

CropEnergies



**ENSUS VOLUNTARY SCHEME UNDER RED FOR ENSUS
BIOETHANOL PRODUCTION**

Contents

- 1) Scope
- 2) Responsibilities
- 3) Feedstock Compliance Requirements
- 4) Chain of Custody Requirements
- 5) GHG calculation Requirements
- 6) Auditing Requirements

1 Scope

This voluntary scheme applies to the production of bioethanol from the Ensus 1 plant, which is situated in the UK and will primarily use wheat grown in the UK. The Ensus plant will typically take wheat from about 6000 farms in any season.

The scope of the scheme is:

- Feedstock: feed wheat (for the production of ethanol)
- Geographic region: primarily UK feedstock, but to be applicable to feedstock from other EU Member States if they can provide wheat under an appropriate EC recognised voluntary scheme.
- Fuel chain of custody scope: from farm up to local Ensus 1 bioethanol storage
- Fuel chain GHG calculation scope: entire chain from farm to pump delivery

Under the Renewable Energy Directive 2009/28/EC and in line with Communication 2010/C 160/01, it is intended to obtain recognition of this scheme for the following criteria:

- Calculation of the GHG saving of bioethanol production - Article 17(2)
- Feedstock compliance with Article 17 (3) on land with high biodiversity value
- Feedstock compliance with Article 17 (4) on land with high carbon stock
- Feedstock compliance with Article 17 (5) on conservation of peatlands.

The procedures for assurance for criteria 17(3) to 17(5) are based on using an Appropriate EC recognised voluntary scheme covering the farm level which:

- is applicable to wheat
- is recognised by the EC for the country where the wheat is purchased,
- is recognised by the EC to cover articles 17(3) to 17(5)

- is recognised by the EC to apply to grain delivered from farm.

The Appropriate scheme must be an EC recognised version of the voluntary scheme for the above scope.

Wheat supplied under an Appropriate EC recognised voluntary scheme covering the farm or store level is referred to in this note as "RED compliant wheat".

2. Responsibilities

Reporting under the RED requires input from a number of internal and external functions.

Ensus Commercial

- Collation of feedstock supply chain information
- Management of store mass balance
- Generation of Ensus bioethanol consignment information
- Ownership of Ensus internal audit process
- Ownership of verification requirements by third party auditors

Ensus Technical

- Ownership of data and updates to support Ensus product consignment GHG emissions calculation (including external validation / verification as necessary)
- Validation of the output of Ensus consignment information by mass balance period prior to sharing / reporting.

Ensus Operations

- Provision of the required data to support the calculation of Ensus bioethanol consignment production information by mass balance period.

3 Feedstock Compliance Requirements

Feedstock compliance with Article 17 (3) on land with high biodiversity value

The Ensus Voluntary Scheme shall use wheat that is covered by an EC recognised voluntary scheme covering the farm level to show compliance under Article 17 (3).

Feedstock compliance with Article 17 (4) on land with high carbon stock

The Ensus Voluntary Scheme shall use wheat that is covered by an EC recognised voluntary scheme covering the farm level to show compliance under Article 17 (4).

Feedstock compliance with Article 17 (5) on conservation of peatlands.

The Ensus Voluntary Scheme shall use wheat that is covered by an EC recognised voluntary scheme covering the farm level to show compliance under Article 17 (5).

Land use change GHG penalty

The Ensus Voluntary Scheme shall use wheat that is covered by an EC recognised voluntary scheme covering the farm level scheme to show:

either that the wheat was grown on land that was cropland in Jan 2008, or provides a GHG emissions figure that includes GHG emissions from land use change

3.1. NUTS2 Region Data

Wheat grown in a NUTS2 region "where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading "Disaggregated default values for cultivation" in part D of Annex V of the RED" will be termed "NUTS2 compliant wheat."

For all UK wheat delivered from farm, the NUTS2 region will be determined from the farm post code and used to determine the GHG emissions for cultivation. For wheat delivered from store, the store delivery documentation, or a store mass balance shall either give the farm post code, or the NUTS2 region in which it was grown, or it shall show that it is "NUTS2 compliant wheat."

4. Chain of Custody Requirements

4.1 Chain of Custody

Wheat is either stored on farm stores belonging to the farm, or in merchant stores. Wheat to Ensus may be delivered by road from farm, by road or rail from merchant stores, or by boat from a dockside store. Wheat that is supplied by boat will be delivered from a farm or merchant store to a dockside store before boat loading.

The chain of custody for wheat for Ensus bioethanol production is:

- Harvested wheat from field to farm store, or merchant store
- Wheat from farm, or merchant store to dockside wheat store
- Wheat from farm, or merchant store, or dockside wheat store to Ensus wheat store
- Wheat from Ensus wheat store to process plant
- Product ethanol from process plant to local Ensus storage
- Product ethanol from local Ensus storage to customer

4.2 Mass Balance System

Mass balances shall be operated for sites, where consignments could normally be in contact. Sites are geographical locations with precise boundaries, within which products can be mixed. Mass balances shall be done for all sites where cereal grain or ethanol can be mixed and shall include merchant stores, dockside stores, the Ensus wheat store and local Ensus ethanol storage. At all mass balance points a mass balance system shall provide the following:

- (a) information about the sustainability characteristics and sizes of the consignments, demonstrating that they remain assigned to the mixture; and
- (b) the sum of all consignments withdrawn from the mixture described as having the same sustainability characteristics, in the same quantities, as the sum of all consignments added to the mixture.

4.3 Wheat Purchasing

When delivering wheat to the first delivery point, a grain passport or other delivery note, will provide details of the scheme used for farm assurance. Passports or other delivery notes for grain supply from farm will collectively be referred to as "grain passports".

For the case of bioethanol production, the first delivery point will be a merchant store or the Ensus grain store. Grain passports are then held at the first delivery point. The grain passport contains the membership number and/or post code of the farm.

Farm assurance schemes, such as the Red Tractor Scheme (RTS), Scottish Quality Cereals scheme (SQC) and International Sustainability and Carbon Certification scheme (ISCC) will maintain a database of the farms that have been audited under the assurance scheme. This database will be continuously updated with information on farms that have been audited.

During the first year of operation of the Ensus Voluntary Scheme, Ensus shall use a combination of data from the grain passports and data from the assurance scheme databases, to determine whether wheat supplied to Ensus is RED compliant. When the wheat is shown from the grain passport to be RED compliant, there will be no need to use data from the farm assurance scheme databases.

In the UK, all farms will be audited annually and the auditing will be spread over the year. Because auditing is spread over the year and due to delays in the provision of audit data onto the assurance scheme databases, Ensus will be taking delivery of wheat and using the wheat for ethanol production, in the first year of the Voluntary Scheme, before Ensus has the

information to show RED compliance. Ensus will therefore maintain a virtual stock of wheat for the first year of operation of the Ensus Voluntary Scheme. As Ensus obtains the information to show RED compliance of the parts of the virtual stock of wheat, that wheat will be used to produce RED compliant ethanol.

Farms supplying wheat after the end of the first year of operation of the Ensus Voluntary Scheme will all have been pre-audited as regards RED compliance. Therefore after the end of the first year of operation of the Ensus Voluntary Scheme, Ensus shall only accept RED Compliant wheat, as shown by grain passports, into the Ensus facility.

4.4 Direct delivery from farm

4.4.1 Wheat delivered during the first year of the Scheme

Deliveries from farm shall carry a grain passport, which will show the farm assurance scheme under which the wheat is assured. Wheat deliveries that are not able to provide a valid grain passport shall be turned away. The grain passport may also show whether the wheat is RED compliant. Where deliveries of wheat from farm to the Ensus store or dockside stores are not shown from the grain passport to be RED compliant, the farms status shall be determined using data on the farm assurance scheme database. Farms from which all the wheat supplied is RED compliant will be termed Fully RED compliant.

Wheat shall only be used to produce RED compliant ethanol, if the wheat is shown from the grain passport to be RED compliant, or if it is shown on the farm assurance scheme database that the farm is Fully RED compliant.

4.4.2 Wheat delivered after the first year of the Scheme

After the first year of the scheme, deliveries from farm will all carry a grain passport, which shows whether or not the wheat is RED compliant. Wheat deliveries that are not able to provide a grain passport to show that the wheat is RED compliant shall be turned away.

4.5 Delivery from merchant stores

Merchant stores that deliver wheat to the Ensus plant will keep the grain passports that show the assurance scheme accreditation of supplying farms. The wheat shall be supplied to Ensus together with a store delivery note.

Ensus will use two alternative methods to ensure that RED compliant wheat is delivered from merchant stores.

- EC recognised voluntary schemes covering the merchant store level.
- Merchant store mass balances

4.5.1 EC recognised voluntary schemes covering the merchant store level.

If the merchant store can supply wheat to Ensus under an Appropriate EC recognised voluntary scheme covering the merchant store level, e.g the EU recognised version of ISCC, then this scheme will be used to ensure compliance.

An Appropriate EC recognised voluntary scheme covering the merchant store level shall be one that:

- is applicable to wheat
- is recognised by the EC for the country where the wheat is purchased
- is recognised by the EC to apply to grain delivered from merchant stores
- is recognised by the EC to cover articles 17(3) to 17(5)

The Appropriate scheme must be an EC recognised version of the voluntary scheme for the above scope.

The store delivery documentation or store mass balance shall:

- show that the wheat is from a farm or field where there has been no land use change since Jan 2008, or shall provide a GHG emissions figure that includes GHG emissions from land use change
- either provide the farm post code, or the NUTS2 region in which the wheat was grown, or it shall show that it is "NUTS2 compliant wheat."

4.5.2 Merchant Store mass balance

Upon delivery of wheat from a merchant store to the Ensus grain store, Ensus or its agent shall arrange for the store holder to maintain a store mass balance of RED compliant wheat. The mass balance shall match wheat supplied from the merchant store to all customers requiring RED compliant wheat, with deliveries of RED compliant wheat from farms to the merchant store. The merchant store shall keep records to demonstrate that no more RED compliant wheat is sold to Ensus and other customers requiring RED compliant wheat, than they received into their store.

Random audits shall be arranged by Ensus using independent auditors to ensure that appropriate store mass balances are being maintained.

4.5.3 Wheat delivered during the first year of the Scheme

For each merchant store the mass balance shall match Ensus wheat deliveries to either:

- grain passports which show the wheat to be RED compliant
- or to wheat from farms which are shown to be Fully RED compliant under an Appropriate EC recognised voluntary scheme covering the farm level,

4.5.4 Wheat delivered after the first year of the Scheme

For each merchant store the mass balance shall match Ensus wheat deliveries to grain passports which show that the wheat is RED compliant wheat.

4.5.5 Mass balance details

Mass balances within merchant stores for RED compliant wheat supplied to Ensus shall include the following information:

- Recognised farm assurance scheme used by the farm
- Farm reference number under recognised assurance scheme
- Farm post code
- Date of supply to Ensus
- Quantity of wheat supplied
- Farm assurance scheme accreditation level

The merchant store shall supply the data above for wheat delivered in each mass balance period.

The mass balance for each store shall be finalised at the end of each mass balance period. The mass balance period shall be a maximum of three months.

4.6 Delivery from dockside stores

Wheat that is delivered to Ensus from a dockside store shall be supplied to the dockside store from farms or from merchant stores. The wheat shall be supplied to Ensus together with a store delivery note.

A mass balance shall be done on the dockside store to match farm and merchant stores, delivering wheat to the dockside store with the wheat supplied to Ensus.

Farms and merchant stores that supply the dockside store will be treated in the same way as those that supply Ensus directly – see sections 4.4. and 4.5.

Mass balances within dockside stores from farm to Ensus wheat store will include the following information:

- Recognised farm assurance scheme of farm
- Farm reference number under recognised assurance scheme
- Farm post code
- Store reference
- Date of supply to Ensus
- Quantity of wheat supplied

4.7 Ensus wheat store supply log

At the end of each mass balance period, the farms and stores supplying wheat to the Ensus store will be logged, together with the quantity of wheat from each farm or store. This will include wheat that has been delivered from farm, merchant stores and by boat from dockside stores.

The following information shall be directly recorded for wheat from farm:

- Recognised farm assurance scheme of farm
- Farm reference number under recognised assurance scheme
- Farm post code
- Date of supply to Ensus
- Quantity of wheat supplied
- Farm assurance scheme accreditation level

The farm assurance scheme accreditation level will be whether or not the wheat is "RED compliant".

The following information shall be directly recorded for wheat from merchant stores and dockside store:

- Store reference number
- Date of supply to Ensus
- Quantity of wheat supplied

The following information for merchant stores and dockside stores shall be added to this log as it becomes available:

- The farms and merchant stores supplying each dockside store shall be entered from the dockside store mass balance when it is updated.
- The farms supplying each merchant store shall be entered from the merchant store mass balances
- The farm reference number, farm post code and farm assurance scheme accreditation shall be added as each farm is identified from the mass balance

The following additional information shall be added on a regular basis to fit the Ensus mass balance period.

- Either the farm post code or NUTS2 region, or that the wheat is shown to be “NUTS2 compliant wheat”, or that the GHG emissions from cultivation will have already been calculated. These data will be provided from delivery documentation.
- When the farm post code is provided, the NUTS2 region of the farm shall be derived from the farm post code and added to the log.
- It will be recorded whether the NUTS2 region is a NUTS2 compliant region
- For wheat assured under an Appropriate EC recognised voluntary scheme covering farm level it will be recorded whether this is derived from grain passports showing “RED compliant wheat”, or whether the RED compliance is determined from the assurance scheme database.
- The quantity of RED compliant wheat shall be entered as the wheat supply quantity, after the RED compliance of the supplied wheat has been proven.
- The date of proven RED compliance shall be recorded, if this is later than the date when the wheat was delivered

4.8 Ensus wheat store mass balance

A mass balance shall be maintained on Ensus wheat storage over each mass balance period to provide a balance between RED compliant wheat delivered to Ensus storage and RED compliant wheat used for production of bioethanol over the period.

The mass balance shall include wheat, where RED compliance still has to be proven. Some of the wheat supplied to the Ensus store may never be able to be proven to be RED compliant and shall be used to produce ethanol for markets that do not require RED compliant wheat.

The RED compliant wheat from different farms in each NUTS2 region will be the same for all RED sustainability criteria. The wheat from different farms within the same NUTS2 region shall therefore be aggregated by NUTS2 region. RED compliant wheat that is shown simply as being NUTS2 compliant (with no NUTS2 region) shall also be aggregated.

4.9 Wheat to product ethanol mass balance.

The product ethanol yield shall be determined over each mass balance period from plant data and shall be used to determine the amount of bioethanol that has been made from RED compliant wheat.

It is possible that in the first year of the Ensus Voluntary Scheme, not all Ensus production will need, nor immediately be able to be shown to be RED compliant. The mass balance shall show the amounts of RED compliant ethanol and non RED compliant ethanol production. Over mass balance periods during which the amount of wheat needed for RED compliant ethanol production is less than the total amount of wheat used, the additional amount of wheat concerned shall be recorded as a virtual stocks of RED compliant and non RED compliant status. During successive mass balance periods as further information is gathered to prove the RED compliance of wheat in previous mass balance periods, the status of records for virtual wheat stock may be changed from non RED compliant to RED compliant wheat according to the gathered information. For wheat processed into ethanol in such successive mass balance periods, RED compliance information may be drawn from the virtual stock of RED compliant wheat, for the production of RED compliant ethanol. The virtual stock of wheat shall not be allowed to be negative at the end of any mass balance period. In the final mass balance period of the first year of the Ensus Voluntary Scheme, any virtual stock of RED compliant wheat that remains shall be downwardly adjusted such that it does not exceed that actual Ensus wheat stock. After the end of the first year the mass balance shall proceed using actual Ensus store wheat stocks.

4.10 Product ethanol balance

A mass balance shall be maintained between RED compliant ethanol production, ethanol sales and Ensus ethanol storage.

Bioethanol from wheat from regions with different GHG emissions from cultivation shall be different consignments. Where different NUTS2 regions have the same GHG emissions for cultivation, the quantities of ethanol from these regions shall be aggregated into the same consignment. The GHG emissions for transport, processing and CO2 credit shall be added to the GHG emissions for cultivation to give the total GHG emissions for each consignment.

Bioethanol that is produced, but not delivered in the mass balance period shall be carried forward to the next mass balance period.

4.11 Mass Balance Period

The mass balance period shall be a maximum of three months.

4.12 Product Ethanol RED compliance data sharing

The product ethanol information shall be shared with Ensus ethanol customers for onward sharing through the supply chain to the end user of the ethanol produced.

4.13 Data Collection / Report Generation

For each mass balance period, the following data shall be collected and logged.

- Ensus wheat deliveries received by standard and postcode
- Wheat consumed in tonnes
- Ethanol produced in tonnes
- Carbon Dioxide produced in tonnes
- Ethanol sales orders completed
- Previous period carry forward balances
 - o Wheat stock – by standard , RED Status and NUTS2 Region
 - o Ethanol Stock – with associated carbon intensity information
 - o Carbon Dioxide

4.14 Data Storage

Ensus shall keep the following information for a period of five years:

- grain passports for deliveries from farm direct to Ensus
- grain delivery notes for deliveries from stores
- wheat delivery logs
- mass balances of dockside stores
- Ensus wheat store mass balance
- Feed wheat to product ethanol mass balance
- Product ethanol and CO2 balance

5 GHG calculation Requirements

For compliance with the Ensus voluntary scheme, the product bioethanol must meet a GHG saving of 35% of fossil fuel GHG emissions up to 1 January 2017 and a GHG saving of 50% of fossil fuel GHG emissions after 1 January 2017.

The relevant greenhouse gas emissions from the production of Ensus bioethanol is

$$E = eec + el + ep + etd - eccr - eee,$$

where

E = total emissions from the use of the fuel;

eec = emissions from the extraction or cultivation of raw materials;

el = annualised emissions from carbon stock changes caused by land use change;

ep = emissions from processing;

etd = emissions from transport and distribution;

eccr = emission savings from carbon capture and replacement; and

eee = emission savings from excess electricity from cogeneration.

5.1 Emissions from the extraction or cultivation of raw materials - eec;

When wheat is supplied from store under a EC recognised voluntary scheme covering the merchant store level, the GHG emissions from cultivation may be provided, or it may be shown as being NUTS2 compliant wheat. If it is shown as being NUTS2 compliant wheat, the GHG emissions from cultivation shall be the value given in the "Disaggregated default values for cultivation" in part D of Annex V of the RED. This is currently 23 gCO₂eq/MJ of bioethanol.

GHG emissions for cultivation for all other grain supply to the Ensus plant shall be determined for each consignment of wheat to the Ensus plant, depending on the NUTS2 region in which it was cultivated. This will apply whether or not the NUTS2 region is compliant.

The NUTS2 regional GHG cultivation emissions data are supplied by Member States to the Commission as per Article 19 clause 2 of the RED and are shown in their reports at the link: http://ec.europa.eu/energy/renewables/transparency_platform/emissions_en.htm

The GHG emissions used for a biofuel consignment shall be determined using a lookup table with the NUTS2 regional GHG cultivation emissions data. The NUTS2 regional GHG cultivation emissions data for wheat grown in the UK (the primary source of Ensus wheat) is shown in appendix 2.

The figures for cultivation GHG emissions are quoted in different ways by different Member States:

Most Member States quote figures in terms of kg CO₂ eq per MJ ethanol after energy allocation using the JRC allocation multiplication factor as quoted in http://re.jrc.ec.europa.eu/biof/html/input_data_ghg.htm

GHG emissions of cultivation (/MJ ethanol after allocation)
= allocation multiplication factor (MJ wheat /MJ ethanol) x GHG emissions (/ MJ dry wheat)

For example in the data for 14Nov 2008 the allocation multiplication factor derived for wheat bioethanol in this reference (sheet WTET cell E62) was 1.109 MJ wheat /MJ ethanol.

Some Member States (e.g. France) quote figures in terms of kg CO₂ eq per MJ ethanol after energy allocation using an energy allocation that is typical of the operating bioethanol plants within that Member State.

Some Member States (e.g. UK) also quote figures in terms of kg CO₂ eq per MJ dry wheat before energy allocation.

Modern ethanol plants such as the Ensus plant have higher ethanol yields than older plants. Also process streams are recycled in order to avoid effluents to drain, so there is no significant lost material. Therefore all the components of the wheat that are not used to make ethanol pass into the DDGS stream.

This gives a lower allocation multiplication factor compared to the JRC allocation multiplication factor.

The Ensus allocation multiplication factor is derived in the same way as in http://re.jrc.ec.europa.eu/biof/html/input_data_ghg.htm, but using corrected data where appropriate.

Allocation multiplication factor =

$$\frac{\text{LHV dry wheat} \times (1-m)}{\text{ethanol yield} \times \text{LHV ethanol} + \text{DDGS yield} \times \text{LHV DDGS}}$$

where:

m is the % moisture content of the raw wheat

ethanol yield is the kg ethanol yield per kg of raw wheat

DDGS yield is kg of DDGS per kg of raw wheat

The DDGS yield and LHV are both on either a moist or dry basis

The ethanol lower heating value (LHV) and the dry wheat LHV are as given in http://re.jrc.ec.europa.eu/biof/html/input_data_ghg.htm,

[REDACTED]

Where a Member State quotes emissions from cultivation in terms of kg CO₂ eq per MJ dry wheat before energy allocation:

$$e_{ec} = \text{GHG emissions per MJ dry wheat} \times \text{Ensus allocation multiplication factor}$$

Where a Member State only quotes GHG emissions from cultivation in terms of kg CO₂ eq per MJ ethanol after energy allocation:

$$e_{ec} = \frac{\text{GHG emissions per MJ ethanol} \times \text{Ensus allocation multiplication factor}}{\text{Allocation multiplication factor used in Member State report}}$$

5.2 Annualised emissions from carbon stock changes caused by land use change - el

Ensus shall use wheat from an Appropriate EC recognised voluntary scheme covering the farm level, which either provides GHG emissions data that includes "el" or which shows that the wheat comes from farms/fields that have not had land use change since Jan 2008. Where wheat comes from farms/fields that have not had land use change since Jan 2008, the annualised emissions from carbon stock changes caused by land use change will be zero.

5.3 Emissions from processing and from excess electricity from cogeneration.

There are two options for calculating ep – eee. These are:

- 1) Use of default value
- 2) Calculation using actual plant data.

Option 1) Use of default value

This is the only option currently available

The steam and power supplied to the Ensus plant is supplied from an integrated gas turbine combined heat and power system.

The RED default GHG value shall be the default GHG emissions for ep – eee that is given in the latest version of the ANNEX V Part C for the case of "wheat ethanol (natural gas as process fuel in CHP plant).

This value is currently given as 19 gCO₂eq/MJ.

Option 2) Calculation using actual plant data.

The value of ep – eee shall be calculated using a spreadsheet, or other calculation tool as part of an Appropriate EC recognised voluntary scheme for calculating the GHG emissions of cereal based bioethanol.

No such schemes are currently available, but the Biograce project should provide such a scheme.

5.4 Emissions from transport and distribution

The GHG emissions from transport and distribution shall be the RED default value for etd that is given in the latest version of the ANNEX V part C.for wheat bioethanol.

This value of etd is currently given as 2 gCO₂eq/MJ.

Ensus customers shall be notified that the Ensus GHG figure includes the total emissions for transport and distribution.

5.5 Emission savings from carbon capture and replacement

Some of the carbon dioxide originating from the wheat fermentation from the Ensus bioethanol plant is captured and liquefied. This CO₂ replaces fossil-derived CO₂ and is used in commercial products and services and falls within the description of carbon capture and replacement in RED ANNEX V Part C clause 15.

The CO₂ emissions that are avoided by the capture and liquefaction of the CO₂ are equal to the CO₂ credit minus the GHG emissions associated with the power for CO₂ capture and liquefaction.

The GHG emissions credit for CO₂ capture and liquefaction (kg CO₂ per MJ fuel) is equal to:

$$\begin{aligned} &= (1000 - \text{power use (kwh/t CO}_2\text{)} \times \text{GHG intensity of power (kg CO}_2\text{ / kwh)}) \\ &\quad \times \text{rate of CO}_2\text{ capture / rate of ethanol production / 26.8 (MJ/kg)} \end{aligned}$$

Where

power use is the power required for CO₂ compression and liquefaction

GHG intensity of power is the GHG emissions of the electric power

26.8 MJ/kg is the LHV of bioethanol

The GHG emissions of the electric power for the Ensus 1 plant shall be the average power GHG emissions intensity for the whole of the EU, as stated in the "Communication from the Commission on the practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels", ANNEX II.

A figure of 0.128 kg CO₂e / MJ power (from JEC) shall be used until a definitive figure for the RED is available.

The rate of CO₂ capture / rate of ethanol production (kg/kg) will vary from hour to hour and month to month. Therefore the CO₂ capture cannot on this basis be directly attributed to a particular consignment of ethanol. The allocation of the captured CO₂ to the ethanol production shall therefore be done over a sufficiently long time period, The allocation shall not exceed the stoichiometric CO₂:ethanol production ratio for any consignment of ethanol. A record shall be kept of the amount of CO₂ that has been captured and the amount of CO₂ that has been allocated to ethanol production. The difference between the amount of CO₂ that has been captured and the amount of CO₂ that has been allocated to ethanol production will be virtual stock of captured CO₂. The virtual stock of CO₂ shall not be allowed to go into deficit and shall be limited such that any CO₂ capture is held as virtual stock of for a maximum period of six months. The period of six months is chosen to give adequate smoothing of the CO₂ credit over periods of high and low CO₂ demand and periods when the CO₂ plant is not operating.

6 Auditing Requirements

The auditing and verification of the sustainability of wheat from farms shall be dealt with by Appropriate EC recognised voluntary schemes covering the farm level.

The auditing requirements of the Ensus scheme shall cover the operations downstream of the farm level. This will include auditing of Ensus operations and merchant store mass balances as required.

6.1 Document Management

Ensus shall maintain a document management database (Microsoft sharepoint) where all procedures/work instructions are stored and controlled.

Output reports following execution of the Ensus Voluntary Scheme are also stored on the Microsoft sharepoint document management system, or held as hard copy. These records shall be maintained for a minimum of 5 years.

The output reports stored include

Grain passports for deliveries from farm direct to the Ensus store

Grain delivery notes for deliveries from merchant stores to Ensus store

Mass balance related to dockside store

Ensus wheat store mass balance

Feed wheat to Ethanol mass balance

Ethanol and CO₂ balance

GHG performance reported.

6.2 Voluntary Scheme Assurance

6.2.1 Audit body selection

Ensus shall appoint an independent audit body that is recognised by an accepted EC accreditation scheme (i.e. UKAS) that will provide auditors suitably qualified to meet the verification requirements of EU voluntary schemes based upon the following criteria:

Review of all documents as submitted in accordance with Ensus vendor selection process for assurance services.

Interview with the senior executive (s) of the applicant certification body and other management levels as deemed necessary.

References sought from the accreditation authorities who awarded the accreditation as deemed necessary.

Verifiers need to be demonstrably independent and free from conflicts from the information / organisation they will be reviewing. For example, if a verifier has worked with a reporting party to design and/or implement controls over carbon and sustainability information, that verifier cannot be considered sufficiently independent to provide external assurance over that subject matter. The verifier should have a system in place to identify threats to independence and ensure appropriate safeguards to ensure independence.

ISAE 3000 is the recognised standard for non-financial assurance and is applied to a broad range of activities.

6.2.2 Audit Management

Ensus shall arrange for the process defined to be audited prior to making first claims under the voluntary scheme to at least "limited" level of assurance and post implementation annually as a minimum requirement.

Through this assurance process it is expected that there will be a pre assurance stage and subsequent verification based upon pre assurance learning.

The following considerations will be made in preparing and managing pre assurance stage of the audit

Opening meeting;

Identification of the activities being undertaken which are relevant to this scheme.

Identification of the relevant systems, organisational structure and implementation of control systems, procedures and / or instructions to comply with this voluntary scheme.

Draw up a verification plan which corresponds to the risk analysis and the scope and complexity of the economic operator's activities.

Agreement of the verification plan;

Carry out the verification plan by gathering evidence in accordance with the defined sampling methods, plus all relevant additional evidence, upon which the verifier's verification conclusion will be based.

Closing meeting;

Deliverables – Report with commentary and statement related to limited assurance opinion under this voluntary scheme.

It is expected that following this pre assurance audit a verification activity based upon knowledge gained will be completed on a desk top basis at the end of each mass balance period.

6.2.3 Auditor Competencies

Ensus shall require verifiers to demonstrate their competency to audit carbon and sustainability information in biofuels supply chains and against the requirements of the EU Renewable Energy Directive.

Verifiers appointed will be competent to determine sustainability risk, and must be prepared to demonstrate their competencies to reporting parties as part of the appointment process. Indicators of competency may include (the indicators marked with * are mandatory):

Education

- Relevant agricultural, logistics, transport education at Bachelor level or at least an equivalent level of experience*

Required knowledge

- Knowledge and skills with respect to methods and techniques aimed at the assessment of quality assurance systems;
- Knowledge and skills regarding the assessment of Land Use criteria;
- Knowledge and skills regarding the assessment of GHG calculations;
- Knowledge and skills regarding the assessment of Chain of Custody requirements*;
- Legislation (RED 2009 / 28 / EC) and subsequent EC communications

Audit skills

- Experience with conducting audits on the requirements of ISAE 3000*

Audit experience

- Experience of audits specifically for this scheme or similar standards*.

Other

- Training and supplementary training, updating and maintaining professional expertise: Continuous professional development through supplementary work experience, training, study, meetings or other activities.

6.3 Non Conformance

Any non conformances identified from auditing, relative to the scheme will be classified as a major non conformity or a minor non conformity.

A major non conformance is one that represents serious problems in the system, procedures or instructions that must be addressed with attention and resources to ensure the goals of the system evaluated. Therefore, a major nonconformity in the framework of this Ensus voluntary scheme shall be considered when the RED compliant quality of the products can not be guaranteed and therefore improvements needs to be implemented in short timescales.

A minor non conformance is a failure to meet requirements of a clause in the scheme or a single lapse observed in the systems, procedures or instructions. Also several minor non - conformance against one clause can be considered as a major non - conformance. When a single minor non - conformance is observed, there is an acceptable risk that nonconforming products as regards RED compliance can be delivered. It does indicate that there are occasional lapses that must be addressed through corrective action.

All non conformances whether major or minor will be thoroughly investigated and corrective actions / timelines for resolution will be determined as necessary, so that the matter is resolved to the satisfaction of the certification body within the limit determined by the audit body (but with a maximum of 50 days after non-conformance is identified).

Appendix 1 Definitions

Grain passport	Grain delivery note which is delivered with the grain from the farm to the first delivery point
Appropriate EC recognized voluntary scheme	A recognized EC voluntary scheme for which the scope of the scheme is appropriate to cover the requirements of aspects of the Ensus voluntary scheme
NUTS2 compliant wheat	Wheat that is grown in a NUTS2 region "where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading "Disaggregated default values for cultivation" in part D of Annex V of the RED"
RED compliant wheat	Wheat supplied under an Appropriate EC recognised voluntary scheme covering the farm level covering compliance under articles 17(3) to 17(5)
RED compliant ethanol	Ethanol produced from RED compliant wheat
Fully RED compliant farm	A farm from which all the wheat supplied is RED compliant
Mass balance period	The frequency at which Ensus updates its mass balance data
Farm	The organization that grows crops and is assured under an EC recognized voluntary scheme covering the farm level

Appendix 2 UK NUTS2 Regional Cultivation GHG Emission

NUTS2 Region	GHG emissions gCO2 /MJ wheat	NUTS2 Region	GHG emissions gCO2 /MJ wheat
N East		Eastern	
UKC1	18.68	UKH1	18.55
UKC2	18.68	UKH2	18.55
N West		UKH3	18.55
UKD1	28.14	S East	
UKD2	28.14	UKJ1	18.65
UKD3	28.14	UKJ2	18.65
UKD4	28.14	UKJ3	18.65
UKD5	28.14	UKJ4	18.65
Yorks		S West	
UKE1	18.47	UKK1	20.84
UKE2	18.47	UKK2	20.84
UKE3	18.47	UKK3	20.84
UKE4	18.47	UKK4	20.84
E Mids		Wales	
UKF1	17.94	UKL1	23.00
UKF2	17.94	UKL2	23.00
UKF3	17.94	Scotland	
W M ids		UKM2	19.61
UKG1	20.11	UKM3	19.56
UKG2	20.11	UKM5	18.68
UKG3	20.11	UKM6	20.38

Reference: http://ec.europa.eu/energy/renewables/transparency_platform/emissions_en.htm
 UK report dated December 2010. Appendix Table 6

