

RHI Sustainability - Non Woody Biomass

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Introduction

In the context of this technical note we are including some distinctly woody biomass such as Short Rotation Coppice (SRC) and Short Rotation Forestry (SRF) as they are defined under the RHI Sustainability Criteria as energy crops, and therefore have some different criteria requirements compared to most woody biomass (Please see our other technical note in this series "RHI Sustainability – Biomass Combustion" for more information on traditional woody biomass).

This technical note is aimed at those RHI installations directly burning non-woody biomass such as straw, *Miscanthus*, palm kernel pellets etc. rather than using non-woody biomass to produce biogas in an anaerobic digester (Please see our other technical note in this series "RHI Sustainability – Biogas Combustion" for more information on non woody feedstocks for biogas).

For some farmers, using non-woody fuels such as straw or Short Rotation Coppice makes sense as they have ready access to it as a relatively cheap fuel, or in the case of Short Rotation Coppice may well have received grant funding to grow it.

More recently, with the introduction of the *Sustainable Fuels Register* (SFR), it has become possible to easily buy and sell non-woody biomass as a pre-approved RHI fuel, thereby saving the effort of the required calculations, evidencing and reporting directly to Ofgem. Go to <https://www.sfrregister.org/> for more information.

It is important to make sure that everything in the supply chain fits the RHI sustainability criteria, and probably more importantly there is suitable evidence to prove it. This applies to both those who are just now applying for the RHI and those already long registered.

In order to claim the RHI for biomass installations, you have to prove that your fuel meets the RHI "Sustainability Criteria". In reality these are in fact two basic criteria known as the "Greenhouse Gas (GHG) Criteria" – a minimum carbon footprint and the "Land Criteria" – the land criteria are aimed to ensure that all biomass fuels are socially and environmentally sustainable.

GHG Criteria

The GHG criteria for solid biomass is set at a minimum 60% GHG emission saving relative to EU fossil fuel heat average = **34.8g CO₂eq/MJ** of heat. There are two available methodologies for calculating the GHG depending on the size of the installation and fuel used;

- Default Value Method – Very simple, as the GHG values of certain fuels are given in the regulations, no calculations are

required. If your fuel is not listed (including the source of the raw material) then you can't use this method. It is designed to give higher values than the actual value method. It is not an option for systems over 1MW.

- Actual Value Method – You will need to calculate the GHG values for your fuel based on raw materials, cultivation systems (if appropriate), transport distances, processing systems etc. There is a free, rather complex, software tool available to do this <https://www.ofgem.gov.uk/publications-and-updates/uk-solid-and-gaseous-biomass-carbon-calculator>

The "Default Values" provided in the regulations cover wheat straw and *Miscanthus*, and a handful of other less commonly used non-woody fuels. For any other fuel, producers will have to use the actual value method.

Land Criteria

On a broad level they are the same whether it is grown in the UK or palm oil from far less regulated regions of the world.

For non-woody biomass (and woody energy crops), the sustainability criteria are set against those in the *Renewable Energy Directive (RED)* regulations. You need to evidence that the land from which the raw material came from is none of the following;

- land which at any time during or after January 2008 was primary forest (The UK has no primary forest so not an issue)
- land which at any time during or after January 2008 was land designated for nature protection purposes.
- highly biodiverse grassland, unless the harvesting is necessary to preserve the grassland status.
- land which at any time during January 2008 was peatland (unless the cultivation and harvesting of biomaterial did not involve the drainage of previously undrained soil)
- a former continuously forested area
- a former wetland area

This is the wording taken from the RHI guidance, worryingly it puts no timeframe on the "former continuously forested area" and "former wetland area". For the UK much of it was forested at one point or another, also for wetland, this again could be a big issue. However the guidance in the Renewable Energy Directive this is based on does give the same January 2008 date

for these as well as the others. So we have assumed this so far with no contradiction from Ofgem, yet.

Energy crops - including Short Rotation Coppice and Short Rotation Forestry, that received payments under the "Energy Crops Scheme" are deemed to have met the land criteria.

Complying with the regulations

There are 2 options for RHI users to prove the fuel meets the RHI requirements;

1. Buy fuel from an RHI approved supplier registered on the *Sustainable Fuels Register* (SFR). In this case the supplier has already done the required evidencing, therefore the user simply states the SFR number of their supplier.
2. Report directly to Ofgem (only for those in the non-domestic RHI). If you report directly to Ofgem you need to calculate the fuels GHG every quarter using a rather complex piece of software. You must also have access to the required evidence that it meets the land criteria

Users wishing to produce their own fuel, again have 2 Options;

1. The simpler option of registering on the *Sustainable Fuels Register*. This carries a fee (£125-£200 a year depending on tonnages), but only requires a simple GHG calculation and an update once a year.
2. Report directly to Ofgem. Again you need to calculate the fuels GHG every quarter.

Currently there isn't a "self-supplier" option for non-woody fuels, unlike for woody fuels where timber grown on your own land and only used in your own boiler requires no evidence for either GHG or land criteria. Therefore all users of non woody biomass (apart from wastes) will need to evidence GHG and land criteria.

Raw material classification

Not all raw materials are considered equal. Basically you have 3 categories;

• Products and co-products	-	Need full GHG and land criteria
• Residues	-	Need partial GHG and most need land criteria
• Wastes	-	No evidence required

Each category has different requirements for evidencing sustainability. For reporting purposes each category must be dealt with separately.

Products and Co-products - such as *Miscanthus*, Short Rotation Coppice etc. For these you need to calculate the GHG for the whole production process (from seed to delivery at plant). You will also need to evidence land criteria.

Agricultural Residues – straws, nut shells, cobs etc. Only the GHG from the point it is collected needs to be calculated. You will need to evidence land criteria.

Processing Residues – Palm processing residues etc. Only the GHG from the point it is collected needs to be calculated. **NO** land criteria evidence is required.

Wastes (definition does not necessarily tie in with SEPA). e.g. poultry litter, food waste etc. **NO** evidence for GHG or land criteria is required.

Depending on whether you report directly to Ofgem or register on the *Sustainable Fuels Register* the process is different, however the evidence required is the same for both.

Evidence

Evidence and paperwork for the GHG criteria for non-woody biomass (and woody energy crops) are generally more burdensome than most woody biomass if you are reporting directly to Ofgem, conversely land criteria are typically less so for UK grown feedstocks. It should be pointed out that evidence is only required if/when you are audited, however it is critical that all the evidence is in place at all times, as failure to produce evidence could result in a compliance notice.

GHG Criteria

With the introduction of the *Sustainable Fuels Register* the simplest route is to register on the SFR and they will carry out the carbon calculation on your behalf based on pretty detailed information you are required to provide – It is assumed this is only for fuels not listed in the default values of the regulations, if you are using straw or *Miscanthus*, they can legitimately use the default values and not require any information from the applicant. No evidence of any of the inputs is required during the application, it is only required at audit.

If you do choose to report directly to Ofgem then you will need to report your GHG outputs every quarter. As described above, you can use the default values provided in the regulations if you are using straw or *Miscanthus*. If not you will be required to carry out an actual value method using the Biomass and Biogas Carbon Calculator (B2C2). Whilst the software is not the most user friendly, it does come with a number of default raw material supply chains for non-woody biomass, however most will need considerable adaptation to fit your specific supply chain. Remember, every time you change a default setting in the software you will need to justify this at audit, for example if you were to change moisture contents you will need some kind of record or test results to back this up.

Proof required	Suggested evidence
Distance from field to plant	IACS records showing field numbers and crop
Inorganic fertiliser, herbicide and pesticide input (only required for fuels classed as "products" such as Short Rotation Coppice)	Copies of the mandatory farm records covering these. Agronomist recommendations.
Moisture content of crop at various stages and dried product (only required if the B2C2 default values in the template supply chains are not used)	A log book recording the results of your own moisture tests; any in vehicle test (IR scanners etc.), any lab test results.
Crop yields (only required for fuels classed as "products" such as Short Rotation Coppice)	Any weigh tickets or records of harvester in built measurement devices.
Machinery fuel usage (only required if the B2C2 default values in the template supply chains are not used)	Can possibly use Farm Handbook values if different, otherwise paper records from fuel bowser

Land Criteria

For all crops and residues it is simply a case of proving the land the crop was grown on (the crop which produced the residue in the case of residues) was farm land sometime around Jan 2008, IACS records for the years 2007 and 2008 will cover this, or alternatively aerial photos, national land use maps.

Buying in feedstocks

Unless they are wastes or processing residues, bear in mind that you will need to prove that the land the crop was grown on was agricultural land in Jan 2008. For neighbours and people you know this is probably not a big issue as the required records can probably be acquired. However if buying straw from a large national merchant this may be more difficult. In some cases it may be sufficient to get a signed declaration from the supplier stating that the land was agricultural, but this should be cleared with Ofgem in advance.

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