

Non-domestic Renewable Heat Incentive (RHI) Fuel Measurement and Sampling (FMS) Questionnaire

**Biogas produced by Anaerobic Digestion (AD)**

**This FMS questionnaire applies to the following technology types:**

* Biogas produced by Anaerobic Digestion (heat only)
* Biogas produced by Anaerobic Digestion (Combined Heat and Power (CHP))

The Fuel Measurement and Sampling (FMS) questionnaire seeks to establish the procedures an RHI applicant or participant will undertake to determine the renewable proportion of fuels eligible for RHI support and fulfil the sustainability reporting requirements of the Non-Domestic RHI scheme. It also seeks to establish the procedures relating to ancillary fossil fuel use. Prior to completing this document, please ensure you have read the Non-Domestic [RHI Sustainability Self-Reporting Guidance](https://www.ofgem.gov.uk/publications-and-updates/non-domestic-rhi-main-guidance) and the  [Guidance: Fuel Measurement and Sampling (FMS)](https://www.ofgem.gov.uk/publications-and-updates/non-domestic-rhi-main-guidance).

**Please complete all relevant sections of the FMS Questionnaire.**

**Please note:** The submission and approval of the FMS questionnaire forms part of the RHI accreditation process for installations required to undertake FMS procedures. Your FMS can be uploaded to the RHI Register or submitted to [rhi.biomass-sustainability@ofgem.gov.uk](mailto:rhi.biomass-sustainability@ofgem.gov.uk) stating the RHI number. Accreditation cannot be granted unless FMS procedures have been submitted and approved. Once accredited, you must continue to adhere to the procedures described in your FMS questionnaire throughout your participation on the RHI scheme.

**Making Changes to your FMS:**

It is part of your ongoing obligations to ensure your FMS is up to date and correct.  Any changes to your FMS procedures need to be reviewed and approved before continuing with periodic data submissions. Any changes to the consignments or practises used must be reflected in your FMS.  An amended FMS **must** be submitted via e-mail to [rhi.biomass-sustainability@ofgem.gov.uk](mailto:rhi.biomass-sustainability@ofgem.gov.uk)

If you have any questions, please e-mail [rhi.biomass-sustainability@ofgem.gov.uk](mailto:rhi.biomass-sustainability@ofgem.gov.uk) or call our enquiry line on 0300 003 2289.

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| Sustainability reporting requirements | Participants who chose or are required to self-report must report on the sustainability information of the feedstock(s) they use in their accredited installation from 5 October 2015. This sustainability information must be provided on a consignment basis.  In order to provide this information participants must:   * Classify and allocate their feedstock(s) into consignments. * Implement a method for tracking the sustainability information of consignments of feedstock(s) that are mixed and measuring the amount of each consignment used. * Keep accurate records of the consignments of feedstock used in their accredited installation. |
| Questionnaire completion | When completing this questionnaire, please ensure you clearly outline how you will undertake your procedures. If required, there is extra space at the end of this questionnaire for your answers or any other information you think is relevant.  When referencing industry standards please include the name, issuing body and reference number of the standard(s). |
| FMS  questionnairesubmission | Your completed FMS questionnaire will need to be submitted alongside your completed RHI application. Your FMS questionnaire must be in Portable Document Format (PDF) in order to upload it to the RHI Register. Any additional evidence (e.g., lab reports, GHG calculations, etc.) should be submitted via e-mail to [rhi.biomass-sustainability@ofgem.gov.uk](mailto:rhi.biomass-sustainability@ofgem.gov.uk) stating your RHI number. |

**Declaration:**

I can confirm that all the information provided in this document is correct, to the best of my knowledge and belief. I am aware that I need to notify Ofgem where any of the procedures detailed in this document, feedstock(s) and/or fuel(s) change.

**Please note this document must be signed by the authorised signatory of the installation. If it is not signed by the authorised signatory, it will be returned, which could delay the review and approval of this document and RHI application for accreditation.**

Signed by Authorised Signatory: *(This can be electronically signed or typed)*

**Section A:**

Installation information

This section gathers general information regarding your installation. The answers must match those stated on your accreditation application.

1. RHI number:
2. Name of installation: *(This name must match the name provided in HA100 of your RHI application)*

1. Capacity of installation in kWth:
2. Does your installation produce heat only or heat and power?

Heat only

Heat and power

**Section B**

Feedstock Consignments

This section serves to list the feedstock consignments used in your installation and determine their classification.

1. Please list **all** your consignments of feedstock in the table below[[1]](#footnote-1). Please refer to Chapter 4 of the [Sustainability Self-Reporting Guidance](http://www.ofgem.gov.uk/ndrhi-guidance) for more information on feedstock classifications and consignments.

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| --- | --- | --- | --- | --- |
| **Unique Name** | **Source and country of origin** | **Feedstock Classification** | **Feedstock description** | **Feedstock state e.g., solid or liquid[[2]](#footnote-2)** |
| *e.g., Animal Slurry* | *e.g., Own farm, UK* | *e.g., Waste* | *e.g., Animal Excreta* | *e.g., Liquid* |
| *e.g., Straw* | *e.g., Local farm, UK* | *e.g., Agricultural Residue* | *e.g., straw bales* | *e.g., Solid* |
| *e.g., Maize Silage* | *e.g., Local farm, UK* | *e.g., Product* | *e.g., Silage* | *e.g., Solid* |
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1. Please provide further detail with respect to each consignment classified as ‘residue’ or ‘waste’, including reasons behind the classification.

If you can identify your consignments in Appendix 2 of the [Sustainability Self-Reporting Guidance](http://www.ofgem.gov.uk/ndrhi-guidance), please provide this information in the box below. If your consignment is not listed in Appendix 2 and you have stated it is a waste or a residue, Ofgem will request further information to determine the classification of a particular consignment.

For further guidance on fuel classification, you may wish to refer to the [Renewables Obligation (RO) Fuel Classification Flow Diagram.](https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-fuel-classification-flow-diagram)

**Section C**

Weighing Procedures

This section assesses the procedures used to quantify the feedstock consignments used in a quarter.

1. Are any of the feedstock consignments mixed prior to entering the digester?

Yes [go to question C.6]

No [go to question C.2]

Unmixed Consignments

1. How is the quantity of each feedstock consignment fed to the digester each quarter determined? This should be determined by weight or volume. Should the feedstock consignment be stored prior to use (i.e., carried over), please describe how the weight of each feedstock consignment **used** **in a given quarter** is determined.

Please refer to the locations at which measurements are taken and any equipment that is used (e.g., on entry to site, using a weighbridge etc.).

1. Please state the accuracy of any equipment and methodologies used as a percentage (± X%).
2. How is the accuracy of the equipment or methodology maintained? This should include relevant standards of calibration of the measuring equipment and frequency of calibration.
3. Please outline the feedstock records you will retain to evidence the quantity of each consignment used each quarter. Your answer should include a description of the information you will be recording and how you will store this information (e.g., fuel receipts, stock takes etc.). **Please note you are required to keep fuel records as part of your ongoing obligations under the Non-Domestic RHI Scheme.**

**If all of your consignments are unmixed and you have completed questions C2 to C5, please proceed to section D.**

Mixed Consignments

For feedstock consignments that are mixed prior to entering the digester, we recommend using a mass balance system to determine the proportions of consignments used per quarter. Please refer to Chapter 7 of the [Sustainability Self-Reporting Guidance](http://www.ofgem.gov.uk/ndrhi-guidance) before completing this section.

1. Please state which feedstock consignments are mixed. Including whether the mixing takes place at your installation or prior to arriving.
2. How will you determine the quantity of each feedstock consignment used in a quarter? Please note quantity should be determined by weight or volume. If feedstock consignments are stored prior to use, please describe how the quantity of each feedstock consignment **used** **in a given quarter** is determined.

Please refer to the locations at which measurements are taken and any equipment that is used (e.g., on entry to site, using a weighbridge etc.).

1. Please explain how you will use a mass-balance system, including:
   * Whether you are using a proportionate or non-proportionate mass balance system
   * Where in the supply chain and/or installation the method will be used.
   * To which feedstock consignments it will apply.
   * How you will use the system to determine the quantity of each feedstock consignment used in each quarter.
2. Please state the accuracy of any equipment and methodologies used as a percentage (± X%).
3. How is the accuracy of the equipment or methodology maintained? This should include relevant standards of calibration of the measuring equipment and frequency of calibration.
4. Please outline the feedstock records you will retain to evidence the quantity of each consignment used each quarter.

Your answer should include a description of the information you will be recording and how you will store this information (e.g., fuel receipts, stock takes, mass balance spreadsheet etc.).

**Please note you are required to keep feedstock records as part of your ongoing obligations under the Non-Domestic RHI Scheme.**

**Section D**

Volume and Net Calorific Value (NCV) of Biogas

Under the definition in Schedule 3 of the RHI regulations 2018 (as amended), Energy Content is the energy contained within a substance expressed in terms of the substances net calorific value (NCV).

1. Is the installation equipped with a gas flow meter?

Yes [go to question D.2]

No [go to question D.5]

1. Does the flow meter measure the flow of biogas to the boiler or engine?

Yes [go to question D.3]

No [go to question D.5]

1. Please state the accuracy of the flow meter as a percentage (± X%).
2. Please outline steps taken to ensure the accuracy is maintained. This should include relevant standards of calibration of the measuring equipment and frequency of calibration.
3. Please describe how you intend to quantify the volume of biogas used each quarter:
4. Is the installation equipped with a gas analyser to determine the percentage methane?

Yes [go to section D.7]

No [go to question D.9]

1. Please state the accuracy of the gas analyser as a percentage (± X%).
2. Please outline steps taken to ensure the accuracy of all gas analysers are maintained. This should include relevant standards of calibration of the measuring equipment and frequency of calibration.

**If a gas analyser is used to determine the NCV of biogas and you have answered D6 to D8, please proceed to section E.**

1. Please describe how the NCV of the biogas is determined quarterly. Please state the source of any values given e.g., from RHI guidance, a lab report or literature values.

**Section E**

Apportioning biogas yields to feedstocks

**Installations with only one feedstock consignment in Section B do not need to complete this section and should go to Section F.**

If you are using more than one consignment, our Non-Domestic [RHI and FIT Biogas Apportioning Tool](https://www.ofgem.gov.uk/publications-and-updates/non-domestic-rhi-and-fit-biogas-and-biomethane-apportioning-tool) (BAT) will allow you to apportion the quantity of biogas produced by each consignment in a quarter.

1. Please complete the table below for all consignments listed in Section B[[3]](#footnote-3).

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| **Consignment name** | **Moisture content (%)** | **Methane Yield per Tonne Volatile Solid (m3CH4/TVS)** | **Source of values (e.g., RHI guidance, lab reports etc.)** |
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1. How will the biogas produced be apportioned to each feedstock used?

Using the Ofgem RHI Biogas Apportioning Tool [go to section F]

Other Biogas Apportioning Tool methodology [go to question E.3]

1. Please describe in detail, the methodology selected in question E.2, to apportion the biogas yields to the feedstock consignments. Please state the calculation and any values used, not given in table E.1. This can be provided in an additional document e.g., spreadsheet.

**Section F**

Greenhouse Gas Emissions

If all consignments listed in Section B are classified as wastes, you do not need to complete this section.

Please refer to Chapter 5 of the [Sustainability Self-Reporting Guidance](http://www.ofgem.gov.uk/ndrhi-guidance) before completing this section. Consignments classed as products or residues are required to report greenhouse gas (GHG) emissions quarterly.

1. Please confirm which methodology you are using to calculate the GHG emissions. Please note, those stations over 1MWth are required to calculate the GHG values using the Actual Value method.

Default Value method [go to question F.2]

Actual Value method [go to question F.3]

Both Default & Actual Value method [complete both F.2 & F.3]

1. **Default Method Value Only:** Please complete the table below including all consignments classified as products or residues in Section B. Please note, those stations over 1MWth are required to calculate the GHG values using the Actual Value method.

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| **Consignment Name (using default E-values)** | **Default E-value (gCO2 eq/MJ)** |
| *e.g., Biogas from wheat and straw (wheat whole plant)* | *e.g., 21* |
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1. If any GHG values are calculated using the actual value method please describe how they were obtained (e.g., a B2C2 fuel chain, other GHG calculation methodology).
2. Please send your proposed GHG calculation spreadsheet to [rhi.biomass-sustainability@ofgem.gov.uk](mailto:rhi.biomass-sustainability@ofgem.gov.uk). Please include the RHI number of your installation in the subject title. The calculation should clearly show the methodology, formulas, and units. The calculation should include:

* Calculation of GHG values using Actual Value method, or the relevant E-Values (where applicable)
* Biogas Volume and NCV provided in Section E
* Quarterly Meter Readings (Heat and/or Electrical)

If quarterly periodic data is not available, please clearly show where the data would be input to the spreadsheet.

**N.B.** The efficiency must be calculated quarterly using actual inputs (biogas volumes & NCVs) and outputs (meter readings). **Nameplate efficiencies are not permitted**.

**Section G**

Land Criteria

If all consignments listed in Section B are classified as wastes, you do not need to complete this section.

Please refer to Chapter 6 of the [Sustainability Self-Reporting Guidance](http://www.ofgem.gov.uk/ndrhi-guidance) before completing this section. The requirement to report against the Land Criteria is dependent upon the fuel classification of the fuel consignment(s).

1. Please confirm which methodology you are using to demonstrate compliance with the land criteria. Please note for woody biomass either Category A or Category B evidence must be used to demonstrate compliance with the land criteria.

Category A Evidence (Certificate scheme e.g., FSC, PEFC)

Category B Evidence (Bespoke evidence e.g., risk-based regional approach)

Other Evidence (voluntary schemes, aerial photos, satellite images, maps, land use

records etc.)

Combination of above methodologies

1. Please complete the table below including all consignments which will be required to demonstrate compliance with the land criteria. For each consignment, please state what evidence you will use to demonstrate compliance.

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| **Consignment Name (fuel classification)** | **Land Criteria compliance method** |
| *e.g., Wheat Straw (Agricultural Residue)* | *e.g., Other Evidence (Satellite images, maps, and land use records)* |
| *e.g., Wood logs (Product)* | *e.g., Category A (FSC certificates)* |
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**Section H**

Ancillary Fossil Fuel Uses

Under the definition in Regulation 2 of the RHI regulations 2018 (as amended), Energy Content is the energy contained within a substance expressed in terms of the substances gross calorific value (GCV).

1. Are you using fossil fuels at your installation for ancillary purposes?

Yes [go to question H.2]

No [go to Additional Information]

1. What type of fossil fuel is used at the installation for ancillary purposes?
2. What is the purpose of fossil fuel use?

The heating of the accredited RHI installation's combustion system to its normal operating temperature or the maintenance of that temperature

Cleansing other fuels from the accredited RHI installation's combustion system prior to using fossil fuel to heat the combustion system to its normal temperature

The ignition of fuels of low or variable calorific value

Emission control

In relation to accredited RHI installations which are CHP systems, standby generation or the testing of standby generation capacity

1. Please tick the box below to confirm you are aware that the RHI regulations mandate that the energy content of the fossil fuel used during any quarterly period for permitted ancillary purposes must not exceed 10 per cent of the energy content of all the fuel used to generate heat during that quarterly period.

1. Does the ancillary fuel result in heat generation?

Yes [go to question H.6]

No [go to Additional Information]

To determine the installations’ eligible heat output, the quantity and Gross Calorific Value (GCV) of fossil fuel(s) used each quarter must be known. This section establishes the procedures used to measure the quantity and GCV of fossil fuel used to generate heat.

1. How will you determine the quantity and gross calorific value (GCV) of any fossil fuel used and how will you evidence these figures quarterly?
2. If any fuel is carried over from one quarter to the next, how will this quantity be accounted for?
3. Please state the accuracy of any equipment and methodologies used as a percentage (± X%).
4. How is the accuracy of the equipment or methodology maintained? This should include relevant standards of calibration of the measuring equipment and frequency of calibration.
5. How will you determine the quantity and gross calorific value (GCV) biogas produced and how will you evidence these figures quarterly? If you are calculating the GCV from NCV please clarify how?

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| **Additional information**  Please use the space below if you need to add additional information to any of the questions in this document. |

1. If you require more space please use an additional sheet [↑](#footnote-ref-1)
2. Liquid consignments classified as products or residues are not permitted under the RHI Scheme Regulations. [↑](#footnote-ref-2)
3. If you require more space, please use an additional sheet [↑](#footnote-ref-3)