forest >30%', 'Forest 10-30%', 'Wetland' and 'Degraded land' are taken from the RED. The EC is likely to provide further detail on these definitions, either in its forthcoming Communication paper or after the Comitology process. These new definitions will take precedence over those listed in the table above.

<sup>84</sup> Set-aside is a term related to the EU's Common Agricultural Policy (CAP). It refers to land taken out of production to reduce the risk of food surpluses, while increasing the opportunity for environmental benefits. From 2007 set-aside land has been abolished under the CAP.

<sup>85</sup> Perennial crop plantations are currently classed as cropland under the RTFO. This may have to be changed if this is found to be inconsistent with the RED.

<sup>86</sup> It is intended to allow a specific independent audit against the RED biodiversity criterion. However, insufficient detail is currently available from the RED to enable this option.

Land-use	Description
Grassland (and other wooded land not classified as forest) with agricultural use	This category includes rangelands and pasture land that are not considered Cropland, but which have an agricultural use. It also includes systems with woody vegetation and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category and which have an agricultural use. It includes extensively managed rangelands as well as intensively managed (e.g., with fertilization, irrigation, species changes) continuous pasture and hay land.
Grassland (and other wooded land not classified as forest) without agricultural use	This category includes grasslands without an agricultural use. It also includes systems with woody vegetation and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category and which do not have an agricultural use.
Forest >30%	Continuously forested areas, namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30%, or trees able to reach those thresholds in situ.
Forest 10-30%	Land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10% and 30%, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area before and after conversion is such that, when the methodology laid down in part C of Annex V of the RED is applied, the conditions laid down in paragraph 2 of Article 17 of the RED would be fulfilled.
Wetland	Namely land that is covered with or saturated with or saturated by water permanently or for a significant part of the year.
Undrained peatland	[RFA will refer to EC definition once published.]
Degraded land	The land was not in use for agriculture or any other activity in January 2008; and Falls into one of the following categories: a) 'severely degraded land', including such land that was formerly in agricultural use and that, for a significant period of time, has either been significantly salinated or presented significantly low organic matter content and has been severely eroded; or b) 'heavily contaminated land' that is unfit for the cultivation of food and feed due to soil contamination.

## H.2 Default values

This section provides default values for CO<sub>2</sub>e emissions per unit of biofuel in two situations:

- a) Where default fuel chain values are used (based on feedstock and origin) – Table 36 sets out fuel chain default value including land-use change, and
- b) Where actual data is used for the fuel chain – Table 37 provides a list of carbon stock loss default values which can be used in monthly reports based on what is known about:
  - Land-use on 1 January 2008,
  - Type of biofuel,
  - Biofuel feedstock and
  - Country in which the land-use change took place.

The default values reported in Table 36 assume the default fuel chain is used to produce each fuel (i.e. crop production and conversion plant yields are taken from the appropriate default fuel chain). The carbon stock loss values below have been calculated for the RFA using a methodology in line with the requirements set out in the RED. The European Commission is expected to issue a set of carbon stock default values in its Communication on the RED – Table 36 will be updated and expanded to include all previous land-use type categories listed above when this Communication is released.

The tables below only include two land-use categories, forestland and grassland. The EC's carbon stock default values are expected to differentiate between land-use types, however, in the interim the following values should be used:

- Grassland values should be used for the following categories: Grassland (and other wooded land not classified as forest) with agricultural use; Grassland (and other wooded land not classified as forest) without agricultural use.
- Forest values should be used for the following categories: Forest >30%; Forest 10-30%; Wetland; Undrained peatland.

**Table 36 Default values for the impact of land-use change (grams CO<sub>2</sub>e/MJ biofuel)**

The carbon intensity from the impact of land-use change must be added to the fuel chain carbon default.

Fuel	Feedstock	Origin	Land converted from:	
			Forestland <sup>87</sup>	Grassland <sup>88</sup>
Bioethanol	Barley	Spain	489	54
	Corn	France	316	88
		United States	91	11
	Sugar beet	United Kingdom	126	33
	Sugar cane	Brazil	195	0
		Mozambique	142	0
		Pakistan	90	0
		South Africa	180	0
	Wheat	Canada	249	29
		France	264	73
		Germany	308	103
		Ukraine	264	88
		United Kingdom	396	103
Biodiesel ME	Coconut	India	233	0
		Indonesia	1034	600
		Philippines	867	0
	Jatropha	India	349	0
	Oilseed rape	Australia	316	28
		Canada	234	28

<sup>87</sup> Grassland values should be used for the following categories: Grassland (and other wooded land not classified as forest) with agricultural use; Grassland (and other wooded land not classified as forest) without agricultural use.

<sup>88</sup> Forest values should be used for the following categories: Forest >30%; Forest 10-30%; Wetland; Undrained peatland.

Fuel	Feedstock	Origin	Land converted from:	
			Forestland <sup>87</sup>	Grassland <sup>88</sup>
		Finland	206	110
		France	248	69
		Germany	289	96
		Poland	289	96
		Ukraine	248	83
		United Kingdom	371	96
		United States	234	28
	Palm	Indonesia	193	112
		Malaysia	162	0
	Soya beans	Argentina	308	36
		Brazil	670	199
		Canada	308	36
		Spain	326	36
		United States	308	36
	Sunflower	Argentina	296	35
		China	471	87
		France	314	87
		Russian Federation	349	105
		Ukraine	314	105
		United States	296	35
Biodiesel HVO	Coconut	India	241	0
		Indonesia	1065	619
		Philippines	894	0
	Jatropha	India	359	0
	Oilseed	Australia	315	27

Fuel	Feedstock	Origin	Land converted from:	
			Forestland <sup>87</sup>	Grassland <sup>88</sup>
	rape	Canada	233	27
		Finland	205	110
		France	246	68
		Germany	287	96
		Poland	287	96
		Ukraine	246	82
		United Kingdom	370	96
		United States	233	27
	Palm	Indonesia	205	119
		Malaysia	172	0
	Soya beans	Argentina	322	38
		Brazil	700	208
		Canada	322	38
		Spain	341	38
		United States	233	38
	Sunflower	Argentina	317	37
		China	504	93
		France	336	93
		Russian Federation	373	112
		Ukraine	336	112
		United States	317	37
Biodiesel CHVO	Coconut	India	217	0
		Indonesia	960	558
		Philippines	805	0
	Jatropha	India	324	0



Fuel	Feedstock	Origin	Land converted from:	
			Forestland <sup>87</sup>	Grassland <sup>88</sup>
	Oilseed rape	Australia	298	26
		Canada	220	26
		Finland	194	104
		France	233	65
		Germany	272	91
		Poland	272	91
		Ukraine	233	78
		United Kingdom	350	91
		United States	220	26
	Palm	Indonesia	182	105
		Malaysia	152	0
	Soya beans	Argentina	290	34
		Brazil	631	188
		Canada	290	34
		Spain	307	34
		United States	290	34
	Sunflower	Argentina	281	33
		China	446	83
		France	297	83
		Russian Federation	330	99
		Ukraine	297	99
		United States	281	33
Pure plant oil	Oilseed rape	Australia	329	29
		Canada	243	29
		Finland	214	114

Fuel	Feedstock	Origin	Land converted from:	
			Forestland <sup>87</sup>	Grassland <sup>88</sup>
		France	257	71
		Germany	300	100
		Poland	300	100
		Ukraine	257	86
		United Kingdom	386	100
		United States	243	29
	Soya beans	Argentina	320	38
		Brazil	696	207
		Canada	320	38
		Spain	338	38
		United States	320	38

**This table should be used to report the carbon intensity impacts of land-use change where default fuel chain values are used for the fuel chain (based on feedstock and origin).**

If a party has actual data for the fuel chain calculation (in particular crop production and conversion plant yields) the impact of carbon intensity in grams CO<sub>2</sub>e / MJ can be calculated using the default values given in Table 37. An example of how to undertake the calculation is provided below Table 37.

**Table 37 Impact of changes in land-use on carbon intensity (tonnes CO<sub>2</sub>e/hectare/year)**

This table should be used where a party has actual data on the fuel chain.

Country	Land-use on 1 January 2008			
	Forest land		Grassland	
	Annual cropland	Perennial cropland	Annual cropland	Perennial cropland
Argentina	-17	-15	-2	0
Australia	-23	-21	-2	0
Brazil	-37	-26	-11	0
Canada	-17	-16	-2	0
China	-27	-23	-5	-1
Finland	-15	-8	-8	-1
France	-18	-14	-5	-1
Germany	-21	-14	-7	-1
India	-10	-7	-4	0
Indonesia	-33	-31	-20	-1
Malaysia	-37	-26	-11	0
Mozambique	-24	-19	-4	0
Pakistan	-16	-12	-4	0
Philippines	-37	-26	-11	0
Poland	-21	-14	-7	-1
Russian Federation	-20	-14	-6	-1
South Africa	-26	-24	-2	0
Spain	-18	-16	-2	0
Ukraine	-18	-13	-6	-1
United Kingdom	-27	-20	-7	-1
USA	-17	-16	-2	0

*Note 1: the impact of land-use change is amortised over a 20-year period. Full details on this and other the assumptions made in calculating these default values are available in Carbon reporting within the RTFO: Methodology.*

*Note 2: it is assumed that there is no net change in carbon stocks when perennial cropland is converted to annual cropland (and vice versa). It may be possible to calculate such changes in carbon stock accurately at the project level; however, the IPCC methodology currently does not provide sufficient data to facilitate accurate calculations for this type of land-use change.*

The default values in Table 37 are given in units of tonnes (of CO<sub>2</sub>e emissions) per hectare per year, for monthly reports these values must be converted to grams per MJ of biofuel. To complete this conversion carry out the following steps (using either a default value or actual data):

- Divide the impact of land-use value from Table 37 by the feedstock crop yield [tonnes per hectare per year];
- Divide the result by all conversion plant yields (e.g. oilseed crushing plant [tonnes of oil per tonne of feedstock] and biofuel plant yields [tonnes of biofuel per tonne of feedstock (oil or crop)]);
- Multiply the result by any allocation factors given in conversion or crop production modules;
- Convert the result from a weight basis to an energy basis using the lower heating values given in Part 2 of this document.

If more detailed information is known (e.g. soil types, climate zones etc) then more accurate calculations can be carried out using the more advanced approaches set out in the IPCC guidelines<sup>89</sup> for assessing the impact of land-use change within national reporting on GHG emissions – see *Volume 4 Agriculture, Forestry and Other Land-use*.

## H.3 Calculating carbon payback time

The carbon payback time is calculated by dividing the total carbon loss as a result of land-use change (not the annualised carbon loss) by the amount of carbon which is saved annually by the type of biofuel which will be grown on the converted land. The total carbon

---

<sup>89</sup> IPCC 2006, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.

loss is calculated by multiplying the annualised carbon loss in Table 37 by 20 (the period over which land-use change emissions have been amortised). The amount of carbon saved is calculated by subtracting the appropriate fuel and origin default value (given in Table 34) from the carbon intensity of the fossil fuels (83.8 gCO<sub>2</sub>e/MJ). This comparison must be done using carbon intensity values given on an energy basis i.e. grams CO<sub>2</sub>e/MJ. For all fuels it is assumed the energy efficiency (i.e. kilometres per MJ) of vehicles is the same and, therefore, that 1 MJ of biofuel displaces 1 MJ of fossil fuel.

In the case of Brazilian soy produced on land which was forested in January 2008, the total emissions based on Table 37 are  $308 \times 20 = 6,160$  gCO<sub>2</sub>e/MJ. The carbon intensity of Brazilian soy based on default values in Table 34 is 58 gCO<sub>2</sub>e/MJ, and the amount of CO<sub>2</sub>e saved is  $83.8 - 58 = 25.8$  gCO<sub>2</sub>e/MJ.

Therefore, the carbon payback time is  $6,160 / 25.8 = 239$  years.

## Annex I Accuracy level

Key changes to this section:

- Accuracy levels have been adjusted to reflect the changes in the type of default values available

In addition to reporting the carbon intensity of an administrative batch of biofuel, suppliers must also report on what 'type' of data has been used to derive the carbon intensity which is reported – i.e. whether it is based on a fuel default, feedstock default, process default or whether qualitative or quantitative information was used. This information will be used by the RFA mainly to understand whether or not companies are collecting actual data about how a biofuel has been produced and will be an indication of the accuracy of the reported carbon intensities.

Each type of data is attributed a certain accuracy level, based on the amount of effort a company would have to put into data collection. Table 38 shows the accuracy levels which should be reported for administrative batches.

**Table 38 Accuracy levels corresponding to type of default value or data used**

Type of default value or data	Accuracy level
Fuel default	0
Feedstock default	1
Process default	2
Selected default – RFA defined	3*
Selected default – Industry defined, <b>or</b> NUTS 2 data	4*
Actual data	5*
Cultivation actual data	6*

\* Part 2 of the Technical Guidance should be used for detailed calculations (Accuracy Levels 3, 4, 5 and 6).

Companies may calculate the carbon intensity of their fuel using cultivation stage emissions which have been estimated at a NUTS 2

level by Member States. Accuracy Level 4 should be used for any batch of fuel which uses this data for carbon intensity calculations.

If companies have sourced their feedstock from a NUTS 2 region in Europe which has a carbon intensity higher than the RED default value ('not NUTS 2 compliant'), they will have to source actual data for the cultivation stage in order to report RED-readiness. If this is the case, then Accuracy Level 6 should be reported. To use Accuracy Level 6, actual data **must** have been used for the cultivation stage. If actual data is only used for other parts of the fuel chain (e.g. processing, transport etc) and not for cultivation, then Accuracy Level 5 must be used.

This Technical Guidance does not specify the exact requirements of evidence for Accuracy Level 4 (Selected default – industry defined) (with the exception of NUTS 2 data). Use of selected defaults will. However, be subject to verification in the same way as actual data and therefore robust evidence should be available. In providing selected defaults for Accuracy Level 4 parties should pay particular attention to key areas of potential inconsistency with the RED carbon calculation methodology – e.g. scope and boundaries of analysis, treatment of co-products, etc.

## I.1 Selected defaults or actual data

Accuracy Levels of 3, 4, 5 and 6 are only used for qualitative or quantitative data points which generally contribute 5% or more of the GHG emissions within a default fuel chain.

- If a selected default defined by the RFA is used for any of the data points specified then a score of 3 is given for that batch of fuel;
- If an industry defined selected default value, including NUTS 2 data, is used then a score of 4 is given;
- If actual (real) data is used then a score of 5 is given.
- If actual (real) data is used for the cultivation stage then a score of 6 is given.

**Table 39 Data points which are eligible for accuracy level scores of 3, 4, 5 and 6**

Data points are eligible for accuracy levels as described below:

- Accuracy level 3 if it is a default value defined by the RFA,
- Accuracy level 4 if it is a default value selected from another source,
- Accuracy level 5 using actual data,
- Accuracy level 6 using actual cultivation data.

Section of biofuel chain	Data points eligible for higher accuracy level
Crop production	Crop yield; Nitrogen fertiliser application rate; Nitrogen fertiliser emissions co-efficient; Diesel use for cultivation.
Drying and storage	Moisture removed during drying; Amount of fuel used for heating
Feedstock transport	Distances and modes (where the default is greater than 300 kilometres by truck, or 1,500 km by ship)
Conversion	Process yield; Amount of natural gas or other fuel used; Emissions co-efficient of fuel used; Amount of electricity used; All data related to co-products; Amount of methanol used (biodiesel only); Treatment of palm oil mill effluent.
Other	Alternative waste treatment credit (biogas and UCO & tallow to biodiesel only).

## I.2 Combining batches

When two or more batches of fuel are combined the new accuracy level is equal to the accuracy level of the old batch which makes up more than 50% (by volume) of the new combined batch. However, if none of the old batches make up 50% (by volume), then, the new accuracy level is equal to the weighted-average (on a volume basis) of all of the old batches, rounded to zero decimal places.



For example: a company has two batches of fuel: Batch 1 = 1,000 litres, Accuracy Level 5; Batch 2 = 3,000 litres, Accuracy Level 3. The accuracy level of the new, combined batch is equal to 3 – because it makes up more than 50% of the total volume of the new combined batch.

If the company had a third batch: Batch 3 = 3,000 litres, Accuracy Level 4. This new accuracy level must be calculated using a weighted average of the old accuracy levels, because no individual batch makes up more than 50% of the new combined batch (Batch 1 = 14%; Batch 2 = 43%, Batch 3 = 43%). So, the new the accuracy level is equal to:  $14\% \times 5 + 43\% \times 3 + 43\% \times 4 = 3.7$  and 3.7 rounded to zero decimal places is 4.

## Annex J Standard terms

Changes have been made to the standard terms for RED-ready codes

**Table 40 Standard terms for reporting the renewable fuel type in C&S reports**

Fuel Type Description	Fuel Type Code
Biobutanol – BUTYL PXXX	BUTYL
Biodiesel – HVO DXXX	HVO
Biodiesel – ME D589	ME
Biodiesel – PPO D589	PPO
Biodiesel – UCO D580	UCO
Bioethanol – EtOH P595	EtOH
Bioethanol – ETBE P595	ETBE
Biogas – G591	G591

**Table 41 Standard terms for feedstock origin**

Country	ISO Country Code
Argentina	ARG
Australia	AUS
Belgium	BEL
Brazil	BRA
Canada	CAN
China	CHN
Denmark	DNK
EU (medium voltage)	EUM

Country	ISO Country Code
EU (low voltage)	EUL
Finland	FIN
France	FRA
Germany	DEU
India	IND
Indonesia	IDN
Ireland, Republic of	IRL
Italy	ITA
Latvia	LVS
Malawi	MWI
Malaysia	MYS
Mozambique	MOZ
Netherlands	NLD
Nigeria	NGR
Pakistan	PAK
Poland	POL
Portugal	PRT
Romania	ROU
Russian Federation	RUS
South Africa	ZAF
Spain	ESP
Sweden	SWE
Switzerland	CHF
Ukraine	UKR
United Kingdom	GBR
United States	USA
Unknown	U/K

**Table 42 Standard terms for feedstock type**

<b>Feedstock Name</b>	<b>Code</b>
Cheese by-product	CHEESE
Coconut	COCO
Corn (Community produced)	CORNEC
Corn (Produced outside the EC)	CORN
Corn oil	COIL
Dry manure	DMANU
Farmed wood	FWOOD
Jatropha	JATRA
Manure	MANURE
Molasses	MOL
Municipal Solid Waste	MSW
Oilseed rape	OSR
Palm	PALM
Soy	SOY
Sugar beet	SBEET
Sugar cane	SCANE
Sulphite	SULI
Sunflower	SUN
Tallow	TALL
Triticale	TRICAL
Used Cooking Oil	UCO
Unknown	U/K
Waste wood	WWOOD
Wet manure	WMANU
Wheat	WHEAT

Feedstock Name	Code
Wheat straw	WHSTRAW

**Table 43 Standard terms for feedstock standard**

Standard	Code
Assured Combinable Crops Scheme	ACCS
Basel criteria for soy	Basel
Better Sugarcane Initiative	BSI
By-product	BYPRO
Fediol	FED
Forest Stewardship Council	FSC
Genesis Quality Assurance	GQA
GlobalGAP	GGAP
International Federation of Organic Agriculture Movements	IFOAM
International Sustainability & Carbon Certification	ISCC
Linking Environment And Farming Marque	LEAF
None – feedstock not certified	None
ProTerra	PROT
Qualität und Sicherheit (German Standard)	QUS
RTFO Biofuel Sustainability Meta-Standard	Meta
Roundtable on Sustainable Biofuels	RSB
Roundtable on Sustainable Palm Oil	RSPO
Round Table on Responsible Soy	RTRS
Social Accountability 8000	SA8000
Scottish Quality Cereals	SQC
Sustainable Agriculture Network/Rainforest Alliance	SANRA
Unknown	U/K

**Table 44 Standard terms for land-use on 1 January 2008**

<b>Land-use</b>	<b>Code</b>
By-product	BYPRO
Cropland - protected	CRP
Cropland – non protected	CRNP
Degraded land	DEGRA
Forest 10-30%	F10-30
Forest 10-30% - no change in status	F10-NC
Forest >30%	F>30
Forest >30% no change in status	F>30NC
Grassland - agricultural use	GRAG
Grassland - non-agricultural use	GRNAG
Unknown	U/K
Undrained peatland	UPEAT
Undrained peatland – no change in status	UPT-NC
Wetland	WETL
Wetland – no change in status	WETLNC