

## 1. Introduction

Good Energy is the 100% renewable electricity supplier in the UK. It is an environmentally responsible company which is at the forefront of the green electricity supply market. Good Energy has an active policy to supply electricity that has been generated from “deep green” renewable technologies. To date this has included wind, wave, small-scale hydro and solar PV. With the emergence of sustainable biogeneration as a deep green technology, Good Energy wishes to also support this renewable energy source. This Biogeneration Procurement Policy has been produced to provide clear guidelines on responsible purchasing of sustainable biogeneration electricity by Good Energy.

In principle, Good Energy will buy the power from any biogenerator that meets key criteria for fuel source, transport, and combustion (as laid out in 1.1). Before Good Energy will enter a Power Purchase Agreement (PPA) with a biogenerator, the generator may need to prove that they adhere to the practices outlined in Good Energy’s Biogeneration Procurement Policy. Good Energy may ask for the generator to show quantifiable proof which will be included in the terms of the agreement.

Good Energy seeks to empower as many people as possible to be part of the solution to Climate Change. On occasions, if a biogenerator does not meet all the criteria laid out in the Biogeneration Procurement Policy but can demonstrate a shared vision to tackle Climate Change, Good Energy may enter into a relationship.

Unless otherwise stated, biogeneration is used to describe all fully sustainable biotechnologies and biofuel is used to describe the different biogeneration fuel sources. For the purposes of this policy document biogeneration includes biodiesel, bioethanol, biofuels, biogas and biomass.

### Key Principles

1.1. The three Key Principles of the stages of Biogeneration are:

<b>Fuel Source</b>	The biofuel to be used during the combustion process is grown, produced, and/or processed in an environmentally sensitive manner, in order to prevent non-natural biodiversity, damage to the environment, and excessive use of energy. The biogeneration fuel is grown, produced, and/or processed with minimal use of chemical additives including; fertilizers, pesticides, herbicides, fungicides, petrochemicals and their derivatives, as these will pollute the air during the combustion stage and also the surrounding environment during the growing, production and/or processing stage.
<b>Transport</b>	The transportation of the biofuel needs to be minimised in relation to the energy / CO <sub>2</sub> emissions required to move the biogeneration fuel between growing, production and/or processing to the combustion stage. A target of less than 4% of the embodied energy present within the biofuel should be used during the entire transport stage.
<b>Combustion</b>	The biofuel energy conversion process should be as efficient as possible whilst minimising the emission of harmful gases and residues.

## 2. Environmental Reporting - All Biogenerators

Good Energy will require ALL biogenerators to provide a pre sign-up environmental report covering the relevant aspects of the type of generation that is intended to be generated and the electrical energy sold to Good Energy. The structure of the report required by Good Energy is enclosed at the end of this document. If any material changes are made to the manner in which the biogenerator operates their plant, and the biogenerator does not inform Good Energy of this by email or letter within two weeks of any alterations made, Good Energy reserves the right to terminate any agreement which has been put in place.

## 3. Type Specific Biofuel Requirements

In addition to the Key Principles of the Biogeneration Procurement Policy, various types of biofuels have separate additional criteria that must be adhered to in order for Good Energy to agree to purchase the biogeneration, these criteria are listed under the respective biofuel headings below;

### 3.1. Untreated Wood and Grass Type Crops

- 3.1.1. The production of the biomass crop must be in line with the following criteria;
  - The biomass crop used must only be from a managed, sustainable source and should ideally be fully Forest Stewardship Council (FSC) accredited or grown under the Defra Energy Crops Scheme as a sustainably managed resource, including processing and delivery to biogenerator.
  - In addition any biomass crop being removed for combustion must be replaced by the equivalent amount of the same crop or another biomass crop of the same carbon density, although this does not necessarily need to be in the same land to allow for crop rotations.
  - The processing of the biomass crop must be minimal using a minimum amount of energy, for instance this includes the planting, harvesting, chipping, shredding, pelletising, and all other processing if applicable.
- 3.1.2. Untreated Wood Crops Concession;
  - Until the UK wood pellet market can meet the European standard for quality, the purchase of wood pellet from mainland Europe/Ireland is considered acceptable to Good Energy. This step has been taken to encourage the demand for wood pellets in the UK and so the formation of UK based wood pellet manufacture. Therefore this measure is a short term concession until the supply of pellets in the UK is up to the EU standard.
  - It is important in the long term that wood pellets are transported locally because although they are a higher density fuel than wood chip, they require machine energy to form the pellets and this reduces the net energy available for conversion.
- 3.1.3. Examples of acceptable untreated wood and grass type crops include;
  - Managed forestry
  - Miscanthus

- Sawmill slabwood and sawdust
- Short rotation UK native coppice
- Straw
- Wood pellets

## 3.2. Waste or By-product Biomass

3.2.1. The production of the waste/by-product biomass must be inline with the following criteria;

- Only non fossil/petrochemical derived waste biomass may be used.
- Waste biomass from an origin that cannot be traced from a clear, repeatable source cannot be used. Evidence of the origin of the biomass will be required.
- The biomass material must be from the UK unless there is a specific exception, for instance cardboard material from packaging would be such an exception.
- The waste biomass must be at least 95% clean (this purity is needed to obtain Ofgem's standard for obtaining ROCs ).

3.2.2. Examples of acceptable waste/by-product biomass include;

- Wet agricultural waste
- Dry agricultural waste
- Dry paper and cardboard
- Construction waste (fully biodegradable – non treated)
- Furniture waste (fully biodegradable – non treated)
- Sugar crops
- Starch crops
- Textile waste (fully biodegradable – non treated)
- Leather (fully biodegradable – non treated)
- Wet paper waste (fully biodegradable – non treated)

## 3.3. Biogas

3.3.1. Good Energy believes that the capture organic decomposition by-products (biogas) and their resultant combustion for heat/electricity is preferable to releasing the by-products directly into the atmosphere. These by-products make a significant contribution to ozone damage and climate change as methane is a more potent climate change gas than carbon dioxide. The production of biogas must therefore be inline with the following criteria;

- The process must only be through the decomposition by anaerobic digestion (AD), gasification, and or pyrolysis using mostly natural biological, non fossil derived matter.
- Where possible the CO<sub>2</sub> and any other trace gases should be captured and neutralised during the combustion process to prevent escape into and damage of the environment.

3.3.2. Example of acceptable sources for biogas include;

- Food waste
- Sewage sludge
- Farm yard manure / slurry
- Abattoir waste (excluding Specified Risk Materials)

### **3.4. Biodiesel**

3.4.1. The production of the biodiesel must be inline with the following criteria;

- Ideally there will be no use of fertilizers during growth, although natural waste organic fertilizers such as manure are an exception to this rule. In addition a "LEAF marque" will be looked on favourably as proof of minimising the environmental impact from growing biodiesel.
- The oil used must be thoroughly cleaned of any contaminants to the UK legislative standard of 95% natural organic matter (this purity is needed to obtain Ofgem's standard for obtaining ROCs), using the most efficient, minimally polluting technology available at the time.
- Ideally a pure, pressed oil would be used with no fuel additives, although to facilitate this (if necessary) a starting mixture of etherified biodeisel would be allowed to get the generator up to running temperatures.
- The biodiesel must not contain any mineral, fossil produced diesel.
- Ethanol or methanol should be used in the esterification process.

3.4.2. Biodiesel Concessions;

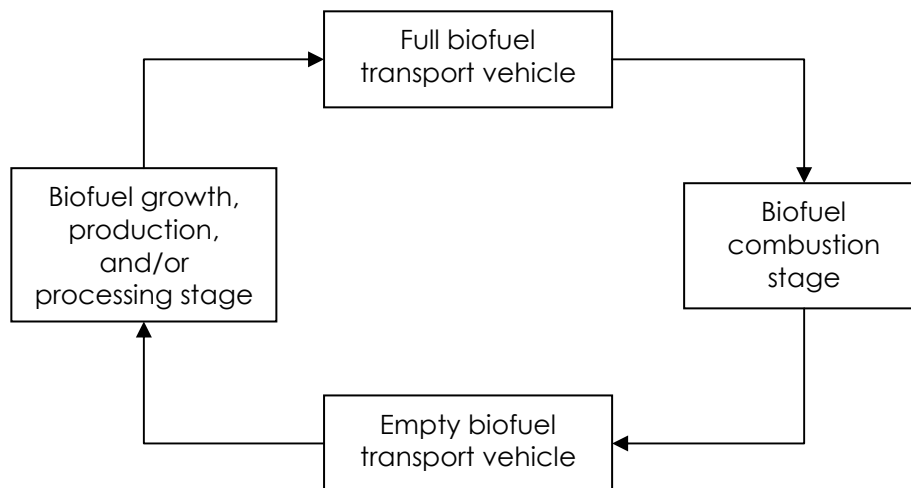
- Where the biodiesel oil has been used previously for the purpose of cooking (of any kind), a concession can be made until the installation of a self sustaining "biodiesel" market. This concession prevents waste cooking oil going to landfill and adversely affecting the surrounding environment. When an official biodiesel market is established this policy concession will be amended.
- The transportation distance can be up to a 200 mile radius from the biogenerator due to the energy density of biodiesel, however at least 100 litres of biodiesel must be transported from such distances.

3.4.3. Example of Acceptable Sources for Biodiesel (assuming sourced from the UK) Includes;

- Sugar beet
- Wheat
- Rapeseed oil
- General "oil crops"
- Used cooking oil
- Animal fats

## **4. Biogeneration Transportation Requirements**

- 4.1. As the energy density of biofuels is relatively low, with the exception of bio-oils, the transportation distance from where the biofuel is grown, produced, and/or processed to where it is combusted, must be minimal - less than a radius of 25 miles, unless specifically stated otherwise. Alternatively a zero emission vehicle could be used, or a carbon neutral vehicle powered by biodiesel.
- 4.2. If the empty biogeneration fuel transport vehicle can be used to transport an alternative product during the return route to collect more biofuel then this will be looked upon favourably.
- 4.3. The diagram below shows the biogeneration cycle, as a guide generators should aim to minimise their energy use at each step in the cycle, to produce the largest ratio of energy generation to energy input.



## 5. Biogeneration Combustion Requirements

- 5.1. The biofuel can be cofired with fossil fuels during start-up, but this should be minimised and detailed in the environmental report.
- 5.2. The biofuel may be cofired with another biofuel as long as the combustion boiler and process is certified for the process.
- 5.3. Where small quantities of dangerous gaseous emissions are produced, all reasonable steps should be taken to minimise the release of these emissions into the environment, and details should be entered in to the environmental report.
- 5.4. Any residues or powders left over from the combustion process should be either carefully disposed of, or ideally made further use of (i.e. fertilizer).

## 6. Variable Requirements

The following criteria should generally be adhered to, but may vary depending on the type of biogeneration fuel;

- 6.1. The biofuel material must be from the UK.
- 6.2. The land used for biofuel crops should not be better used for growing other more important food crops which might otherwise be imported from abroad and in doing so not using energy and natural resources efficiently. However, biofuel crops may be grown as part of a crop rotation or lay land process.
- 6.3. The land used for growing biofuel crops must not be created by destroying natural habitat or reducing natural biodiversity.
- 6.4. The biogenerator must be accredited by Ofgem as a renewable generator and so should be receiving ROCs, LECs, and REGO's.
- 6.5. The biofuel crop / product must be from a long term secured supply, and there must be at least 2 weeks supply of security stock held at the generation site to prevent power outages and the need for restarting the generator.
- 6.6. The biogeneration site should have the minimum impact on the environment in terms of machine plant construction, and should be reversible as far as possible to its pre-build state after the functional life of the plant has come to an end. Ideally the site should be located on a brown field site.
- 6.7. For any biogeneration installation greater than 500kW installed capacity, the generator should take part in consultation with the community and the planning before the plant was commissioned, to look at factors such as; visual impact, traffic, likely emissions, and any benefits that could be brought to the local community.
- 6.8. Any by-products or waste produced during the combustion stage should be disposed of in an environmentally sensitive manner, or used in an appropriate manner. Details of the disposal should be included in the Environmental Report.

## **7. Additional Points to Note**

Good Energy will look more favourably at purchasing the power from biogeneration sites that pay special attention to the following, if applicable;

- 7.1. Energy used during the biogeneration cycle (including biofuel transport) is from renewable sources.
- 7.2. Biogenerators that combine heat and power (CHP) production where there is a heat demand in the near vicinity.

- 7.3. Biofuel supplies that are from within a 25 mile radius and are transported in bulk.
- 7.4. Biofuels that are minimally processed before combustion.
- 7.5. Biogeneration sites that provide benefit(s) to the local community.
- 7.6. A biofuel transportation route that is less than the original disposal route, this only applies if the biofuel is from a waste product.
- 7.7. Biogenerators located on Brownfield sites, regenerated areas, redundant farmsteads or that are built into or supply new build energy efficient developments.

## 8. Appendix

- 8.1. Country Land & Business Association (CLA), [www.cla.org.uk](http://www.cla.org.uk)
- 8.2. Department for Environment Food and Rural Affairs (DEFRA), [www.defra.gov.uk](http://www.defra.gov.uk)
- 8.3. Department of Trade and Industry (DTI), [www.dti.gov.uk](http://www.dti.gov.uk)
- 8.4. Forest Stewardship Council (FSC), [www.fsc.org](http://www.fsc.org)
- 8.5. Linking Environment And Farming (LEAF), [www.leafuk.org](http://www.leafuk.org)
- 8.6. Office of Gas and Electricity Markets (OFGEM), [www.ofgem.gov.uk](http://www.ofgem.gov.uk)
- 8.7. Renewable Energy Association (REA), [www.r-p-a.org.uk](http://www.r-p-a.org.uk)
- 8.8. Royal Agricultural College (RAC), [www.royagcol.ac.uk](http://www.royagcol.ac.uk)



Please fill in all relevant sections within this Environmental report.

## 1. About The Biogenerator Owner

First Name	
Last Name	
Company Name	
Address Line 1	
Address Line 2	
Address Line 3	
Address Line 4	
Postcode	
Day Telephone	
Email	

## 2. About The Biogeneration Fuel(s)

Biogenerator Biofuel Type(s)	
Original Use of Biofuel if Waste Product	
Biofuel Source(s)	
Biofuel Source Contact Name	
Biofuel Source Company Name	
Biofuel Source Telephone Number	
Biofuel Source Email Address	
Previous Land Use (if grown onsite)	
Fuel Type Used By Machinery to Sow Crops (if grown onsite)	
Is the Fuel Source Accredited by DEFRA, FSC, LEAF or other? (please specify)	
Accreditation Reference Code (if applicable)	
Fuel Type Used By Machinery in Order to Harvest Crops (if grown onsite)	
Biofuel Cleaning / Preparation Processing	
Is the Biofuel Grown Replaced with a New (Carbon Matched) Fuel Source?	
Security Stock of Biofuel (weeks)	

Additional Information	
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### 3. About The Transportation Of The Biogenesis Fuel(s)

Maximum Distance of Biofuel Supplied (miles)	
Amount of Biofuel Supplied from Greater than 25 Mile Radius (t/yr)	
Amount of Biofuel Supplied Within 25 Mile Radius (t/yr)	
Is the Supply Vehicle Used for Another Product During the Empty Transport Stage? (if yes what)	
If the Biofuel(s) are a Waste Product, What Was the Original Transport Distance? (if known)	
Original Destination of the Waste Product	
Original Waste Product Contact Name	
Original Waste Product Contact Telephone	
Vehicle Type Used for Biofuel Transport	
Additional Information	

### 4. About The Biogenerator Machine

Generator Name	
Generator Site Postcode	
Original Use of the Site of the Biogenerator	
Generator Electrical Capacity(s) (kW)	
Expected Generator Total Generation (MWh)	
Expected Generator Export (MWh)	
Generator Heat Capacity(s) (kW, if applicable)	
What Will Any Heat Produced be Used for?	

Biogenerator Technology	
Rated Energy Conversion Efficiency of Generator (%)	
Biogenerator Make	
Biogenerator Model	
Manufacturer Contact Name	
Manufacturer Contact Telephone	
Manufacturer Contact Email	
ROC Accreditation Number	
LEC Accreditation Number	
REGO Accreditation Number	
Export MPAN Number	
Additional Information	

**5. About The Combustion Of The Fuel**

Is the Biofuel Combusted With Any Fossil Fuels During Start Up? (if yes what and t/yr)	
Is the Biofuel Combusted With Fossil Fuels During Normal Operation? (after start up)	
Equipment in Place to Prevent Release of Emissions into the Environment	
Gaseous Emissions Produced During Combustion (Gas type and t/yr)	
Solid / Liquid By-Products Produced and Amount(s) (t/yr)	
Use / Disposal of By-Products	
Additional Information	

## 6. About Your Onsite Electricity Usage

What is the Average Electricity Usage of the Generation Site? (MWh/yr)	
Who is Your Current Import Electricity Supplier? (optional)	
Is the Onsite Energy Used at the Generation Site Produced From Renewable Sources?	
If your Current Electricity Supplier is Not Sourcing Their Electricity From Renewable Sources are you Interested in Becoming a Good Energy Customer?	

## 7. Good Energy Provision

By signing this document I the undersigned agree that all the information provided in this Pre-Sign Up Biogenerator Environmental Report is true and correct as of the date below, and that I am aware that any incorrect information could lead to any Power Purchase Agreement held with Good Energy to be terminated unless Good Energy is informed by writing within two weeks of any changes to those documented here and Good Energy accepts the changes made.

Date	
Name	
Signed	
Position (if applicable)	