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Non-Domestic Renewable Heat Incentive

www.ofgem.gov.uk/ndrhi

30 April 2020

Guidance Volume 1: Eligibility and how to apply

Overview

This guidance sets out Ofgem's procedures for administering the Non-Domestic Renewable Heat Incentive scheme (RHI) under the Renewable Heat Incentive Regulations 2011, as amended. The guidance is provided in two volumes. This document is volume 1 and explains eligibility for the RHI and how those wishing to join the scheme can become accredited or registered as applicable.

Volume 2 describes the ongoing requirements for RHI participants, information on how periodic support payments are calculated and paid, and our compliance and enforcement powers.

This is revised guidance for the Non-Domestic RHI and supersedes the version published on 20 June 2018. It reflects an amendment to the Non-Domestic RHI Regulations as of the 1 October 2018.

Contents

1. Our role in administering the scheme

This chapter outlines the policy context, provides a background to the scheme, and summarises the government's and Ofgem's roles.

RHI overview

1.1. The Renewable Heat Incentive (RHI) is a world-first government financial incentive scheme designed to increase the uptake of renewable heat technologies and reduce carbon emissions. It is a key way for the UK to meet its renewable energy target of 15 per cent by 2020, as required by the European Union.

1.2. The Secretary of State for Energy and Climate Change used powers contained in the Energy Act 2008 ('the Act') to introduce the Renewable Heat Incentive (RHI) in Great Britain. The Renewable Heat Incentive Scheme Regulations 2011 came into force on 28 November 2011. The government is responsible for developing the underlying RHI policy including setting tariffs, establishing the legislative framework, and introducing any future changes to the scheme elements.

1.3. The government has appointed Ofgem to administer the RHI. Our E-Serve division has extensive experience in delivering similar environmental schemes and our aim is to make the RHI as effective and efficient as possible. A range of renewable heat technologies is supported under the RHI. These include:

- solid biomass, including when contained in waste (including CHP)
- ground and water source heat pumps
- air to water heat pumps
- geothermal (including CHP)
- solar thermal (at capacities of less than 200 kWth)
- biogas combustion (except from landfill gas but including CHP)
- biomethane injection

1.4. Payments are made on a quarterly basis over a 20 year period to the owner of the RHI installation or the producer of biomethane.

1.5. This guidance is for the Non-Domestic RHI scheme. Domestic applicants can now apply to the Domestic RHI. Further information on the Domestic RHI is available on our website[1]. Please note you cannot apply to the domestic and Non-Domestic RHI for the same installation.

[1] https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive-domestic-rhi

Our role in administering the Non-Domestic RHI

1.6. The government, via the Department for Business, Energy and Industrial Strategy (BEIS, formerly DECC), is responsible for developing the underpinning RHI policy including setting tariffs, establishing the legislative framework, and introducing amendments to the scheme. Under the Regulations we are the administrator of the RHI. Any queries about aspects of policy should be addressed to BEIS.

Our key functions

1.7. The Renewable Heat Incentive Scheme Regulations 2018 are a consolidated set of regulations that encompass all the previous amendments as well as new changes. This set of regulations should be referred to by all new applicants:

- The Renewable Heat Incentive Scheme Regulations 2018[2]
- The Renewable Heat Incentive Scheme and Domestic Renewable Heat Incentive Scheme (Amendment) Regulations 2018[3]

1.8. Additionally, the documents below can be used as supporting documents to the Regulations above:

- DECC Renewable Heat Incentive Policy Document[4]
- Renewable Heat Incentive: Impact Assessment[5]
- Energy Act 2008 [6]

1.9. The Regulations detail our key functions with respect to the RHI. These include:

- accreditation of installations and registration of producers of biomethane which meet the eligibility criteria, including verifying identity, bank details and ownership of an installation
- publishing guidance for participants and prospective participants to understand how to apply and how to comply with the conditions of the RHI
- making payments on a quarterly basis to participants for their eligible heat output (kWhth) or biomethane produced
- monitoring and enforcing compliance with the initial eligibility and ongoing requirements of the RHI as outlined in the Regulations
- undertaking inspections to ensure participants' ongoing obligations under the RHI are being complied with
- reporting to the Secretary of State on the progress of the RHI on a monthly, quarterly and annual basis
  providing a review procedure that allows prospective, current and former participants to challenge our decisions in relation to the administration of the RHI if they believe our decisions are incorrect.

[2] http://www.legislation.gov.uk/uksi/2018/611/contents/made
[3] http://www.legislation.gov.uk/uksi/2018/635/contents/made
[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48041/1387-renewable-heat-incentive.pdf
[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48042/1381-renewable-heat-incentive-ia.pdf
[6] http://www.legislation.gov.uk/ukpga/2008/32/contents

1.10. We will carry out these functions as efficiently and effectively as possible, and cannot act beyond the scope of the powers as laid down in the Regulations.

Scope of this guidance

1.11. We are responsible for publishing guidance on the governance and administration of the RHI, including our approach to ensuring compliance with the RHI, dealing with breaches of RHI requirements, and conduct of inspections and handling reviews of decisions.

1.12. This guidance does not claim to anticipate every scenario which may arise. Where a scenario arises that is not addressed in this guidance, we will adopt an approach which we consider to be consistent with the relevant legislation. Any additional guidance we publish will be available on our website.

1.13. This guidance is not intended to provide comprehensive legal advice on how the Regulations should be interpreted or itself to have legal effect. At all times, the onus is on the owner of an installation or producer of biomethane to ensure that he or she is aware of the requirements of the Regulations. We will provide advice on the eligibility of technologies where we can. However, if a technology is new, developers might find it helpful to seek their own legal and technical advice before approaching us.

1.14. This guidance represents our approach to matters concerning the general administration of the scheme in accordance with the current Regulations. Where there are future changes to the Regulations we will reconsider and revise our administrative arrangements accordingly.

Publication of tariffs

1.15. We will publish an adjusted tariff table on an annual basis to reflect changes in the Retail Prices Index (RPI) and the Consumer Price Index (CPI)[7]. This will be published on or before 1 April each year for the period commencing 1 April of that year and ending 31 March the following year.

1.16. With the degression mechanism we will also publish tariff tables on a quarterly basis by 15 March, 15 June, 15 September and 15 December of each year. These tariff tables will show the tariffs for participants who join the scheme in the next tariff period, commencing after the date the tariff table is published, which will reflect any changes to individual tariffs announced by BEIS.

1.17. BEIS is required to publish any tariff change notice affecting the next tariff period by 1 March, 1 June, 1 September and 1 December of each year. Any reductions in tariffs announced by BEIS will only affect those applicants who have a date of registration as producers of biomethane, or whose installations have a date of accreditation after the commencement of the tariff period commencing after BEIS's tariff change notice is published[8].

1.18. Details and timings of the notices and tariff periods, and how degression will be calculated, are set out in volume 2, chapter 8.

[7] More information available from the Office of National Statistics (www.statistics.gov.uk)

[8] https://www.gov.uk/government/statistical-data-sets/rhi-mechanism-for-budget-management-estimated-commitments

Reporting

1.19. In addition to providing monthly reports to BEIS on the uptake of the scheme, we will publish quarterly and annual reports on our website from the launch of the scheme. These public reports will include the following information:

- aggregated details of accredited installations and fuel type
- aggregated details of the technology replaced
- total amount of periodic support payments made in that reporting period
- total amount of heat generated for which payments have been made under the RHI, as well as details of what this heat has been used for
- sustainability information for certain installations using biomass
- volume of biomethane injected by registered biomethane producers.

1.20. We will also publish the following aggregated information on the Ofgem RHI website on an ongoing basis:

- the number of accredited RHI installations and registered biomethane producers
- the technology and installed capacity of the installations
- the total amount of heat generated and biomethane produced together with the total amount of periodic support payments made under each tariff.

1.21. We will publish current information on the scheme and provide the location or link to the public report.

1.22. We may also publish further information which we hold in relation to the performance of our functions under the Regulations if requested to do so by the Secretary of State.

Queries

1.23. Any queries relating to the scheme operation or applicant eligibility should be emailed to rhi.enquiry@ofgem.gov.uk with the nature of the query clearly marked. If you are an existing participant, please note in the query that you are a participant and your installation number. Written queries should be sent to the address on the front of this guidance, clearly marked for the attention of the RHI operational team. For telephone enquiries, the team can be contacted on 0300 003 2289. The phone line is open Monday to Friday, except public holidays. Please check the Ofgem RHI website for the opening hours of the phone line.

Devolved Administrations

1.24. In accordance with the Act, we can only make payments to eligible renewable heat installations that are generating heat in England, Wales or Scotland, or to biomethane producers injecting into the grid in these regions. The Isle of Man and the Channel Islands are excluded from the scheme. Amendments to the relevant legislation are a matter for the Secretary of State and Scottish Ministers. Northern Ireland introduced the RHI in their own

legislation and guidance, which came into effect on 1 November 2012[9]. We administer the NI RHI separately, on behalf of the Northern Ireland government. Separate guidance for the Northern Ireland scheme is published by the Northern Ireland Department for the Economy (DFE, formerly DETI). The scheme was suspended to new applications in February 2016.

Treatment of personal data

1.25. All personal data collected from participants will be processed in accordance with the Data Protection Act 1998 and the General Data Protection Regulation (GDPR) 2018. We are a public authority and must protect the public funds we handle, so we may use the information you have given us to prevent and detect fraud. As part of this process, your information may be supplied to a third party that conducts ID verification and bank account validity checks. We may also share this information, for the same reasons, with other government organisations involved in the prevention and detection of crime. Please note that some personal data will be shared with BEIS for the purpose of monitoring the scheme and that, where appropriate, BEIS may share that data with the Devolved Administrations.

Eligibility summary and checklist

Scheme eligibility

1.26. Applicants need to meet a range of eligibility requirements. These include demonstrating that the heat they generate is used for an eligible purpose, that metering arrangements are appropriate, and that grants have not been received for certain purposes. Please see the relevant chapters of this guidance, and the Ofgem RHI website for information on how to do this.

1.27. The following checklists summarise the general eligibility criteria that needs to be satisfied before we can accredit your installation. For more detailed information, please see the technology specific chapters.

[9] The Renewable Heat Incentive Scheme Regulations (Northern Ireland) 2012, as amended by the Domestic Renewable Heat Incentive Scheme Regulations (Northern Ireland) (2014)

Table 1: General eligibility checklist

1) OWNERSHIP - Identity verified - Bank details validated - Permission to act for others, where multiple owners
2) COMMISSIONING DATE - Plant first installed and commissioned on or after 15 July 2009 except for air to water heat pumps and biogas more than or equal to 200kWth which must be first commissioned on or after 4 December 2013) - Commissioning date for CHP installations converted from electricity generation is the date of conversion
3) GRANTS - Declare that any grants from public funding that have been or will be received for an eligible installation have been repaid or will be repaid by deduction to incentive payments in certain circumstances
4) NEW - Plant was new at the time of installation (except for CHP conversions and equipment to produce biomethane)
5) MCS - The plant with installation capacity of 45kWth or less has MCS or equivalent certification
6) PROVIDING HEAT - Plant is providing heat for at least one eligible heat use (heating a space, heating water or carrying out a process inside a building, or cleaning or drying on a commercial basis outside of a building)
7) NON-SINGLE DOMESTIC REQUIREMENTS - The installation is not providing heat to the same premises as an installation accredited under the Domestic RHI scheme - The installation is not solely heating a single domestic premises
8) METERING ARRANGEMENTS - The metering arrangements will provide accurate measurement of the heat output for eligible use and payment purposes
9) PLANNING PERMISSION - Evidence from the relevant planning authority that any necessary planning permission has been granted for the plant or that planning permission is not required
10) ENVIRONMENTAL PERMIT - Evidence that any necessary environmental permits have been granted for the plant

Technology specific eligibility criteria

In addition, further eligibility criteria apply in relation to both the size and technology type of your installation. The following table summarises the technology specific criteria.

Table 2: Eligible technologies and sizes and technology specific criteria

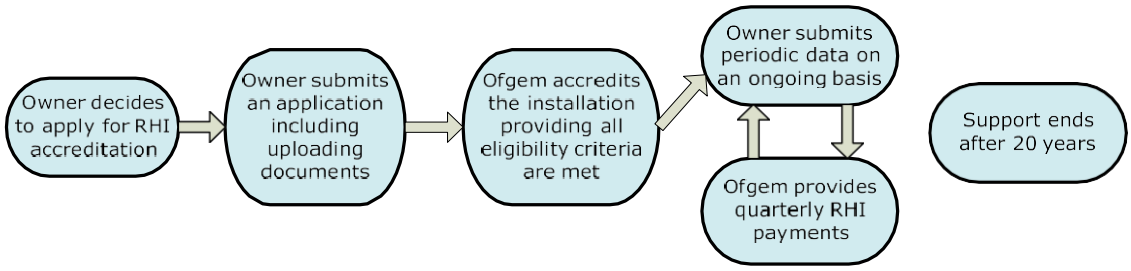
Eligible technology	Technology-specific criteria
Solid biomass	**All scales eligible** - MCS certification requirements or equivalent apply for installations less than or equal to 45kWth - Fuel eligibility requirements, including sustainability requirements (see volume 2) - Air Quality requirements
Solid biomass in waste	**All scales eligible** - Must burn waste - Fuel eligibility requirements (see volume 2)
Ground-source heat pumps Water-source heat pumps	**All scales eligible** - MCS certification requirements or equivalent apply for installations less than or equal to 45kWth - Must have a Coefficient of Performance (CoP) of at least 2.9 - Reversible heat pumps must only measure heating not cooling - Capacity of heat pumps to be specified based on design conditions - Must have a design Seasonal Performance Factor (SPF) of at least 2.5
Air to water heat pumps	**All scales eligible** - Must not be designed to provide cooling - Must not be designed to use heat which has been expelled from a building or from a process which generates heat - MCS certification requirements or equivalent apply for installations less than or equal to 45kWth - Must have a Coefficient Performance (CoP) of at least 2.9 - Must have a design Seasonal Performance Factor (SPF) of at least 2.5
Geothermal	**All scales eligible** - To count as geothermal, must generate heat using naturally occurring energy located and extracted from at least 500m beneath the surface of solid earth
Solar thermal	**Installations less than 200 kWth eligible** - MCS certification requirements or equivalent apply for installations less than or equal to 45kWth - Collector type must be flat plate or evacuated tube
Biogas combustion	**All scales eligible (installations 200 kWth and above are eligible if first commissioned on or after 4 December 2013)** - Gas must be from anaerobic digestion, gasification or pyrolysis - Participant must not use biogas from anaerobic digestion which is landfill gas - May not generate heat from solid biomass - Fuel eligibility requirements, including sustainability requirements (see volume 2)

CHP	**All scales eligible** - Must be one of the following technologies: deep geothermal, biogas, solid biomass contained in waste or solid biomass, and meet the criteria for those technologies. - Must not have been accredited under the RO and at any time since it was accredited have been a 'qualifying CHP station' or be capacity in respect of which a declaration under Article 28(7) of the ROO 2009 (or Scottish equivalent) or under Article 35(7) of the ROO 2015 has been made - Eligible if a new combustion unit (which includes the biogas production plant) is added to an existing CHP system and the combustion unit was installed and first commissioned on or after 4 December 2013. - If the relevant plant(s) use solid biomass, the installation is CHPQA certified and the relevant plant(s) were first commissioned on or after 4 December 2013 it will be eligible for the bespoke New Solid Biomass CHP tariff. Plants with tariff start dates on or after 1 August 2016 must in addition operate with a power efficiency of at least 20% to receive this tariff.
Biomethane injection	**All scales eligible** - The existing regulatory framework external to Ofgem must be adhered to at all times. No further RHI-specific accreditation standards exist - Documents required to demonstrate that the biomethane produced meets, or is expected to meet, all of the Health and Safety Executive requirements on gas safety. - Fuel eligibility requirements, including sustainability requirements (see volume 2)

2. How to apply

This chapter sets out what accreditation under the Non-Domestic RHI means, what the process is for applying to the scheme, and how to determine how many applications you need to complete. The registration process for biomethane producers is addressed separately in chapter 12.

Figure 1: High level end-to-end process for an Non-Domestic RHI participant



Accreditation under the Non-Domestic RHI

Overview

2.1. In order to receive support under the RHI, an eligible installation will have to be accredited. Accreditation (which is defined in the Regulations) is the term that we use to denote admission of an applicant to the RHI once we determine that the installation meets the eligibility criteria of the scheme and that the application for accreditation is properly made.

2.2. Biomethane producers are treated differently to other participants in the RHI. For full details on how to register as a biomethane producer for the RHI, please see chapter 12.

2.3. In order to gain accreditation for an installation, an applicant will have to demonstrate that an installation meets the RHI eligibility criteria, including that the installation is of an eligible renewable heat technology type and size, the heat is used for an eligible purpose and that metering arrangements are appropriate. For further information on general and technology-specific eligibility requirements please see chapters 6 to 12. Information on eligible heat uses can be found in chapter 5, and the requirements for metering arrangements are explained in detail in chapter 13.

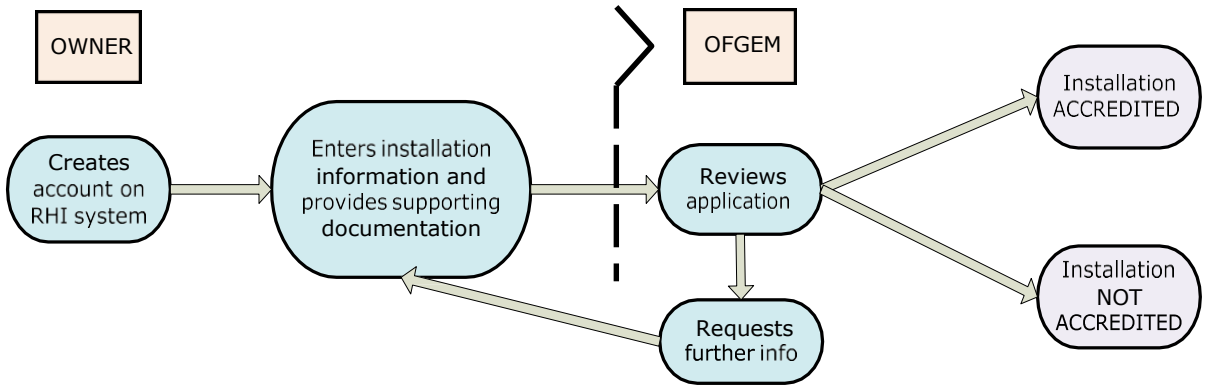
Before you apply

2.4. Before you apply, we recommend you follow the advice below to improve the likelihood of a smooth passage through the application process:

- **Read the relevant sections of this guidance in full.** It provides detailed information on our approach to administering the scheme, eligibility requirements and information on areas of interpretation.
- **Prepare your accreditation application well.** Gather relevant information (e.g. technical specifications/photos of meters and plant, schematics, planning consents, invoices and commissioning documents) that you will need to provide, and it is recommended that you send the information in this way. This guidance provides information on the types of information we will need applicants to provide.
- **Send a high quality application.** If your application is unclear or the accompanying documentation is illegible this can cause delays in processing your application until you can resubmit any clarifications. We recommend you provide clear, concise and complete information and ensure electronic documents are high quality (e.g. easy to navigate, any scans are legible). This may affect the date from which you are eligible and receive payments from.
- **Many applicants engage an expert to help with the installation and application process.** Having professional help may make the process faster and easier. In this case you can register them as an additional user on your account and they can carry out parts of the application on your behalf.
- **Ensure you are already complying with the relevant ongoing obligations.** Providing we are satisfied that on the date you applied for the RHI scheme you met all the eligibility criteria then this is usually the date from which you will accrue payments. We can change this date if we are not satisfied that your application was 'properly made' at the time of submission. See paragraphs 2.14 – 2.17.

Making an application

Figure 2: How to apply for accreditation



2.5. To apply for accreditation for an installation, you will need to apply online via the Ofgem RHI website (www.ofgem.gov.uk/RHI). If you are unable to apply online, please call us on 0300 003 2289 to discuss your requirements. We may provide paper applications in exceptional circumstances. We strongly recommend that you apply via the online system as this will allow us to process your application more efficiently.

2.6. Accreditation can only be granted once an eligible installation has been first commissioned.

For information on preliminary accreditation, please see the 'preliminary accreditation' section of this chapter below or the 'preliminary registration' section in chapter 13 for biomethane applicants. For information on tariff guarantee accreditation, please see the Guide to Tariff Guarantees.

2.7. When completing the RHI application process online, all accreditation questions relevant to your installation must be answered before you can submit your application. The information you will need to provide at the application stage will depend on the technology type and size of your installation, and the complexity of your heat uses. You will also be required to provide supporting evidence as part of your application, which will depend on your technology type and other variables. All applicants will normally be required to provide evidence relating to the commissioning and purchase of their equipment, which may take the form of receipts or invoices, as well as a commissioning certificate. We also advise you to take photographs of your meters showing the opening readings.

2.8. You will also have to declare that you (or the owner(s) you represent) will continue to meet the ongoing obligations required by the scheme, in order for us to accredit your installation. For further information on these obligations, please see volume 2.

2.9. You must ensure that the information you submit is accurate. If we subsequently find that accreditation information was incorrect we will take compliance action. Receiving a financial gain through knowingly submitting false information constitutes fraud. Where we suspect this has happened our Counter Fraud team will investigate where appropriate, refer the case to Action Fraud and the relevant police authority. This may lead to a criminal prosecution, in addition to suspension of payment and/or removal from the scheme.

Date of accreditation

2.10. The date of accreditation for your installation is the date from which your RHI payments will be calculated. If your application is successful, the date of accreditation will be the first date on which all three of the following requirements are satisfied:

- the application is 'properly made' in accordance with the Regulations[10] (including your supplying us with any information and/or documents relating to your application we have requested you supply);
- all RHI eligibility requirements applicable to the installation are satisfied; and
- the installation has been commissioned. To ensure that the processing of your application can be completed in a timely manner, you should enter your bank details on the Register as soon as possible after you have completed your online application.

2.11. If in exceptional circumstances you are submitting a paper application, the same criteria as set out above will apply to determine whether your application is successful. We recommend that proof of posting/delivery should be obtained when submitting postal applications.

[10] Regulations, Part 3, Regulation 30(9)

2.12. The RHI (Amendment) Regulations 2013 introduced a long term cost control mechanism, referred to within our guidance as the 'degression mechanism'. This means that in certain circumstances, set out in the RHI (Amendment) Regulations 2013, reductions can be made to an individual tariff or tariffs. The RHI Regulations 2018 introduced a new updated 'degression mechanism'.

2.13. The date of accreditation for your installation will determine the tariff you receive. Your application must meet all the requirements set out above particularly when notification of a tariff reduction has been announced. Further information on the degression mechanism can be found in volume 2, chapter 8.

All technologies, excluding producers of biomethane:

2.14. It is important to note that the applicable tariff and the date that RHI payments are calculated from is the later of:

(a) the first day on or after we receive your application on which both the application was 'properly made' and the eligibility criteria were met, and
(b) the date your installation was commissioned.

2.15. A 'properly made' application must include all information we ask for in the application form to a suitable standard, to enable us to make a decision on the eligibility of your installation.

2.16. If the application is not 'properly made' (or the installation is not eligible or commissioned prior to this), you are not entitled to a tariff or RHI payments from this date. Therefore it is in your interest to ensure that your application provides all the necessary information when you submit it, or that any outstanding information required is submitted to us as soon as possible.

Producers of biomethane only

2.17. For producers of biomethane, the 'date of registration' is the first day on or after we receive your application on which the application was 'properly made'. A 'properly made' application must include all information we ask for in the application form to a suitable standard, to enable us to make a decision on the eligibility of your installation.

Requests from us for further information or site inspection

2.18. Once you have submitted your application we will review all the information before making a decision as to whether the installation can be accredited. In some cases, we will need to contact you for further information to enable us to verify eligibility. After submitting your application please check for any follow-up communication from us.

2.19. If we need to contact you for further information in order to be able to determine your application we may specify a period of no less than 4 weeks within which time we expect the further information to have been provided to us. Whilst we would normally expect to specify a 4 week period, if we are satisfied that it would be reasonable to extend the time specified then we may do so.

2.20. If after the expiry of this specified period (as extended where relevant) you have not provided us with the further information, we may reject your application. In this instance we would notify you in writing of this decision and the reasons it was taken.

2.21. Please note that your application cannot be approved until you have sent your identity and bank details and these have been verified by us. We strongly advise that you submit these details to us at the earliest opportunity (without them, your application cannot be considered as properly made, which may affect your date of accreditation/registration).

2.22. Please also note that before your installation is accredited, or you are registered as a biomethane producer, we may arrange a site inspection(s) so that we can be assured that it is eligible and should be accredited or that your biomethane production equipment should be registered.

Accreditation decision

2.23. If we are satisfied that the application has been properly made, that all of the relevant eligibility criteria have been met and that you are able to comply with the ongoing obligations of the scheme, we will accredit the installation and you will become a participant in the scheme. We will notify you in writing of the decision.

2.24. Once you are a participant in the scheme, you are able to receive support for your accredited installation. We will send you a statement of eligibility which will include or refer you to the following:

- the date of accreditation
- the applicable tariff rate for your installation
- the process and timing for providing meter readings
- details of the frequency and timetable for payments
- the tariff lifetime and the tariff end date for the installation
- the terms and conditions for your ongoing participation in the scheme.

2.25. If your application is not successful, you will be notified in writing of the reason(s). You are entitled to ask for a review of this decision. For more information on how to request a review, please see the Dispute Resolution chapter in volume 2.

How to apply when you have multiple plants

2.26. Applicants should apply only once for each installation for which they wish to claim RHI support. If you have multiple plants then you need to know whether these can be applied for separately or if they should be considered together as a single installation.

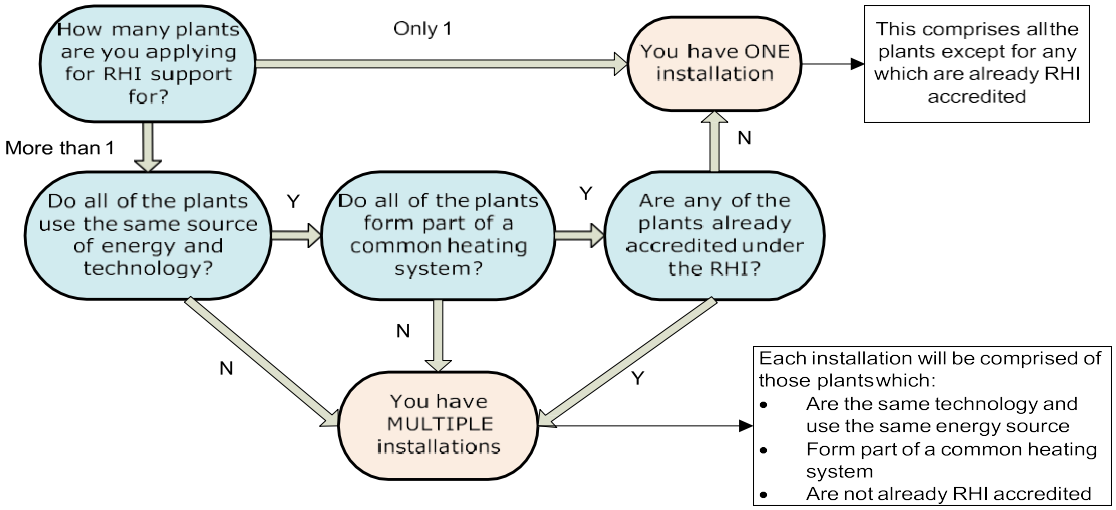
2.27. As provided in the Regulations[11], an installation can consist of one plant only unless two or more plants making up an installation meet the following criteria:

- the plants meet the eligibility criteria
- the plants use the same source of energy and technology (eg ground source heat pump)
- the plants form part of a common heating system (hydraulically connected)
- none of the plants have already been accredited as an RHI installation.

2.28. In these cases, two or more plants will be regarded as a single installation for RHI purposes. You should only make one application for that single installation in this instance.

2.29. Please see Figure 3 to assess whether you should submit single or multiple applications for RHI support.

Figure 3: Do I need to submit a single application for RHI support or multiple applications?



2.30. Where an installation comprises more than one plant, we will consider the combined installation capacity of the plants when determining the appropriate eligibility criteria for the installation. For example, the independent report on metering arrangements (see chapter 13 for further information on the report) would be required if the combined installation capacity of both boilers is equal to or greater than 1MWth (please see the 'Installation Capacity' section of chapter 4).

2.31. The combined installation capacity will also determine the tariff band applicable for the technologies which receive different tariffs based on their capacity. Furthermore, if one or more of the plants is already accredited under the RHI, the addition of a further plant may be treated as 'additional capacity.' Please refer to the Additional Capacity chapter in volume 2 for further information on how to apply for accreditation for the additional plant(s).

[11] Regulations, Part 2, chapter 2, Regulation 19

2.32. District heating – such as a central boiler for an apartment building, or a network of pipes delivering heat from a central installation to a number of local households or businesses – will be eligible for the RHI where the heat is produced by an eligible installation. An installation supplying heat by way of district heating will be treated in the same way as any other RHI installation of that technology and fuel type which is generating eligible heat. There is no uplift for district heating installations. For example a district heating system served by a 600kWth biomass boiler will be treated the same way as a 600kWth boiler heating a single non-domestic building in terms of RHI eligibility and support levels.

2.33. Please see the 'Inspections and access to third party premises' section below for our approach to instances where the eligible heat use occurs on third party premises not owned or controlled by the participant. We may also require you to provide evidence that domestic premises receiving heat from the heat distribution system are domestic and do not have ineligible uses.

Location of the plant

2.34. Accreditation is assigned to the installation at the location that is provided at application. An accredited installation can be relocated. Further information on the relocation of your accredited installation can be found in the section below and in the Change of Ownership chapter in volume 2.

2.35. A plant can be removed from its position for maintenance or minor repairs, turned back on and reconnected to the heating system, as long as the plant remains at the location for which it has been assigned accreditation. Removing a plant from its position for these specified purposes will not be considered a relocation of the plant. Should your plant require major repairs or maintenance that must be conducted at a separate location from the plant's accredited location, you must notify us before removing the plant from its accredited location.

Relocation of an accredited installation

2.36. If an accredited installation is relocated the participant/owner must notify us within 28 days of the installation being disconnected. You will be required to submit a photograph of the closing meter reading(s) for all RHI relevant meters. Once you have relocated your installation you will need to apply for accreditation via the RHI register. We will then assess if the installation's eligibility criteria are still being met at the new location.

2.37. During this assessment we may request to see any of the information set out in Schedule 2 to the Regulations. The application and supporting documentation will be reviewed. Payments will resume from the date of accreditation of the installation at the new location subject to compliance with ongoing obligations, and will continue for the duration of the 20 year lifetime given when the installation was first accredited in its original location.

Inspections and access to third party premises

2.38. In order to ensure compliance with the scheme, we (or agents authorised on our behalf), will carry out a programme of site inspections of installations at the pre-accreditation stage and of accredited installations on an ongoing basis.

2.39. If the installation, and/or its associated infrastructure, is located on a third party premises not owned or controlled by you, the participant, will be required, as a condition of accreditation, to ensure access (by contractual or other means) for us (or our authorised

agents) to such premises for the purposes of inspection. This will include access to non-domestic premises that are served by the installation for the purpose of verifying eligible heat use. We may also require you to provide evidence that domestic premises receiving heat from the heat distribution system are in fact domestic and do not have ineligible uses (e.g. site plans for domestic premises or external photographs).

2.40. Further information regarding our approach to the audit and inspection of accredited installations can be found in volume 2, chapter 15.

2.41. For detailed information on how to apply for the RHI please see the easy guide to applying to the non-domestic RHI[12].

[12] https://www.ofgem.gov.uk/system/files/docs/2016/07/easy_guide_to_applying_final_july_2016.pdf

3. Preliminary accreditation

This chapter sets out what preliminary accreditation means, and who is eligible.

3.1. In certain cases, applicants who are proposing to construct or operate an installation can apply for preliminary accreditation. The government has decided to allow preliminary accreditation for certain proposed installations at the planning stage to give relevant applicants more certainty about future accreditation.

3.2. Biomethane producers are treated differently to other participants in the RHI. Instead of the accreditation of a renewable heating installation, the process for biomethane producers is described in the Regulations as 'registration'. More information on biomethane registration can be found in chapter 12.

3.3. For detailed information on how to apply for the RHI please see the easy guide to applying to the non-domestic RHI.

What does preliminary accreditation mean?

3.4. Preliminary accreditation means an individual or an organisation can submit plans and evidence for installations that have not yet been commissioned, demonstrating that once built, an installation would meet the eligibility criteria of the RHI scheme. If we are satisfied that the eligibility criteria would be met, that it is likely renewable heat will be generated at the plant and that certain planning requirements are met, we will grant preliminary accreditation, which may include conditions. It is only available for installations that have **not** yet been commissioned.

3.5. Preliminary accreditation can be considered as a form of 'in principle' agreement. It does not itself make the applicant a participant on the scheme, and no payments will be made on the basis of a preliminary accreditation. But it does give assurance that once the proposed installation is built and the owner applies for 'full' accreditation to the scheme, we will grant full accreditation providing that the installation is then built in line with the plans submitted, and other conditions are met as set out below.

3.6. There are no time limits on the validity of preliminary accreditation. However, receipt of preliminary accreditation is not a guarantee that a future 'full' accreditation application will be granted. In certain circumstances, which are specified in the Regulations, we will not grant full accreditation. This includes where the legislation has changed since the preliminary accreditation in a way that means that, if the application for preliminary accreditation had been made after the change, it would have been refused. Similarly, preliminary accreditation does not guarantee that a specific tariff rate will be received if future regulation changes affect tariff rates.

Who is eligible for preliminary accreditation?

Preliminary accreditation is only available to applicants with the following technologies:

- geothermal
- biogas
- solid biomass and solid biomass contained in waste installations with a capacity of 200kWth and above
- solid biomass CHP installations which are eligible for the Solid Biomass CHP tariff (other CHP installations which fall under one of the technology types listed above are also eligible for preliminary accreditation as one of those technologies).

From 22 May 2018 preliminary accreditation is also available for the following technologies:

- ground source heat pumps with an installation capacity of 100kWth and above
- air source heat pumps with an installation capacity of 45kWth and above
- shared ground loops systems with an installation capacity of 100kWth and above.

3.7. Applicants for preliminary accreditation must provide evidence that relevant planning requirements relating to the construction or operation of an installation are satisfied. This means that an installation has been granted the necessary planning permission, or that such planning permission is not required and appropriate evidence of this is provided to us.

3.8. In the case of conditional planning permission, this should be provided along with an explanation of why it is conditional or we may not grant preliminary accreditation. We cannot grant preliminary accreditation unless the consent or permission is forthcoming or it is evidenced that consent or permission is not needed. Given time limits on planning consents and permissions, we will only grant preliminary accreditation if the consent or permission is current.

Metering requirements

3.9. As part of your preliminary accreditation application, you will be required to submit a schematic diagram detailing the proposed layout of your installation including positioning and the number of meters that will be used. Please see section 'Schematic diagram' in chapter 13 of this volume for further information on this requirement. You are not required at this stage to provide information regarding meter serial number(s), make(s) or model(s) of your meter(s), where these have not yet been selected. You will be required to provide an updated schematic with the full details if you later apply for full accreditation.

Administration of preliminary accreditation

3.10. All applicants who receive preliminary accreditation for an installation will be required to advise us of any material changes made to the installation. Applicants should contact us for advice if they are in any doubt as to whether the changes they are considering are material.

3.11. Please note that the eligibility requirement in relation to publicly funded grants also applies to applicants for and recipients of preliminary accreditation. Please refer to chapter 4 of this guidance for further information where you are in receipt of a publicly funded grant.

3.12. We may attach other conditions upon granting preliminary accreditation to an applicant. These will depend on the circumstances of the application and will be determined on a case by case basis.

Notification of preliminary accreditation

3.13. We will confirm preliminary accreditation in writing. Preliminary accreditation will in most cases be effective from the date we issue the notification letter to you or, in some circumstances, a later date we may specify in the notice. The notification letter will also specify any conditions attached to the preliminary accreditation.

3.14. We may also contact applicants to specify any further information needed before preliminary accreditation can be granted.

3.15. If we decide to reject an application, we will write to you with an explanation of the reasons.

Circumstances under which preliminary accreditation conditions may be attached, amended, or preliminary accreditation withdrawn

3.16. The Regulations set out circumstances in which, following the granting of preliminary accreditation, conditions may be attached or amended, or a preliminary accreditation can be withdrawn. These circumstances are:

- there has been a material change(s) in circumstances since the preliminary accreditation was granted
- the information contained in the original application was incorrect in a material respect
- there has been a change in the applicable legislation since the date of preliminary accreditation, and that change is such that if the application for preliminary accreditation had been made after this change the preliminary accreditation would not have been granted
- any conditions attached at the date of granting preliminary accreditation have not been complied with.

Receiving full accreditation after preliminary accreditation

3.17. Once an installation in receipt of preliminary accreditation has been built, the owner of the installation can apply for full accreditation. As part of their application for full accreditation the applicant should give the reference number of the preliminary accreditation. The application for full accreditation should be made as a fresh application via the online RHI Register. The approved preliminary application should not be edited except as advised by us.

3.18. In assessing the application for full accreditation, we will take into account the preliminary accreditation granted as explained in the next paragraph.

3.19. the installation has been built and commissioned in line with the original preliminary accreditation, preliminary accreditation has not been withdrawn and any conditions (including amended or additional conditions) set out in the preliminary accreditation continue to be complied with, we will grant full accreditation unless:

- we consider the information on which the original preliminary accreditation was based was incorrect in a material respect such that, if we had known about it at the time of preliminary accreditation, we would not have granted the preliminary accreditation;

- there has been a material change in circumstances or a change in applicable legislation since the date of preliminary accreditation such that, in either case, if the application for preliminary accreditation had been made after the date of the change it would have been refused.

3.20. Please note, the preliminary accreditation will be restricted to the aspects of the installation you provided information for, and is not a guarantee of full accreditation.

Tariff Guarantees

3.21. Tariff Guarantees were introduced on 22 May 2018 and allow applicants to secure a tariff rate before their installation is commissioned and fully accredited on the RHI. A tariff guarantee does not guarantee accreditation. However, each application will still need to comply with all of the regulations in place at the time of accreditation.

3.22. For more information on tariff guarantees and to see whether your technology is eligible, see the Guide to Tariff Guarantees.

4. General eligibility requirements

This chapter sets out in more detail the general eligibility requirements for accreditation under the Non-Domestic RHI that apply to all installations, plus defines some of the terms used under the RHI. See chapters 6 to 12 for the requirements for individual technologies.

The owner of the installation must be the applicant

4.1. It is a requirement that the owner, or where more than one person is the owner one of the owners with authority to act on behalf of all other owners (the 'representative owner'[13]), of an installation is the person making the application for accreditation. An 'owner' in the context of the RHI is the person/organisation with exclusive rights and liabilities in respect of an RHI installation. The owner, or the representative owner, is the person who will receive RHI payments for an accredited installation. We expect that the owner will normally be the person/organisation who purchased and paid for the installation of the equipment.

4.2. Split or shared ownership of different parts of an installation is permissible under the RHI, provided that only one representative owner makes the application for accreditation. If accredited, this representative owner will receive all of the RHI payments. It is not possible for multiple owners of an installation to apply to the RHI for accreditation of that single system; there must only be one applicant/participant. Additionally, in instances of split or shared ownership, a legal agreement should exist between the different owners of the installation and evidence may be requested by Ofgem. This agreement should nominate the representative owner to make the application, and if the installation is accredited, to be the recipient of all the RHI payments. The representative owner on submitting an application to Ofgem must be satisfied that any agreements they hold with other owners does not impair their ability to comply with the RHI Regulations. Please note, Ofgem will not involve itself in disputes between the representative owner and the other owners of the installation. However, if there is any failure to comply with the RHI's ongoing obligations for the accredited installation, even by the other owners, Ofgem can apply sanctions, including revoking accreditation.

4.3. The only exception to the above is in the circumstance of a 'hire purchase agreement, a conditional sale agreement or any agreement of a similar nature'. In these cases, the Act[14] defines the 'owner' for RHI purposes to be the person in possession of the plant under such an agreement, and it is this person who should apply for the RHI. We may require evidence from the applicant to verify that such an agreement is in place. We will interpret 'any agreement of a similar nature' to mean a contract providing for the separation of legal ownership and physical possession, and containing provision (which may be subject to conditions) for the ultimate transfer of ownership to the person who has possession.

4.4. As part of the application for accreditation, the applicant will be required to declare that they are the owner, or representative owner, of the relevant eligible installation. Only one application will be accepted for any one eligible installation. We may request to see evidence of the agreement between multiple owners (such as a contract or signed letter of consent) as part of the accreditation process or as part of an audit.

[13] Where there is more than one owner of an accredited RHI installation, the owner with the authority to act on behalf of all owners is referred to as the representative owner.

[14] http://www.decc.gov.uk/en/content/cms/legislation/energy_act_08/energy_act_08.aspx

4.5. Where the prospective participant is a company or public authority, an individual within that organisation should be nominated by the owner or representative owner to act on the organisation's behalf when applying for accreditation under the RHI ('nominated individual').

Installation capacity

4.6. For the purposes of the RHI, the installation capacity will be the total installed peak heat output capacity of the installation. In most cases the installation capacity should be simple to establish as it will be part of the information provided by the manufacturer. Details of the installation capacity must be provided as part of the accreditation process.

4.7. We are aware that for solar thermal plants the installation capacity is not always provided and may need to be calculated. Please ask your installer or manufacturer for information about the appropriate calculation for your installation.

4.8. Where there is no standard information from the manufacturer, e.g. for bespoke equipment, you may have to provide us with technical evidence to prove the installation capacity as part of the accreditation process.

What is an installation?

4.9. The concept of 'installation' is important in order to work out which equipment must be new, or for which you must not have received a grant.

4.10. An 'eligible installation' is defined in the Regulations as a plant (including any equipment, apparatus or appliance) which meets the eligibility criteria. The eligibility criteria include those set out in Part Two of chapter 2 of the Regulations — which require that eligible installations must 'generate heat' using specified eligible sources of energy and technologies.

4.11. Determining the items of plant which are integral to the generation of heat (and which will, therefore, form an eligible installation) will depend on the particular facts and circumstances of each case. However, the tables at the start of each technology specific chapter show the position which we will usually adopt in assessing whether particular items of a plant form part of an 'eligible installation' for these purposes. Our interpretation has taken into account BEIS's tariff calculations that were designed to compensate for the additional cost of a renewable heat technology installation as compared to the cost of a gas installation (fossil fuel counterfactual).

4.12. The following is a list of equipment which is usually not included in the definition of 'eligible installation' (NB the list is not exhaustive):

- Heat (hot water/ liquid and steam) meters
- Heat distribution system (e.g. pipes delivering heat to users, heating controls, pumps, valves, radiators/ heat distribution heat exchangers etc.) (Note: We include the distribution pipes to individual heat pumps in shared ground loop systems as part of an eligible installation)
- Heat storage equipment
- Other buildings housing the plant equipment (e.g. boiler house)
- Foundations

4.13. CHP plants have a specific regulation in reference to what is classed as 'new' for the RHI. See the 'New plant' section below for details.

4.14. Please note that in the case of fuel storage equipment such as hoppers for biomass boilers, we would expect at least one hopper to be new (to reflect the fact that storage equipment was anticipated in the tariff) – but it is acceptable for the applicant to also have additional storage equipment in place which is not new.

4.15. Please also note that although flue stacks would not be required to be new for RHI purposes, any new plant requires a health and safety assessment of the flue stack design (irrespective of the RHI).

RHI interaction with publicly funded grants

4.16. With one exception, set out in 4.19 below, the Regulations state that an eligible installation must not be accredited and a producer of biomethane must not be registered if a grant from public funds has been paid or will be paid in respect of any of the costs of purchasing or installing the eligible installation and such grant has not been paid back to the grant making body or person.

4.17. We will interpret the 'costs of purchasing and installing an eligible installation' as including the costs of purchasing and installing any equipment, apparatus or appliance which, in accordance with the 'What is an Installation?' section above, is considered to form part of the eligible installation. On this basis, we do not consider that such costs would generally extend to costs incurred in purchasing and installing plant which is not needed in order to generate heat.

4.18. Following their consultation into "Capital Allowances: Feed-in Tariffs and the Renewable Heat Incentive", HMRC states that: "From April 2012 (or April 2014 for CHP installations) Enhanced Capital Allowances (ECAs) will not be available in respect of expenditure on plant or machinery when it generates electricity or heat (or produces biogas or biofuels) that attracts tariff payments under either of the FITs or RHI schemes. ECAs may still be claimed (subject to the other conditions of the ECA schemes) in respect of expenditure on such equipment as long as no tariffs are paid. Any ECAs given, in respect of expenditure incurred from April 2012 (or April 2014 for CHP installations), will be withdrawn if FITs or RHI tariffs are paid subsequently." For further details, please follow this link: http://www.hmrc.gov.uk/tiin/tiin684.pdf or contact HMRC directly: www.hmrc.gov.uk/.

4.19. As part of the accreditation process, you will be asked if public funds have been or will be received for the installation. If you declare that a grant has been, or will be, received (whether or not you consider the grant to be for the costs of purchasing or installing the installation) we may contact you for further information.

4.20. We are not prevented from accrediting an installation where the purpose of the grant is, or will be, to meet costs other than the costs of purchasing or installing the installation.

What we consider to be a grant from public funds

4.21. A grant from 'public funds' can be a grant made by a public authority or by a person who is not a public authority but who is distributing funds on behalf of a public authority. Our consideration of whether or not a grant has been made from 'public funds' will include grants from Europe, central or devolved governments and public authorities at regional or local level.

4.22. We will take a common sense approach to determining what constitutes a 'public authority'.

Repayment to grant making body or person

4.23. If you want to decline the grant offer or pay back a grant that has already been received for the purchase or installation costs of an installation, please contact the grant-making body or person directly. Before we can accredit your installation, you will need to provide evidence to us either that the offer has been declined or the grant has been repaid in full, except where the circumstances in paragraph 4.23 apply.

4.24. Please note that if you are intending to repay the portion of a grant which relates to the installation only, you may wish to agree the relevant amount with us first before making any repayment to the grant provider.

4.25. Participants have an ongoing obligation to notify us if any of the information provided in support of their application for accreditation was incorrect. If we become aware at a later date that the information provided at accreditation in relation to grants was incorrect, we will consider taking enforcement action. Where we find that incorrect information was provided intentionally with the purpose of defrauding the scheme, our Counter Fraud team will investigate and where appropriate, refer the case to Action Fraud and the relevant police authority. Please see chapter 14, volume 2 for further information on our approach to non-compliance within the scheme.

Repayment mechanism

4.26. In a narrow range of circumstances in which, notwithstanding that a grant from public funds has been paid in respect of any of the costs of purchasing or installing the eligible installation and not repaid, we may nevertheless decide to allow the eligible installation to be accredited or the producer of biomethane to be registered and allow the grant to be repaid through deductions to RHI payments. The circumstances in which we can make this decision are where the grant making body:

- has refused to accept repayment of the grant
- has ceased to exist
- where a grant was received from UK national lottery funds and the eligible installation was installed and first commissioned on or after 15 July 2009 but not later than 28 November 2014. For biomethane producers completion of the installation and injection of biomethane will need to have commenced within this timeframe.

4.27. If any of the circumstances in the above paragraph apply you will have to provide clear evidence in support so that we can decide whether to accredit your installation and allow repayment of the grant through your RHI payments. Volume 2, chapter 6 provides an example of how grant repayments will be calculated and deducted from RHI periodic support payments in these circumstances.

4.28. From 1 October 2018 the new Order for ECO details that it is not possible to claim funding on both the ECO and the RHI government schemes unless a Ground Source Heat Pump is being installed. In any other circumstance the ECO measure will be revoked if it is accredited onto the RHI scheme. If you would like further information, please see the ECO guidance available on our website at https://www.ofgem.gov.uk/environmental-programmes/eco/contacts-guidance-and-resources/eco-guidance.

Date of completion of installation and first commissioning

4.29. The following technology types are only eligible if their installation was completed and they

were first commissioned **on or after 15 July 2009**. Please see chapter 11 for exceptions to this rule for CHP plants:

- Solid Biomass
- Biogas below 200kWth
- Ground and Water Source Heat Pumps
- Geothermal
- Solar collectors
- Energy from Waste

4.30. The following technology types are only eligible for accreditation if they were first commissioned **on or after 4 December 2013:**

- Air to Water Heat Pumps
- Biogas 200kWth and above
- A CHP system which generates heat from either solid biomass, biogas or waste in combination with any other source of energy

4.31. Shared Ground Loop systems are only eligible for accreditation on or after 22 May 2018. Each heat pump that forms part of the shared ground loop system must be commissioned on or after 14 December 2016.

4.32. For the technologies listed in 4.28, an installation will not be eligible if the installation of the plant was completed before 15 July 2009, even if the plant was commissioned afterwards. We will not consider applications where the installation of the plant was completed or the plant was first commissioned prior to this date. We may ask for evidence of the date your plant installation was completed (e.g. purchase receipts) and of the commissioning date of your installation (eg a commissioning certificate). We may also ask for a photograph of your installation taken at the time it was installed for the purposes of accreditation checks and audit.

What is the difference between the 'installation' and 'commissioning' of an installation?

4.33. 'Installation' means building and/or putting in place the relevant plant. At this stage, the plant has not begun generating heat. 'Commissioning' a plant means to carry out all necessary procedures and tests as constitute, at the time they are undertaken, the usual industry standards and practices to show that the plant is capable of operating and delivering heat to the premises or process for which it was installed. For smaller scale installations, installation and commissioning may happen on the same day. At the larger scale there is usually a significant testing period, so the date of installation and date of commissioning may be different.

Transitional arrangements: installations commissioned between 15 July 2009 and 28 November 2011

4.34. Installations that were installed and first commissioned on or after 15 July 2009 but before 28 November 2011 (excluding the technologies mentioned in 4.28) are eligible for the scheme and have to meet all the eligibility criteria for the RHI in the same way as installations commissioned after the start of the scheme. This includes the microgeneration requirements as discussed below in section 'Microgeneration Requirements (installations of 45kWth or less)' and the metering requirements which are discussed in chapter 13.

4.35. These installations will be eligible for the same 20 year period of support as installations commissioned after the start of the scheme, starting from the date of accreditation (which

cannot be prior to the start of the scheme). Please note that payments will not be backdated to the date of first commissioning.

New plant

4.36. Your plant must be new to be eligible for the RHI. We interpret this requirement as applying to all of the 'plant' which can be regarded as constituting an 'eligible installation'; that is, any equipment, apparatus or appliance which is necessary for, and integral to, the generation of heat using eligible sources of energy and technologies. For guidance on our approach to determining the scope of plant which can be considered integral to the generation of heat, please refer to the table at the beginning of each technology specific chapter. For exceptions to this rule for CHP plants please refer to chapter 11.

4.37. We will interpret 'new' to mean plants that are new and have not been previously used. We will accept plant as being new if it has not been previously used before being installed and first commissioned. Converted equipment will not be eligible for the RHI. Upon request, you should be able to provide us with delivery notes or purchase receipts as evidence that your plant is new.

Installations heating one single domestic premises are ineligible

4.38. Renewable heating installations serving a single private residential premises are not eligible for the Non-Domestic RHI. This includes single renewable heating units installed by a company, private landlord or registered social landlord, for use in an individual premises (These installations may be eligible for the Domestic RHI scheme which launched on 9 April 2014).

4.39. You will not be eligible for the Non-Domestic RHI if you are applying for accreditation for an installation:

- that is either accredited or for which an application has been made and not been withdrawn or rejected under the Domestic RHI scheme
- if the installation for which you are applying for accreditation supplies heat to the same property as; an installation that is either accredited or for which an application has been made and not been withdrawn or rejected under the Domestic RHI scheme.

4.40. Only installations that provide heat to non-domestic premises, multiple domestic premises or a mix of domestic and non-domestic premises[15] are eligible for the Non-Domestic RHI. Domestic premises are defined in the Regulations as 'single, self-contained premises used wholly or mainly as a private residential dwelling where the fabric of the building has not been significantly adapted for non-residential use'[16].

[15] Please note that as of 22 May 2018, there has been a change to the eligibility criteria that apply to installations with a date of accreditation on or after 22 May 2018 that produce heat to a mixture of non-domestic and domestic premises. Please refer to Chapter 5 of this document for further information.

[16] Regulations, Part 1, Regulation 2, definition of "domestic premises".

4.41. For example, an eligible installation could serve:

- a single, non-domestic premises, e.g. a hairdreser
- multiple non-domestic premises, e.g. a shopping centre
- multiple non-domestic and domestic premises (mixed use), e.g. office space and residential flats
- multiple domestic premises, e.g. through a district heating system supplying a block of flats.

4.42. In interpreting the definition of 'domestic premises' and 'single self-contained premises' we shall take into account whether those premises are treated as separate and self-contained premises for Council Tax banding purposes[17]. Accordingly, where a premises consists of a main property and other buildings such as outhouses, pool-houses, lean-to's etc. which are together treated as one self-contained unit in single occupation for Council Tax, this would be likely to be treated as a 'single self-contained' premises for RHI purposes. Where such premises are 'used wholly or mainly as a private residential dwelling where the fabric of the building has not been significantly adapted for non-residential use', the premises will therefore be treated as 'domestic' for the RHI. Accordingly, where heat is generated for use solely in these premises, that heat would not be eligible for Non-Domestic RHI support as it is 'for the use of one domestic premises'.

4.43. Similarly, where premises comprise a main property and adjoining property or properties (such as annexes, gatehouses, workers cottages etc.) which are themselves treated as self-contained units for Council Tax banding, each of these buildings is likely to be treated as 'single self-contained' premises for RHI purposes. Therefore, if each is 'used wholly or mainly as a private residential dwelling where the fabric of the building has not been significantly adapted for non-residential use', each will be treated as a separate 'domestic premises' under the Non-Domestic RHI.

4.44. On this basis, if each of these buildings is served by its own boiler, these boilers would not be eligible for support as each boiler would be generating heat 'solely for the use of one domestic premises.' However, if a single boiler provided heat to two or more self-contained units, this boiler would be treated as an installation serving multiple domestic premises and would be eligible for the non-domestic RHI, subject to all other eligibility criteria being met.

4.45. Premises which are business rateable, rather than being subject to council tax, will normally be regarded as non-domestic. We take into account that some properties, such as agricultural buildings, are exempt from paying these rates under Schedule 5 of the Local Government Finance Act 1988[18], and therefore there may be circumstances in which premises which are not business rateable can still be regarded as being non-domestic.

4.46. In a situation of 'a private residential dwelling where the fabric of the building' **has** 'been significantly adapted for non-residential use', the Council Tax officer may decide that this makes all or part of the property business rateable. Therefore your premises may be viewed as non-domestic and eligible for the non-domestic RHI.

4.47. Further guides to help you understand your council tax banding or business rating are available from the Valuation Office Agency (VOA) publication pages[19] on:

[17] http://www.voa.gov.uk/corporate/publications/selfContainedUnits.html

[18] http://www.legislation.gov.uk/ukpga/1988/41/schedule/5

[19] http://www.voa.gov.uk/corporate/publications/index.html

- business rates[20]
- working from home and business rates[21]
- holiday lets[22]
- guest houses and bed and breakfast accommodation (B&Bs)[23]
- multi-occupied homes[24]

4.48. Enquiries on your standing in this regard should be directed to your local Council Tax officer, who may also be able to help you to provide evidence if required (multiple council tax bills or business rates bills for premises on the heating system will usually suffice), or directed to the VOA.

4.49. If you require more detail, please see the Valuation Office Agency's booklet 'Understanding your Council Tax banding'[25] which deals with aspects such as outbuildings not in different occupation, self-contained units etc. In summary, our preferred method for demonstrating an installation is eligible as serving non single domestic premises is for you to demonstrate that the heating system is not solely providing heat to single premises covered by one Council Tax band. The installation will still be subject to all other eligibility criteria.

Heat delivery medium

4.50. The installation must use liquid (including oil) or steam as a medium to deliver heat to the eligible use. It is acceptable for the final eligible use itself to heat air (eg radiators) provided that there is a liquid or steam heat delivery system connecting the RHI installation and the eligible use. Direct air heating is not eligible.

Microgeneration requirements (installations of 45kWth or less)

4.51. The Regulations provide that installations of 45kWth or less for certain technology types must also be certified under the Microgeneration Certification Scheme (MCS)[26] or an equivalent scheme.

4.52. Table 3 below sets out which technologies require MCS certification or equivalent. Where this applies, the following certification requirements will need to be met:

- The plant must be certified under the MCS or an equivalent scheme at the time of its first commissioning
- You should be eligible for the scheme if this is the installation your installer uses to gain their MCS certification, as long as the plant was certified under the MCS or an equivalent scheme at the time of its first commissioning.

Table 3: Which technologies require MCS or equivalent certification and which do not:

[20] http://www.voa.gov.uk/corporate/publications/businessRatesAnIntro.html
[21] http://www.voa.gov.uk/corporate/publications/workingFromHome.html
[22] http://www.voa.gov.uk/corporate/publications/holidayCottagesGuide.html
[23] http://www.voa.gov.uk/corporate/publications/guestHousesandBasicAccommGuide.html
[24] http://www.voa.gov.uk/corporate/CouncilTax/multiOccupiedHomes.html
[25] http://www.voa.gov.uk/corporate/_downloads/pdf/VO7858_understanding_ct.pdf
[26] Details of which are available at http://www.microgenerationcertification.org/

Technologies requiring MCS or equivalent scheme certification for installations of 45kWth or less	Technologies of 45kWth or less not requiring MCS certification
Ground Source Heat Pumps	Biogas for combustion
Water Source heat Pumps	Biomethane for injection into the grid
Solid biomass	Deep geothermal
Solar thermal	Solid biomass in waste combustion
Air to Water Heat Pumps	

4.53. Equivalent schemes include Solar Keymark[27] for solar thermal installations, or any other scheme which is equivalent to MCS and accredited under European Standard EN45011(2) or EN ISO/IEC 17065:2012(3)[28] (which certifies microgeneration products and installers in accordance with consistent standards). When applying for support, applicants will be asked for details of MCS or equivalent scheme certification. If applicants intend to apply using an MCS equivalent scheme, they must prove to us that the technology has been certified by a scheme that meets the definition.

4.54. The Regulations specify that MCS or equivalent certification will not be required in the following scenario:

- if the combined installation capacity is more than 45kWth, for example, where a heating system using the same source of energy and technology, e.g. biomass, is made up of 2 x 25kWth biomass boilers, then the two boilers will not need to be MCS or equivalent certified if each component plant in the system satisfies the eligibility criteria referred to in regulation 14(3) of the Regulations and neither is already an accredited RHI installation. Please note this does not apply to heat pumps on a shared ground loop, which will all require MCS certification for each heat pump that is under or equal to 45kWth

Planning permission

4.55. In the cases of Preliminary or Tariff Guarantee applications full evidence of the relevant planning permission must be submitted where it is required for the installation to be constructed.

4.56. Installations with a date of accreditation/ registration on or after the 22 May 2018 will be required to provide evidence that planning permission is in place. If planning permission isn't required, applicants will have to provide evidence that none was required. Applicants should keep full planning permission documentation, which may be requested by Ofgem at any time.

4.57. All relevant permissions (including planning permission) must be maintained in order to remain compliant with RHI regulations. Any breach of these requirements could result in enforcement action being taken.

Environmental permits

[27] Please note that Solar Keymark certifies products, but not installation companies.

[28] 37 ISBN 0580294153. Copies can be obtained from the British Standards Institution at http://www.bsigroup.com/

4.48. From 1 October 2018, all existing and new participants must be able to prove that any necessary environmental permits are held in relation to the plant, and must declare at application that the plant complies and will continue to comply with all local and national laws relating to the protection of the environment.

4.49. This applies to all participants burning waste; all biogas participants; all open loop water source heat pumps (who must also have an abstraction license unless you can provide evidence your installation does not require one); all biomass participants (unless you can show you have an exemption). Regardless of technology type, all installations may be required to provide one for the heat use. If you have an exemption from requiring an environmental permit you will be required to demonstrate this.

4.50. All relevant permissions and permits must be maintained in order to remain compliant with RHI regulations. Any breach of these requirements could result in enforcement action being taken. From 1 October 2018 all participants must declare annually that they have the relevant environmental permit(s) for their installation and be able to provide this if audited.

4.51. If you're unsure on what permitting you require, please contact the Environment Agency[29] (for England), Scottish Environment Protection Agency[30] (for Scotland) and Natural Resources Wales[31] (for installations in Wales).

[29] https://www.gov.uk/government/organisations/environment-agency
[30] https://www.sepa.org.uk/
[31] https://naturalresources.wales/?lang=en

5. Heat uses

This chapter sets out:
- the principles underlying the government's policy on heat uses eligible for Non-Domestic RHI support
- examples of the uses of heat that will be eligible for RHI support
- examples of the ineligible heat uses which will not be eligible for RHI support.

5.1. The RHI Policy Document[32] sets out the principles underlying the government's policy on heat uses that are eligible for RHI support:

- The RHI is intended to provide support for renewable heating where the heat generated is usable and useful
- In order for an installation to be eligible for the RHI, the heat load it is being used to meet must be an economically justifiable heating requirement, i.e. a heat load that would otherwise be met by an alternative form of heating
- The heat load should be an existing or new requirement, i.e. not created artificially purely to claim the RHI

Eligible heat uses

5.2. The RHI Regulations state the RHI scheme will support heat where it is used for 'eligible purposes'[33]. The list of heat uses that fall within the definition of 'eligible purposes' has changed over time as a result of regulatory amendments made to the RHI scheme.

5.3. The rules that determine whether a heat use falls within the definition of eligible purpose are described below. Where possible, we have highlighted some of the key dates associated with these rules.

Eligible purposes between 28 November 2011 and 23 September 2013

5.4. The heat uses listed in table below are classed as 'eligible purposes' for installations with a date of accreditation between the 28 November 2011 and 24 September 2013, as long as these heat uses are carried out within a building:

Heat use	Description
Heating a space within a building[34]	The heating of rooms or other enclosed spaces within buildings, typically through the supply of hot liquid to heat emitters, such as radiators and underfloor heating.
Heating water within a building	The heating of water within a building for direct use, such as commercial and industrial hot water or for use in schools or hospitals. Heating hot water for domestic use is also permitted,

[32] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48041/1387-renewable- heat-incentive.pdf

[33] Regulations, Part 1, Regulation 2, definition of "eligible purpose".

[34] Please refer to the section titled 'buildings and enclosed structures' within this chapter for further information on what is meant by 'building'.

	provided that the eligible installation does not provide heat solely to a single, domestic premises. For more information on what constitutes a single, domestic premises, see section 'Installations heating one single domestic premises are ineligible' in chapter 4 above.
Carrying out a process within a building	The use of heat to carry out a specific process such as industrial cooking, drying, (including drying of wood and other biomass fuels), pasteurisation or chemicals manufacture. Other examples include heat that is used for cooling, e.g. passing renewable heat through absorption chillers. It does not include heat used for the generation of electricity, as set out in section 'Ineligible heat uses' below.

Eligible purposes from 24 September 2013 to 22 May 2018

5.5. Installations (and additional capacity) with a date of accreditation on or after 24 September 2013 and before 22 May 2018, will be able to use heat for the heat uses listed in the table under point 5.4 above. In addition, they will also be able to use heat outside of a building for cleaning or drying, as long the cleaning or drying processes are carried out on a commercial basis[35].

Eligible purposes from 22 May 2018

5.6. All installations (and additional capacity) with a date of accreditation on or after 22 May 2018 will be able to use heat for the purposes listed in the table under point 5.4 above and for the purposes mentioned in point 5.5. However, note that regulations coming into force from 22 May 2018 introduced new restrictions on heat uses that fall within the definition of "eligible purposes". Such heat uses include including drying. See section "Ineligible heat uses" below for further information on these restrictions.

Evidence of heat uses

5.7. As part of the accreditation process, applicants will be required to provide information about how the heat generated by their eligible installation is used. This information will help us verify that only heat which is eligible for the RHI is being supported. The information requested will include:

- Information about how the heat is used at the installation;
- which of the eligible purposes described in the table under point 5.4 above are supplied with heat from the heating system of which the eligible installation forms part;
- a brief description of what the heat is used for, including whether any heat is used for ineligible purposes or exported to third parties, plus the location of the heat uses at the installation; and
- evidence that the buildings meet the wholly enclosed and permanence requirements.

5.8. In certain circumstances, heat loss from external piping can be disregarded[36] where it is 'properly insulated'[37] and will therefore be regarded as an eligible use (see chapter 13, 'Metering eligibility requirements' for specific details). [This only applies to applicants applying

[35] To be regarded as eligible the designated processes of cleaning and/or drying will need to be carried out on a commercial basis. Whether or not an activity is defined as 'commercial' will be assessed on a case-by-case basis.
[36] Regulations, Part 7, Regulation 75
[37] Regulations, Part 1, Regulation 2, definition of "properly insulated"

for accreditation on or after 24 September 2013].

5.9. Trace heating of insulated piping will in general be regarded as an eligible use. We may seek assurance, including through the Independent Metering Report (see section 'Independent Report on Metering Arrangements' in chapter 13), that trace heated piping is insulated appropriately, and that trace heating of any heat distribution systems is appropriate to the system.

5.10. The Regulations permit us to request evidence that the heat for which the RHI is paid is being used for eligible purposes as set out above.[38] We may do this as part of the accreditation process or at any time after the installation has been accredited. Please see section 'Inspections and access to third party premises' in chapter 2 for our approach to instances where the eligible heat use occurs on third party premises not owned or controlled by the participant.

5.11. Participants who are unable to provide this evidence or procure the relevant rights of access from third parties may not be granted accreditation or may be subject to subsequent enforcement action as set out in volume 2, chapter 13.

5.12. Participants will also be required to agree to upfront, as well as annual declarations which confirm that the participant is not generating heat for the predominant purpose of increasing their RHI payments.

Ineligible heat uses

5.13. **Please note** the RHI Scheme Regulations 2018[39] introduced new restrictions on heat uses that fall within the definition of "eligible purposes". Such heat uses include drying.

5.14. In accordance with the Regulations, any use of heat that is not supplied to an eligible purpose is supplied to an ineligible purpose and is therefore ineligible for RHI support[40]. Some specific uses of renewable heat, which would fall under the list of eligible purpose, are classified as "excluded heat uses" by the Regulations, and these are listed further down in this section. These examples do not constitute an exhaustive list of all ineligible purposes.

5.15. An installation can be eligible for the RHI if it supplies heat to one or more ineligible purposes in addition to at least one eligible purpose. However, meter readings and heat output data submitted to us for RHI payment purposes must not include any heat that has been used for ineligible purposes.

5.16. For example, an installation 'pre-heating' a liquid subsequently heated by a further fossil fuel plant would generally be regarded as eligible, providing meter readings and heat output data submitted for RHI payment purposes did not include heat generated by the fossil fuel plant or the heat used for ineligible purposes. Examples of such pre-heating practices are given in metering examples in the RHI guidance document 'Metering Placement Examples' (if you are applying for accreditation on or after 24 September 2013) or RHI guidance document 'Metering Eligibility Requirements for Participants who have a date of accreditation before 24 September 2013'.

[38] Regulations, Part 4, Chapter 3, Regulation 43(p)
[39] http://www.legislation.gov.uk/all?title=renewable%20heat%20incentive
[40] Regulations, Part 1, Regulation 2, definition of "ineligible purpose"

5.17. The following heat uses are considered ineligible heat uses:

- Cooling generated by heat pumps run in reverse. Cooling itself is not eligible for payments, but the heat extracted during cooling can be transferred to the ground and become an eligible *source* of heat for the heat pump. See chapter 8 for further details.

- From the point where it is metered for the purposes of calculating RHI support, renewable heat must not be used to generate electricity[41]. This is also the case if the heat is delivered to a third party who uses the heat to generate electricity. Where renewable heat has been used to generate electricity in a renewable CHP system, i.e. electricity is generated and then the waste (renewable) heat from this process is subsequently used for an eligible purpose as set out in the 'Eligible heat uses' section above, this renewable heat is eligible for RHI support providing all other eligibility requirements are satisfied.

- Process internal heat (sometimes referred to as 'parasitic loads'), i.e. heat that is subsequently used in the generation of heat, is normally not eligible for RHI support. For example, steam used for pre-heating or de-aeration of feedwater, and

- Condensate / steam returns to an installation are not eligible for support[42]. Process internal heat uses not covered in this guidance document will be treated on a case-by-case basis. If you believe that your installation has such a heat use, please contact us. Chapter 13 sets out more detail of how internal heat should be accounted for when providing us with meter readings and heat output data.

5.18. Any heat that is rejected from a system and not subsequently used for eligible purposes, or vented directly to the atmosphere, for example through a heat rejection facility of a CHP system or a heat dissipation circuit of a solar thermal system, is not eligible for RHI support.

5.19. Heat transferred to the ground by a heat pump during cooling will not be eligible for payments but can become an eligible *source* of heat for the heat pump.

5.20. If an installation has a date of accreditation on or after 24 September 2013, heat loss through external heat distribution piping (e.g. to transport heat between buildings, or between a standalone boiler and a building) where the piping is not 'properly insulated'[43] or where the piping is more than 10m in length and the average annual heat loss from the piping is calculated as being 3% or more of the projected annual heat output of the plant[44], is also not seen as serving an eligible use and as such RHI payments cannot be made in respect of the heat lost. See chapter 13 'Metering eligibility requirements' for more details if you are an applicant applying for accreditation on or after 24 September 2013. Alternatively see RHI guidance document 'Ongoing Metering Eligibility Requirements for Participants Accredited before 24 September 2013' if you applied for accreditation or were accredited before this date.

5.21. The Regulations also set out certain conditions that must be met, in order for the heat loss by any pipework between buildings not to be discounted for RHI payments. For more details on this, please see chapter 13.

[41] Regulations, Part 1, Regulation 2, definition of "process"
[42] Regulations, Part 2, Chapter 3, Regulation 22 & Part 7, Regulations 64 and 65
[43] Regulations, Part 1, Regulation 2, definition of 'properly insulated'
[44] Regulations, Part 7, Regulation 75 'Calculation of heat loss in certain circumstances'

5.22. Heat must be used for eligible purposes within a building with the exception of those specific processes used other than in a building detailed above. As such, renewable heat generated to meet the heat loads described below would not be eligible for the RHI:

- heating of external surfaces to prevent frost or mitigate the effects of cold temperatures[45]
- underground heating of open external spaces, e.g. recreational facility
- heating of open air, e.g. partially enclosed swimming pools.

5.23. In addition to the above, the RHI Scheme Regulations (2018) introduced new rules regarding the following heat uses:

- Digestate drying
- Woodfuel drying
- Heat use in domestic premises
- Drying, processing or cleaning of waste
- Heating of swimming pools

5.24. These new rules are set out in more detail below and will apply to all installations with a date of accreditation on or after 22 May 2018, any additional capacity added to an accredited installation on or after 22 May 2018 and any heat uses added to an existing accreditation on or after 22 May 2018. Additional metering may be required in cases where new heat uses are added to an accredited installation to ensure all the heat used for eligible purposes is adequately quantified.

Digestate drying

5.25. Heat used to dry digestate will not be eligible for RHI support.

5.26. The regulations define digestate as "*any substance, except biogas, which is generated from a biogas production plant producing biogas by anaerobic digestion*".

Woodfuel drying

5.27. Heat used to dry woodfuel will not be eligible for RHI support. The regulations define woodfuel as "*any wood which is intended to be burned, including in particular: woodchip, logs, pellets, briquettes and waste wood including sawdust, irrespective of whether the wood will undergo any other process before burning*".

5.28. Ofgem will request evidence from applicants that demonstrates the wood which is being, or is intended to be, dried is not woodfuel.

5.29. There are two circumstances under which installations with a date of accreditation on or after 22nd May 2018 and/or additional capacity added on or after 22nd May 2018 can receive RHI support for heat used to dry woodfuel.

5.30. This first circumstance only applies in cases where the applicant, or participant, demonstrates their installation meets all of the criteria (a)–(c) listed below. It is the responsibility of the

[45] Trace heating of insulated piping will in general be regarded as an eligible use.

applicant, or participant, to provide the evidence necessary to satisfy Ofgem the criteria set out below are met. Where possible, we have indicated the type of evidence we would expect to receive for each criterion. Applicants or participants may wish to seek their own legal or technical advice to determine whether they meet the criteria set out below.

(a) The installation, or additional capacity, replaces a fossil fuel heat source which has been used to dry woodfuel in two out of the three preceding years. Evidence to demonstrate this may include fuel bills for the fossil fuel derived heat, invoices for the original fossil fuel heat source and evidence of heat uses throughout two of the three preceding years.

(b) The installation will meet a heat demand for commercial woodfuel drying that has existed previously in any of the two of the proceeding three years. Evidence to demonstrate this may include invoices or similar commercial documentation that shows woodfuel has been dried on a commercial basis previously and that there was a demand for this woodfuel in two out of the three preceding years.

(c) The capacity or heat output, or both, of the installation is not more than 10% above that of the fossil fuel heat source it replaces. Evidence to demonstrate this may include a manufacturer's technical specification of the installation and other similar technical information regarding the capacity, heat output of both of the fossil fuel heat course and the new installation for which accreditation is being sought.

5.31. The second circumstance only applies in cases where the applicant, or participant, demonstrates that the development of their installation, or additional capacity, commenced before 29 January 2018. In addition, the applicant or participant must submit a properly-made application for accreditation no later than six months after the 22 May 2018.

5.32. Ofgem will request evidence from the applicant that demonstrates the development of the installation started before 29 January 2018. It is the responsibility of the applicant, or participant, to provide the evidence necessary to satisfy Ofgem the development of their installation before 29 January 2018. Ofgem will request evidence that the following criteria are met:

- Evidence that any necessary planning permission has been granted or is not required
- Evidence of the construction costs of the installation
- Evidence that any necessary equipment has been ordered or received and paid for
- Any other form of evidence Ofgem may request that demonstrates the development of your installation commenced before 29 January 2018.

5.33. Applicants or participants may wish to seek their own legal or technical advice to determine whether they meet these criteria.

5.34. Evidence that planning permission has been granted or is not required must be dated prior to 29 January 2018. Such evidence may take the form of a letter from the relevant authority.

5.35. Where possible, independent evidence of construction costs and timelines of the development of the installation should be provided to Ofgem.

5.36. Evidence used to demonstrate that any necessary equipment has been ordered or received and paid for must be dated and clearly demonstrate that equipment was ordered, or received and paid for prior to 29 January 2018. Such evidence may include invoices, delivery notes, and commercial contracts.

Heat used in domestic premises

5.37. As of 22 May 2018, installations which generate heat predominantly for the use of one domestic premises will not be eligible to apply for the Non-Domestic RHI.

5.38. Applicants of installations that are providing heat to a single domestic premises as well as a non-domestic use, must satisfy Ofgem that heat generated by their installation and will not be predominantly used for domestic purposes.

5.39. Measures may be taken to continually monitor the amount of heat used for the single domestic premises, and depending on your case, we may require you to meter that domestic premises separately.

Drying, processing or cleaning of waste

5.40. Heat used to dry, process or clean waste will not be eligible for RHI support.

5.41. Waste has the meaning given in Article 3(1) of Directive 2008/98/EC of the European Parliament and of the Council on waste of 19 November 200843 and includes excrete produced by animals. This Article provides the meaning of waste as "any substance or object that the holder discards or intends or is required to discard".

Heating of swimming pools

5.42. Heat used to heat water in a swimming pool will not be eligible for RHI support, unless the swimming pool is used for a municipal or commercial purpose. Ofgem will require evidence that swimming pools are used for a municipal or commercial purpose.

Buildings and enclosed structures

5.43. The Regulations define a building as 'any permanent or long-lasting building or structure of whatever kind and whether fixed or moveable which, except for doors and windows, is wholly enclosed on all sides with a roof or ceiling and walls'. The definition therefore has two main components: whether the building is permanent or long-lasting, and whether it is wholly enclosed. We explain below how we will interpret these two components; **you will need to ensure that your building meets both criteria**.

5.44. We will ask for information about the building(s) in which the heat is used as part of the accreditation process. To illustrate how we will apply this definition of a building in practice, we include below some indicative examples relating to both parts of the definition. These are not intended to be comprehensive and we will look at other situations on a case-by-case basis to assess whether the definition in the Regulations is met.

5.45. In assessing whether a building or structure meets the requirement that it is '**permanent or long-lasting**', we shall consider all the relevant circumstances. Considerations may include:

- the length of time for which it is expected that the building or structure will remain in its location
- the materials from which the building or structure (including any associated foundations) are constructed

[43] OJ No L 312, 22.11.2008, p3

- the degree to which the building or structure is designed to be moved and the extent of works required to effect its removal.

5.46. In considering the length of time for which a building or structure is expected to remain in its location, we would not generally consider any building which would be eligible for exemption from the energy efficiency requirements of Schedule 1, Part L of the Buildings Regulations 2010, to be 'permanent or long-lasting'. This is on the basis that it has 'a planned time of use of two years or less'[46]. In addition, we may also consider a claim for capital allowances on a moveable building[47] as an indication that this building is not expected to remain in a single location on a 'permanent or long-lasting' basis.

5.47. Based on the above, we would normally consider that tents, polytunnels and similar structures which are erected on a temporary basis are not eligible because they do not meet the criterion of 'permanent or long-lasting building or structure'. However, moveable buildings or structures which are constructed with a view to having a long period of use such as porta-cabins, static caravans, greenhouses and shipping containers could be regarded as 'permanent or long-lasting' provided they are expected to remain in the same location for a sufficiently long period of time.

5.48. Structures which are erected outdoors but are themselves '**wholly enclosed on all sides with a roof or ceiling and walls**' such as distillation columns and silos would be eligible. This interpretation would generally extend to situations where a number of 'wholly enclosed' structures are erected outdoors on the same site; for example, where a chemical or industrial processing facility comprises a series of 'wholly enclosed' structures joined by sealed piping. This is subject to each individual structure meeting the requirement that it is 'permanent or long-lasting' (see our guidance above) and 'wholly enclosed' (see our guidance below in this section on apertures which are not windows and doors). It must also be shown that the eligible heat use e.g. the carrying out of a process is contained within the relevant structure(s).

5.49. Where heat is used for an eligible purpose within a series of 'wholly enclosed' structures which make up a chemical or industrial processing facility, each such structure would normally be treated as a separate 'building' for RHI purposes. Open structures such as uncovered tanks, reservoirs and channels would be excluded from the definition of building. We also interpret the requirement that buildings or structures should be 'wholly enclosed on all sides' to mean that structures with open sides (such as barns, car ports, covered terraces etc) and with retractable roofs are ineligible. A building or structure where one or more of its four walls contains a window or door which is significant in proportion to the area of the wall (such as retail shops with display windows, cafes with patio doors, loading bays and docks, garages etc.) could therefore still be regarded as wholly enclosed.

5.50. In interpreting the requirement for 'wholly enclosed', we shall also take a pragmatic approach to the existence of apertures in walls, ceilings or roofs which are not doors or windows (such as vents, flues, air intakes etc.), provided that these are small in size and number relative to the area of the wall, ceiling or roof and do not, in our opinion, permit the significant escape of heat

[46] Regulation 21(3)(c), Building Regulations 2010.
[47] Under Capital Allowances Act 2001, s. 23, List C, item 21.

6. Solar thermal

Size eligible	Installations <200kWth.
Preliminary accreditation?	N/A
Tariff Guarantee available?	No
Eligible criteria	• Collector type must be flat plate or evacuated tube.
Integral equipment usually included in the definition of 'eligible installation'	• Solar collectors (evacuated tubes, flat plates). • Pipes and pump circulating between collector and heat exchanger.
Equipment not included in the definition of 'eligible installation' (and see also 4.10)	Associated roof fixings.
Requires MCS or equivalent scheme certification for installations of 45kWth or less?	Yes.

General eligibility

6.1. The total installation capacity of a solar thermal installation must be lower than 200kWth. For further information on how to determine your installation capacity, please see the 'Installation Capacity' section in chapter 4.

6.2. Where the capacity of a solar thermal installation is not easily identifiable you will be required to provide evidence of how the capacity has been calculated. Please note that this evidence should include the total aperture area of the solar thermal installation.

6.3. Only solar thermal installations comprising liquid filled flat plate or evacuated tube solar collectors will be eligible for RHI support. Other types of solar thermal technologies, such as solar wall or transpired solar thermal panels, solar thermal parabolic and trough collectors are not eligible under the RHI.

6.4. Any solar thermal installations of 45kWth or less must be certified under the MCS or equivalent scheme. See section 'Microgeneration requirements (installations of 45kWth or less)' in chapter 4 for further information. Where the heat transfer medium being measured by a heat meter is of a non-standard composition (e.g. glycol/water mixture), the heat meter will need to be suitable for use with this fluid composition and have been calibrated accordingly.

6.5. For clarity, hybrid solar photovoltaic-thermal (PVT) systems will be eligible for RHI support in respect of their heat output only, provided that the thermal output of the system is separately rated in kWth, there is separate thermal metering and the solar thermal aspect of the technology is either a liquid flat plate or evacuated tube type system.

7. Geothermal energy

Size eligible	All scales.
Preliminary accreditation?	Yes
Tariff Guarantee available?	Yes
Summary of eligibility criteria	To count as geothermal, must generate heat using naturally occurring energy located and extracted from at least 500m beneath the surface of solid earth.
Integral equipment usually included in the definition of 'eligible installation'	Determined on a case-by-case basis.
Equipment not included in the definition of 'eligible installation' (and see also 4.10)	Determined on a case-by-case basis.

General eligibility

7.1. Geothermal systems at all scales, including CHP systems, will be eligible for support under the RHI. Geothermal systems are defined as those generating heat using naturally occurring energy in the form of heat located and extracted at least 500 meters below the surface of solid earth. Installations extracting naturally-occurring energy from the ground at a depth of less than 500m will be classed as a ground source heat pump for the purposes of the RHI and must meet the heat pump eligibility requirements.

7.2. There is no requirement for geothermal systems to be certified under the MCS or equivalent scheme.

8. Heat Pumps

Size eligible	All scales.
Preliminary accreditation?	GSHP Installations a ground source heat pump with an installation capacity >100kWth; air source heat pump with an installation capacity >45kWth; a shared ground loop system with an installation capacity >100kWth
Tariff Guarantee available?	GSHP Installations >= 100kWth. Shared Ground Loop Systems >= 100kWth.
Eligible criteria	**Air to water[48]:** • Must generate heat by absorbing energy stored in the form of heat in the ambient air. • Must not be designed to provide cooling or to use heat which has been expelled from a building or from a process which generates heat. • Must have a Coefficient of Performance of at least 2.9 and a design Seasonal Performance Factor of at least 2.5. • Must measure electrical input to the heat pump system. **Ground and water source:** • Must have a Coefficient of Performance of at least 2.9. and a design Seasonal Performance Factor of at least 2.5. • Reversible heat pumps must only measure heating. • Capacity of heat pumps to be specified based on design conditions. • Must measure electrical input to the heat pump system. • Must use only 'naturally occurring energy' to generate heat (see further details on this) Shared Ground Loop Systems • More than one heat pump utilising a ground loop, accredited on or after 22 May 2018 • Heat pumps will require metering if heat use is for a non-domestic purpose • For single heat pumps heating a single domestic property, the heat use will be considered 'domestic' and payments for those heat pumps will be calculated on a deemed heat use basis.

[48] The Regulations refer to this technology as "air source heat pump". However, since liquid or steam must be the medium for delivering heat, it is only air to water heat pumps which are eligible, not air to air.

Equipment usually included in the definition of 'eligible installation'	**Air to water:** Heat pump unit including evaporator and condenser. **Ground and water source and shared ground loop systems:** Heat pump unit including evaporator and condenser, compressor, internal valves and controls. • Any pumps / pumping equipment used within the ground loop or to transport water to the external heat exchanger. • Ground or water loops
Equipment not included in the definition of 'eligible installation'	See 4.10.
Requires MCS or equivalent scheme certification for installations 45 kWth or lower?	Yes (ground source, water source and air to water). MCS required for individual heat pumps utilising a shared ground loop [E.g. a 100kWth SGL made of 4 x 25kWth heat pumps would need MCS certification for each despite the overall capacity being above 45kWth].

General eligibility

8.1. Ground and water source heat pumps of all scales that utilise heat sourced from naturally occurring energy stored in the form of heat in the ground, including water in the ground, or surface water are eligible for the RHI, provided that the heat is subsequently transferred by liquid or steam.

8.2. In the case only of those heat pumps where an application for accreditation was made on or after 28 May 2014 and the plant was first commissioned on or after 4 December 2013, the following sources of heat[49] can be used in addition to naturally occurring energy:

a) solar energy gathered by any means (other than by a solar collector which is an accredited RHI installation) and is stored in the ground in the form of heat;

b) heat from space cooling or process cooling; or

c) heat from processes other than heat generation.

8.3. Where an application for accreditation was made before 28 May 2014 and/or the plant was first commissioned before 4 December 2013, only naturally occurring energy is an eligible source of heat. In such cases, appropriate reductions in the eligible heat output would need to be made if any ineligible sources are used. Further information is available on our website[50].

8.4. Where an application for accreditation was made on or after 22 May 2018, if one or more heat pumps (GSHP or WSHP) is utilising a ground loop, then this is classified as a shared ground loop (SGL) system. Please see the Easy Guide to Shared Ground Loops (available on our RHI website) for more information on SGLs.

[49] Please note we intend to consult on the approach we will take with regards to 'recovered heat'. Please see our website for further detail.

[50] https://rhi.ofgem.gov.uk/

8.5. Ground source heat pumps generating heat from naturally occurring energy located and extracted from at least 500m below the surface of solid earth are classed as **geothermal** installations for the purposes of the RHI. Please see the 'Geothermal energy' section above for information pertaining to such installations.

8.6. Some ground or water source heat pumps may have a simultaneous operation in which heat extracted during the cooling process is used directly for heating elsewhere on the heating system, by-passing the ground loop. For installations capable of this operating mode they will be required to measure the heat drawn from the ground. Only heat extracted from the ground is eligible for RHI payments. Further details can be found in chapter 13.

8.7. Air to water heat pumps of all scales that are:

- not designed for cooling, and
- not designed to use heat in the air which has been expelled from a building or directly from a process which generates heat
- are eligible for the RHI, providing that the heat is subsequently transferred by liquid or steam[51] (This includes open loop heat pumps).

8.8. Air to air heat pumps and exhaust air heat pumps are not eligible for the RHI. For a brief description of each of the different types of heat pump, please refer to DECC's RHI Policy Document[52].

8.9. Ground, water source and air to water heat pumps with an installation capacity of up to and including 45kWth must be certified under the MCS or an equivalent scheme. For further information about MCS certification, see section 'Microgeneration requirements (installations of 45kWth or less)' in chapter 4. Please note that for heat pumps on a shared ground loop, MCS certification is required for each heat pump that is under or equal to 45kWth.

8.10. If your installation is MCS certified, you will be requested during the application process to upload your MCS Compliance Certificate to the RHI application form so that details can be verified against this.

Installation capacity for ground source and water source heat pumps

8.11. A declaration regarding the installation capacity of heat pumps must be provided by the installer, or other appropriately qualified professional to the applicant. This declaration will be required as part of the application for accreditation. See paragraphs 8.44 to 8.49 and chapter 4 for further details. Note that the capacity will affect the tiered payments made to participants. See volume 2 for further details on how payments will be calculated.

Heat pumps with integrated electrical immersion

8.12. Heat pumps provided as a single unit with an integrated electrical immersion heater are eligible for the RHI. The primary functions of the electrical immersion should be to provide top up heat as required during high demand periods or boosting hot water temperature for the thermal disinfection of legionella bacteria as required.

8.13. Where the heat pump installation has an integrated immersion heater, you will need to declare

[51] Regulations, Part 2, Chapter 2, Regulation 10

[52] https://www.gov.uk/government/consultations/renewable-heat-incentive-expanding-the-non-domestic-scheme

this within the application. In these cases, where practical, you will be expected to account for the electrical input to the immersion heater and deduct this. Electrical consumption of an integrated immersion heater could be metered separately or calculated through logging its hours of use via the heat pump control unit and multiplying by the rating of the immersion. Where this is not possible, you may need to measure overall electrical input. Please contact us for further information where you have an integrated immersion heater - we will keep the approach to these under review in the light of experience during the operation of the scheme.

8.14. Where larger scale heat pumps, e.g. where >20kWth capacity individual units are proposed to be used, then we will seek a clear explanation from the applicant why an integrated immersion is specifically required for the installation.

8.15. Heat supplied to a heating system from a non-integrated electric immersion heater will not receive RHI tariff payments. Where a non-integrated immersion heater is utilised, heat meters should be located suitably to exclude any output from the immersion heater.

Coefficient of performance (COP)

8.16. In addition to the general eligibility criteria outlined above, the Regulations require all heat pumps to have a coefficient of performance (COP) of at least 2.9[53] The COP is defined in the Regulations as 'the ratio of the amount of heating or cooling in kilowatts provided by a heat pump to the kilowatts of power consumed by the heat pump'[54].

8.17. To ensure only heat pumps that meet the required COP are accredited to the scheme, we will ask for a statement of the heat pump's COP and supporting evidence as part of the RHI accreditation process. Please see the 'Evidence of COP required during application for RHI accreditation' section below which outlines the types of supporting evidence that will be acceptable.

8.18. If you are applying for accreditation and your installation is comprised of more than one heat pump unit then please first see the 'How to apply when you have multiple plants' section in chapter 2 for more information on how to determine whether you should apply for accreditation for each plant separately or as a single installation, where one or more heat pump units is to be treated as a single installation for the purposes of the RHI. As each component plant must meet the eligibility criteria, each unit will need to have a COP of 2.9 or above for the installation to be eligible. Where all the units comprising an installation are of the same make and model, we will only ask you to provide this information once.

Evidence of COP required during application for RHI accreditation

8.19. We expect applicants to provide evidence that the COP has been determined in accordance with accepted industry good practice. For electrically-driven heat pumps where a natural refrigerant is not used, the EN 14511 standard sets out appropriate conditions under which the COP should be determined. The COP figure stated should be as per the 'standard' rating result conducted to the rating conditions available within table seven of the EN 14511 standard.

8.20. For other types of heat pump where no European Standard has been issued, we would expect participants to provide details of the test conditions under which the stated COP has been determined, including reference to any industry standard or guidance which has been adhered

[53] Regulations, Part 2, Chapter 2, Regulation 9(1)(e) and 10(c)

[54] Regulations, Part 1, Regulation 2, definition of "coefficient of performance"

to, and the basis on which the participant considers this approach indicative of good practice. For natural refrigerant (CO_2) heat pumps, the MCS007 standard may be considered equivalent. Where more than one standard could be used, we would expect participants to use that which is most appropriate for the standard operating conditions of the heating system to which the installation will supply heat.

8.21. Alternatively, a 'performance curve' or table for COP at various rating conditions, produced under EN 14511 test conditions would be considered suitable evidence to verify the COP figure stated within the RHI application. This information is often included within manufacturer's technical specifications for the heat pump unit.

8.22. If the heat pump name plate specifies the COP under the standard rating conditions, a photograph of this should be uploaded to the application form. This would be enough evidence to verify the COP in most cases.

Suitable forms of evidence for bespoke heat pumps

8.23. For bespoke heat pumps, i.e. those where the constituent components are tailored by the manufacturer or installer to meet the client's needs, there may be no standard technical documentation to evidence the installation's COP and installation capacity. For these installations applicants should provide a copy of either:

- documentation from a recognised test house stating the heat pump COP at standard rating conditions, including a statement of the test conditions at which the COP was determined.
- design/modelling calculations or commissioning data reflecting the actual design conditions of the installation, signed off by the manufacturer or installer setting out the expected heat pump COP and installation capacity. This should clearly state the heat pump COP and provide technical justification for this figure, including justification for the conditions at which the COP was calculated

8.24. In addition to the specific evidence set out above, we expect participants to retain evidence relating to the heat pump's design and installation, for example commissioning data.

Design Seasonal Performance Factor (SPF)

8.25. For applications made on or after 28 May 2014, the heat pump must be designed and installed to operate with a design seasonal performance factor of at least 2.5.

8.26. The SPF is defined in the Regulations as "the ratio of [the heat pump's] heat output to electricity input expressed as an average over a year".

8.27. The design SPF of the heat pump will need to be determined by the installer using a specified methodology.

8.28. For applications made on or after 22 May 2018, the shared ground loop system must be designed and installed to operate with a design seasonal performance factor of at least 2.5.

Suitable forms of evidence for design SPF

45kWth and under

8.29. For installations which are 45kWth and under, a declaration from the installer that the SPF

was calculated in line with the methodology used in:

- version 2.0 of the document entitled 'Heat Emitter Guide for Domestic Heat Pumps' published on 21 November 2014; or
- From 26 September 2015[55]: Version 1.0 of the document entitled 'MCS 026 Seasonal Coefficient of Performance Calculator' published on 1 May 2015[56].

Over 45kWth

8.30. For installations greater than 45kWth, applicants need to ask their installer to complete the relevant section of the Installer Declaration (the template is available on our website[57]). This declares the calculated design SPF, which standard or method they have used to make the calculation and that they have given the supporting calculations to the applicant.

8.31. The design SPF calculations may be requested during the application process and at any time post-accreditation. The calculations will be reviewed to ensure they have been carried out appropriately, which will include checks of the methodology, the inputs to the calculations and the underlying assumptions and how they relate to the specifics of the installation and associated heat uses.

8.32. Different standards or methods may be used depending on whether the system is for space heating, water heating, process heating, or a combination. As described in Annex C of DECC's consultation response document[58], possible standards that can be used are EN 14825 for space heating-focused systems and EN 16147 for hot water systems. EN 14825 refers to the 'Seasonal Coefficient of Performance' (SCOP), and the calculations are outlined for both the active mode SCOP (SCOPon) and the net SCOP (SCOPnet) as defined in that standard. For the purpose of the RHI, the calculation of the SCOPon or SCOPnet would satisfy the requirement for the design SPF calculation.

8.33. The requirement for the design SPF to be a minimum of 2.5 is applicable to whichever boundary you use, or to the SCOPon or SCOPnet.

8.34. If you need to use more than one method due to different uses of the heat (i.e. space and water) then the one value for the design SPF should be an average. We would normally expect this to be a weighted average based on the heat demand over the year. For example, if the space heating SPF is 3.5 and the water heating SPF is 2.8, and approximately 70% of the heat is used for space heating, and 30% for water heating:

8.33. Design SPF = (3.5 x 0.7) + (2.8 x 0.3) = 3.3

8.34. You will need to retain the calculations from the installer as they may be requested at the accreditation stage or for audit purposes. Based on industry feedback, some factors that we would take into consideration in assessing the calculations are listed below. We invite further feedback on whether these are appropriate and suggestions of further important factors that should be included in design SPF calculations, and we may update our guidance in light of such feedback or as industry codes and standards evolve:

[55] This is the date from which the relevant amendment to the Regulations comes into force: http://www.legislation.gov.uk/uksi/2015/1459/contents/made

[56] Details of which are available at www.microgenerationcertification.org

[57] https://www.ofgem.gov.uk/environmental-programmes/non-domestic-renewable-heat-incentive-rhi/how- apply-non-domestic-rhi

[58] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265855/Non-Domestic_Renewable_Heat_Incentive_-_Improving_Support_Increasing_Uptake_-_PUBLISHED.pdf

- The specific design SPF that has been calculated. i.e. SCOPon, SCOPnet, boundary H2 (please see 8.30 for further details), etc.
- Climatic data, or reference heating season used
- Expected heat demand for the heat pump, and design temperature used for the heat demand calculation
- Bivalency point used (explain which heat sources this is in relation to and how heating is to be provided if the bivalency point is greater than the design temperature)
- All other pertinent information that would be reasonably required by us to understand the assumptions and methodology

Seasonal Performance Factor Ongoing Measurement

8.35. In addition to the minimum design SPF requirement, it is also a requirement for applications made on or after 28 May 2014 that the electrical input to the heat pump system is measured and quarterly readings are provided. This is to enable the SPF to be calculated on an ongoing basis for monitoring purposes. The readings will not affect payments or eligibility.

8.36. We will ask you to provide information on what is being measured in the application form. You will be asked to select which 'boundary' you are using for the electrical input measurement (see Figure 4):

- Boundary H2: measuring heat pump and source pump/fan
- Boundary H3: measuring heat pump, source pump and integrated electric heater
- Boundary H4: measuring heat pump, source pump, integrated electric heater (if present) and integrated distribution system components

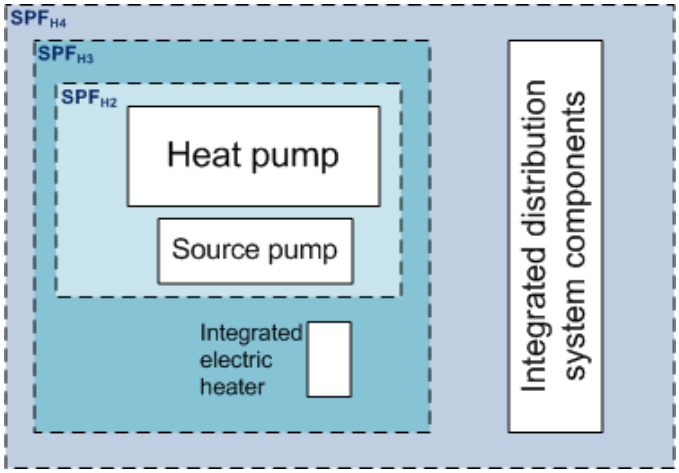


Figure 4: Heat pump boundaries for electrical input measurement

8.37. If the heat pump has an integrated electricity meter(s) that measures the required electricity input, this can be used. Otherwise, external electricity meter(s) should be appropriately

installed in order to measure the required input. NB. The same meter may also be required for you to work out your eligible heat output. It is fine to have more than one electricity meter - we will only need details of those that are needed to measure the total electrical input.

8.38. If you have multiple plants as part of your installation, the total electrical input to all plants will be required. You may have components external to the heat pump that are in between the heat pump and the heat meter(s) that require an electrical input, such as circulation pumps or motorized valves. These do not need to have their electrical input measured.

8.39. If the heat pump is capable of cooling, the measured electrical input should be only for the periods where the heat pump is providing heating, where this is possible. The electricity meter(s) readings will need to be provided every quarter as part of periodic data, but you will not be required to carry out any SPF calculations yourself.

8.40. No extra heat meters should be installed in order to calculate the SPF. The heat meter(s) installed in order to calculate the eligible heat output for payments will be used for the 'heat output' value required in the SPF calculation.

8.41. For installations with a standard metering arrangement, and where eligible heat use is being measured rather than eligible heat generation, an extra heat meter does not need to be installed to measure the generation. The eligible use meter(s) will be used as a proxy measurement for heat output.

Simultaneous heating and cooling heat pumps

8.42. Some ground or water source heat pumps may have a simultaneous operation in which heat recovered during the cooling mode of the heat pump is used directly by the heat pump for heating elsewhere on the heating system, by-passing the ground loop. Direct recovered heat is not eligible for RHI payments so these systems must be metered such that Ofgem can determine what heat has circulated the ground loop.

8.43. For these installations, the heat drawn from the ground must be measured[59]. If the heat pump has an integral meter capable of measuring this to an appropriate accuracy, this can be used. Otherwise, a heat meter of an appropriate accuracy should be installed on the ground loop. This must be capable of distinguishing between the heat drawn from the ground and the heat transferred to the ground. An example of how this could be achieved is by the connection of the heat meter to a building management system (BMS). This measurement is for monitoring purposes and will not affect payments.

8.44. Where a heat meter is installed, the components should be shown on the system's schematic diagram. The meter installed should be appropriately specified and calibrated for the installation-specific solution in the ground loop.

Reversible heat pumps

8.45. Air to water heat pumps that are designed to provide cooling are not eligible for the RHI. It is common, especially at the larger scale, for ground and water source heat pumps to run in reverse in the warmer months to generate cooling. Such reversible ground and water source heat pumps are eligible for the RHI, but only the heating generated is eligible for RHI support. As set out in the RHI Policy Document[60] any cooling generated by operating the heat pump in reverse is not eligible for RHI support. Therefore, heat pumps that will only be used

[59] Regulations, Part 2, Chapter 3, Regulation 25

[60] Department for Energy and Climate Change (DECC) RHI Policy Document, March 2011, p36.

for generating cooling are not eligible for the RHI.

8.46. In accordance with the Regulations, participants must therefore ensure their meters are able to measure the heat eligible for RHI payments. This may require the measurement of the cooling generated in order to discount it such that RHI payments are not received on the cooling[61]. We may ask for evidence that this is the case, either as part of the accreditation process or at any time once an installation has been accredited. Further information on meter placement for reversible heat pumps can be found in the RHI guidance document 'Metering placement Examples' (if you are applying for accreditation on or after the 24 September 2013).

Determination of heat pump installation capacity

8.47. The installation capacity of a heat pump installation should be determined based on the operational design conditions. The relevant temperature conditions of the operational point should be stated in the application.

8.48. For packaged heat pump units the heating output (kWth) can be evidenced through provision of a manufacturer's technical specification highlighting heating output at different operational points. The heating output for the heat pump unit, or each individual unit where multiple plants are present, should be calculated based on the nearest operational conditions for that unit as tested by the manufacturer. A 'performance curve' or table for heating capacity at various rating conditions, produced under EN 14511 test conditions would be considered suitable evidence to verify the installation capacity figure stated within the RHI application. This information is often included within manufacturer's technical specifications for the heat pump unit.

8.49. For all ground source and water source heat pumps, applicants will need to ask their installer to complete the relevant section of the Installer Declaration (the template is available on our website) to provide assurance that the size of the heat pump has been determined appropriately for the planned heat use.

8.50. For ground source and water source heat pumps which are capable of cooling, the capacity submitted must be based on the design heat load. This is defined in the Regulations as 'the heat flow required to achieve the planned heating requirements for that plant. The calculations carried out by the installer for the design heat load must be in accordance with EN 12831. The design heat load calculations may be requested during the application process and at any time post-accreditation. The calculations will be reviewed to ensure they have been carried out appropriately, which will include checks of the methodology, the inputs to the calculations and the underlying assumptions and how they relate to the specifics of the installation and associated heat uses.

8.51. Applicants will need to ask their installer to complete the relevant section of the Installer Declaration (the template is available on our website) confirming the design heat load has been calculated in accordance with EN 12831, providing details of the outdoor temperatures used in the calculation and confirmation that the calculations have been given to the applicant. The declaration template can be found on our 'How to apply' page. You will need to retain the calculations from the installer as they may be requested for audit purposes.

8.52. Where an installation comprises multiple heat pump units and (as per chapter 2, 'How to apply when you have multiple plants') these are to be treated as component plants making up a single installation, then the overall 'installation capacity' will be the sum of the individual

[61] Regulations, Part 4, chapter 3, Regulation 45(3)

peak heat output of each unit.

8.53. For bespoke equipment, as part of the accreditation process you may have to provide us with technical evidence e.g. design data or simulation results, to verify the installation capacity stated.

Installer declaration

8.54. Ofgem is aware that in practice, for some heat pump projects, the functions of system specification, heat pump sizing, design heat load calculations, physical installation, and commissioning, may be conducted by different persons or organisations. For the purposes of the RHI each of these roles could be considered to be the installer for the purposes of the relevant section of the RHI declaration they are appropriately qualified to complete. In these cases, applicants will need to ask the appropriate professional to complete relevant sections of the Installer Declaration. The applicant should ensure that a separate version of the declaration is submitted for each signatory, and be satisfied that each signatory is able to agree to the declaration they have provided.

9. Solid Biomass (including solid biomass contained in waste)

Size eligible	All scales.
Preliminary accreditation?	Yes but only for installations with an installation capacity equal to or greater than 200kWth.
Tariff Guarantee available?	Yes for installations equal to or over 1MWth
Summary of eligibility criteria	• Fuel eligibility requirements • Valid emission certificate or environmental permit. **In waste:** • Must burn solid biomass contained in waste • Fuel eligibility requirements.
Integral equipment usually included in the definition of 'eligible installation' (see also paragraphs 4.7 – 4.13)	• Boiler (e.g. ignition equipment, heat exchanger, electrical wiring and controls, combustion chamber, grate, air control, housing/ container). • Piping required for the effective start up and shut down of the plant (e.g. back end loop/ valve). • Fuel feed equipment (e.g. auger, moving floor etc.) where these are likely to be integral to the operation of the plant. • Flue gas treatment equipment (where it is different to the equipment required for a comparable gas installation). • Fuel storage equipment (eg fuel hopper).
Requires MCS or equivalent scheme certification for installations of 45kWth or less?	Yes.
Equipment not included in the definition of 'eligible installation'	See paragraph 4.10.
Fuel Measurement and Sampling (FMS) questionnaire required?	Yes for (a) any installation with an installation capacity of 1MWth or greater and/or (b) any installation which uses solid biomass contained in in waste and/or (c) self-reporting against the sustainability requirements.

General eligibility

9.1. In addition to the general eligibility criteria, plants burning biomass, or biogas derived from biomass, must meet certain eligibility criteria specific to the technology type.

9.2. Biomass is defined as 'material, other than fossil fuel or peat, which is, or is derived directly or indirectly from, plant matter, animal matter, fungi or algae'.[62] Examples of fuels that often meet this definition include (but are not limited to):

- wood logs, chips and pellets
- straw and agricultural residues
- food waste
- paper/ pulp residues from the paper manufacturing process
- biomass residues from the food processing industry
- sewage sludge.

9.3. When referring to solid biomass or biogas produced from biomass, we mean that the fuel is, or is derived from, the material in the above definition.

Solid biomass boilers

9.4. All sizes of solid biomass boilers are eligible for the RHI.

'Solid'

9.5. Fuels need to be classed as 'solid' to be eligible for accreditation under this technology. If the fuel is gas, it would be eligible under the biogas technology category. Technologies using liquid fuel are not eligible.

9.6. 'Wet' fuels such as food waste could still be considered solids (i.e. where solids are contained in water).

9.7. Where there is doubt about whether a particular fuel which could be either solid or liquid, we will consider liquids as including the fuels listed in paragraph 2.3 of the 'Communication from the Commission on the practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels'.[63] Liquids therefore include viscous liquids such as waste cooking oil, liquid animal fats, palm oil, crude tall oil and tall oil pitch. We will also include fuels with similar properties to these as liquids.

9.8. We would consider the state of the fuel at the point of entry to the heat generating plant in determining whether the fuel is a solid or a liquid. For example, if solid biomass is melted before it enters the heat generating plant (using the definition of 'eligible installation' in section 'What is an installation' in chapter 4), and thus enters the heat generating plant as a liquid, then we would generally consider this to be a liquid. Equally, where a fuel enters the plant in a solid state, we would generally consider this to be a solid.

[62] Act, s. 100(3)
[63] Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:160:0008:0016:EN:PDF

Fossil fuelled and dual fuelled biomass plant

9.9. The government's policy is clear that no fossil fuel heat is to be supported, even in relation to channeling waste heat, as the role of the RHI is to promote progress towards targets under the EU Renewable Energy Directive. Where a fossil fueled plant is present, it may need to be metered separately and must not contribute towards the heat generation meter readings of the RHI eligible plant (please see chapter 13 for further information on meter placement). The fossil fuel derived element of any heat will not be eligible for support under the RHI. For example, heat generated by a biomass boiler where there is also a back-up oil boiler would be eligible, as long as the oil boiler was metered separately and excluded from the heat for which RHI support was claimed. Component plants that use renewable and fossil-fuels together in a single boiler and are not capable of separate metering are not eligible for the RHI.

General documents to keep

9.10. All biomass and biogas participants must keep planning permission documents, environmental applications and permits required under other legislation (such as the Environmental Permitting (England and Wales) Regulations 2010 or the Pollution Prevention and Control (Scotland) Regulations 2000) to submit at the accreditation stage.

Heat medium

9.11. A solid biomass installation must include a boiler to be eligible for the RHI. The Regulations provide that the installation's heat must be transferred through liquid or steam, and this liquid or steam must be metered (see chapter 13 for further information on this requirement). If the installation produces any direct air heating (such as from a stove), the installation may still be eligible if only the hot water component (e.g. from a 'back boiler') is metered. However, the installation would still need to meet the air quality requirements detailed below.

Solid biomass plants of 45kWth and under

9.12. Biomass plants of 45kWth and below must be certified under MCS or an equivalent scheme.

9.13. The Regulations do not provide that plants of this scale are permitted to burn any fossil fuel or biomass contaminated with fossil fuel at the plant (i.e. in the same boiler). It will therefore be a condition of accreditation that these biomass plants must use 100 per cent biomass fuels. It is acceptable to have fossil fuel boilers connected to the same heating system (although heat generated by fossil fuel boilers is not eligible for the RHI and should not be included in meter readings of the RHI installation's output).

Ancillary and contaminated fuels

9.14. Although the RHI is designed to support solid biomass fuels, there are allowable uses of fossil-derived fuels to generate heat. In solid biomass plants above 45kWth, fossil fuels are permitted for 'ancillary purposes', and solid biomass fuels contaminated with fossil fuels are permitted (e.g. wood which has been painted, and municipal waste containing plastic). But these uses are only allowed up to certain levels. These ancillary fuel uses and how they are measured are set out in chapter 13, as well as what evidence you need to keep on an ongoing basis;which is outlined in volume 2, chapter 4 of this guidance.

9.15. For the following installations:

- solid biomass (including CHP) 1MWth and above using these fossil-derived fuels in contamination or ancillary fuel use as described above
- any CHP installation where eligible heat is generated by specific combustion units (such that there are plants on the system from which the heat is not eligible on the RHI)
- energy from solid biomass contained in waste (including CHP)
- biomethane
- biogas produced by gasification or pyrolysis (including CHP) where the feedstock is solid biomass with fossil fuel contamination or where the feedstock is solid biomass in waste;

9.16. The RHI regulations state that participants using contaminated solid biomass must ensure the proportion of solid biomass in their fuel is at least 90 per cent by energy content in each quarterly period (i.e. the fossil fuel component must not exceed 10 per cent).

9.17. The measurement and sampling procedures used determine the proportion of contamination must be described by the applicant in the Fuel Measurement and Sampling (FMS) questionnaire submitted to us and agreed with us at the application stage.

9.18. The FMS questionnaires can be found on the RHI website[64] and more information on how to complete the questionnaire can be found in the document 'Fuel Measurement and Sampling Guidance'. Failure to submit a compl~~eted FMS que~~stionnaire may result in a delay in reviewing your application and subsequently a delay in making any RHI payments. We will agree FMS procedures on a case-by-case basis according to the setup and condition of each plant.

Air quality requirements

9.19. Air quality requirements for biomass boilers were introduced in September 2013. These requirements include: new eligibility criteria for applicants with biomass boilers; new ongoing obligations to ensure participants' boilers do not exceed a maximum level of particulate matter (PM) and oxides of nitrogen (NOx). PM and NOx are harmful pollutants caused by biomass combustion, but can be reduced by efficient operation of the installation.

[64] www.ofgem.gov.uk/rhi

Maximum permitted emissions	
Particulate matter	30 grams per gigajoule (g/GJ) net heat input[65] (Net heat input = the amount of heat over time that is supplied to the plant by the fuel used, and is based on the net calorific value of that fuel).
Oxides of nitrogen	150 grams per gigajoule (g/GJ) net heat input

Who do the air quality requirements apply to?

9.20. The air quality requirements apply to you if you have a biomass boiler (including if you are applying for the specific biomass CHP tariff) and:

- your application for the RHI was submitted on or after 24 September 2013, or
- you were a participant in the RHI before 24 September 2013 and you apply for additional capacity for your boiler on or after 24 September 2013.

9.21. The air quality requirements do not apply to you if your installation received preliminary accreditation before 24 September 2013 (and this has not been withdrawn), and you decide to apply for full accreditation.

How do I comply with the air quality requirements?

9.22. To meet the eligibility criteria your application must contain either a RHI emission certificate or an environmental permit. If you are providing an RHI emission certificate it must meet the three requirements set out below. If you are providing an environmental permit it must be in force and valid, and this alone will be sufficient to demonstrate compliance with the RHI air quality requirements. If your installation consists of more than one boiler you need to supply an RHI emission certificate or environmental permit for each boiler as appropriate. An exemption (such as a U4 exemption) does not meet the requirements for an environmental permit and therefore you would be required to provide a valid RHI emissions certificate.

What are RHI emission certificates?

9.23. RHI emission certificates must state that the boiler has been tested to meet the air quality requirements for the RHI. The Regulations specify three requirements:

1. It must be issued by a testing laboratory. The Regulations define testing laboratories as 'an organisation which carries out the testing of emissions from a plant either at permanent laboratory premises or away from those premises'.
2. If testing was done on or after 24 September 2013 the testing laboratory must have been accredited to ISO 17025 at the time of testing.
3. It must contain **all** the information in Schedule 1 of the 2018 Regulations.

9.24. We strongly encourage testing laboratories to use the 'RHI emission certificate' template when

[65] Net heat input means the amount of heat over time that is supplied to the plant by the fuel used. This is based on the net calorific value of that fuel.

issuing RHI emission certificates, which can be downloaded at the Ofgem RHI website[66] under the 'How to Apply' link. Issuing RHI emission certificates in a different format than the template may lead to delays in accreditation. Please see Appendix 2 for a copy of the RHI emission certificate.

9.25. Applicants should be aware that we may audit their RHI emission certificate to ensure the information it contains is valid and accurate, and that it meets all the regulatory requirements as described above. This will help to safeguard the scheme against fraudulent certificates.

What test standard should be used for my RHI emissions certificate and how will it affect the fuels I can use?

9.26. The RHI Regulations refer directly to a number of relevant standards for testing NO_x and PM (see paragraph 9 of Schedule 1). The following points aim to clarify the standards associated with testing and fuel classification for the RHI emissions certificate.

9.27. For applications made after 23 September 2013 you must only burn fuels in your solid biomass boiler which are consistent with those specified in your boiler emissions certificate(s) which you have submitted to Ofgem from the date you apply to the scheme. This includes the:

- fuel type (chip, pellet or log)
- origin (e.g. virgin, virgin-waste blend, waste) and;
- fuel moisture content.

9.28. For boilers that have been tested in accordance with BS EN303-5:1999, RHI emissions certificates will be accepted if the fuel is classed according to the property classes shown in Table 8 of that standard. The characteristics of the test fuel will have to be consistent with the details provided in Table 8. For example, B1 chipped wood would need to have a test moisture level between 20-30% and a maximum moisture level of 35%. Family rules [67]will apply, where only boilers with a capacity up to 300kW will be accepted and the date of test must be before 31 August 2012. The validity of the certificates will be confirmed by Ofgem against the 'rhieclist' available on the HETAS website[68].

9.29. BS EN303-5:2012 came into force on 31 August 2012, for boilers tested in accordance with this standard, all RHI emissions certificates dated after this time will require reference to the biofuel standard related to the fuel type combusted. The relevant BS EN14961 standard should be referenced from 31 August 2012 until it is superseded by EN ISO 17225 – the date on which EN17225 comes into force differs for each fuel type. From the relevant date onwards, the applicable EN ISO 17225 standard should be referenced.

9.30. We are happy to accept reference to the applicable EN ISO 17225 standard if the amendment to the certificate is being made now, even if the test was prior to the publication of the current biofuel standard, with the understanding that the lab may only want to reference a certificate that is now live and they have access to.

9.31. The tested fuel moisture level, which will be entered in Section 3c of the emission

[66] http://www.ofgem.gov.uk/rhi
[67] Family rules apply to type testing of boilers within the same family, generally that they have the same constructional design, and are outlined in 5.1.4 of EN303-5:2012.
[68] http://rhieclist.org.uk/

certificate template, should fall within the characteristics detailed in Table 7 of BS EN 303-5:2012. For example, EN ISO 17225-2 A1 woodchips should have a test moisture level between 20-30% and a maximum allowable moisture content of 25% (as per the biofuel standard). EN ISO 17225-2 A1 wood pellets should have a test moisture content less than or equal to 12% and a maximum allowable moisture content of 10%, which is inserted in Section 3d of the emission certificate template.

9.32. If the fuel cannot be classed in accordance with a biofuel sub-standard (for reasons such as; the installation is under 500KW, the test fuel is better defined this way, or the test performed in accordance with BS EN 13284 and BS EN 14792:2005), you may reference the general biofuel standard. Provide the origin, source and all normative information applicable to that fuel type – the required information and descriptors and contained in tables in EN17225-1. The fuel should continue to reference the general biofuel standard as detailed above.

9.33. For example, a test completed on 12/12/15 for wood logs could look like the following: EN ISO 17225-1 log wood, 1.1.4 Logging residues, L30, D15, M20.

Does the RHI emission certificate have to state my boiler was tested specifically?

9.34. The RHI emission certificate does not necessarily have to be issued in relation to the actual boiler being used to apply for the RHI. It could refer to a boiler of the same make, model and installation capacity as the boiler being used to apply for the RHI. We will accept these types of certificates as evidence your boiler complies with the air quality requirements, provided they meet the three requirements above.

9.35. RHI emission certificates may also refer to a boiler in the same type-testing range of the boiler being used to apply for the RHI. Type-testing range is defined in the Regulations as 'a range of plants which have the same construction and design so that the testing of one or more plants in that range give results capable of applying to all plants in the range...'. This means that while a boiler may not actually have undergone emissions testing, its design is so similar to another boiler which has been tested that, for the purposes of the air quality requirements, we are allowed to treat it as the same boiler. If an RHI emission certificate applies to a type-tested range of boilers, there should be a list of all of these boilers on the certificate.

9.36. There are two requirements that must be met before we will consider a boiler eligible on the basis of type-testing:

- If the installation capacity of the smallest of the boilers in the type-testing range is less than or equal to 500kWth, the ratio of the smallest boiler to the largest boiler must be no more than 1:2. For example, there could be two boilers in the type- testing range, the smallest 100kWth, and the largest 200kWth. This would be acceptable as the ratio would be exactly 1:2.
- If the installation capacity of the smallest of the boilers is greater than 500kWth, then the difference between the smallest and largest boiler must be no more than 500kWth. For example, there could be two boilers in the type-testing range, the smallest 550kWth and the largest 900kWth. This would be acceptable as the difference is 350kWth, which is under the 500kWth limit.

Where can I get an RHI emission certificate?

9.37. An RHI emission certificate should be provided by the installer or manufacturer of your

biomass boiler. Alternatively, an on-site test may be carried out by a testing laboratory to produce a RHI emission certificate.

What are environmental permits?

9.38. Environmental permits are defined in the Regulations as a permit issued in accordance with the provisions of the Environmental Permitting (England and Wales) Regulations 2016[69] or the Pollution Prevention and Control (Scotland) Regulations 2012. The Environmental Permitting Regulations provide a consolidated system of environmental permitting in England and Wales. The Pollution Prevention and Control Regulations provide an integrated pollution control regime for Scotland.

9.39. There are a number of different permits that may be required depending on; the size of the installation, location of the activity, type of fuel being combusted, the process of extraction and discharge and/or the type of activity taking place.

9.40. From 1 October 2018 all participants must declare at application and annually that they have the relevant environmental permit(s) for their installation and be able to provide this if audited.

Where can I get an environmental permit?

9.41. Environmental permits are typically issued by the relevant local authority or the UK's environment agencies. For England this is the Environment Agency[70] (EA), for Scotland it is the Scottish Environment Protection Agency[71] (SEPA), and for Wales this is Natural Resources Wales[72] (NRW). .

What do we do once the evidence has been provided?

9.42. If you provide an RHI emission certificate we will check it during the accreditation process to make sure it contains all the required information, including that it states your boiler has been tested to meet the air quality requirements. If you provide an environmental permit we will check it is active and valid. As long as either of these checks are successful your boiler will be compliant with the air quality requirements.

Biomass contained in waste

9.43. Installations that apply as 'solid biomass contained in waste' can use waste or combination of wastes as their fuel source. Fuels that are not classed as waste by the Regulations cannot be used at the plant. To be an eligible installation it must be demonstrated that at least 10% of the energy content per quarter will be from the solid biomass contained in the waste. Please see chapter 13 for details of how to do this.

9.44. The Regulations specify that 'waste' has the meaning given in Article 3(1) of Directive 2008/98/EC of the European Parliament and of the Council on waste(b) and includes excreta produced by animals[73]. Accordingly, 'waste' is classified as "any substance or object which the holder discards or intends or is required to discard". For installations that burn 'waste', but meet the eligibility criteria for solid biomass technology, the installation can still be accredited as solid biomass. A description of the type(s) of waste used will need to be

[69] http://www.legislation.gov.uk/uksi/2016/1154/contents/made
[70] https://www.gov.uk/government/organisations/environment-agency
[71] https://www.sepa.org.uk/
[72] https://naturalresources.wales/?lang=en
[73] http://www.legislation.gov.uk/uksi/2015/197/regulation/3/made

provided.

Best Practice

9.45. If you would like further information on implementing a biomass project, please see the Carbon Trust's best practice guide, 'Biomass heating: a practical guide for potential users for biomass projects'[74]. If you would like further information about the location of suitable fuels for your biomass boiler then this is available from the biomass energy centre website[75]. Please note that both guides are for information only and should not be construed as guaranteeing eligibility to the RHI.

Sustainability requirements

9.46. You must use fuels that meet the sustainability requirements to meet your ongoing obligations and receive RHI payments. This applies to all existing and new participants – even if you are already receiving RHI payments, you will need to comply with these requirements. Please note that the sustainability requirements are in addition to meeting your emissions requirements.

9.47. If you are applying for accreditation you must ensure that from the date you submit your application the fuel you are using meets the sustainability requirements. If you cannot demonstrate that the fuel meets the sustainability requirements, this may affect the date from which you are considered to be eligible for the RHI scheme.

Biomass Suppliers List and Sustainable Fuel Register

9.48. The Biomass Suppliers List (BSL) is run by Gemserv and was developed with the support of the DECC and has been publicly accessible since 25 September 2014. The BSL is a list of suppliers who have fuel(s) which are compliant with the RHI sustainability requirements, as assessed by the list manager. It is for woody biomass only (wood or wholly derived from wood, including waste-wood). The list does not include non-woody biomass including energy crops or agricultural residues.

9.49. Please note that the production and/or burning of waste derived fuel including waste wood is subject to regulatory control under the Environmental Permitting Regulations. Those sourcing or self-supplying waste derived fuel including waste wood via the BSL must adhere to waste management controls. They must ensure they carry out the necessary checks and controls to demonstrate that their production or use of waste derived wood fuel has the appropriate permits.

9.50. Similarly, those sourcing or self-supplying waste derived fuel including waste wood via the BSL will be required to comply with the contamination requirements of the RHI scheme set out above in this chapter.

9.51. The Sustainable Fuel Register (SFR) is a similar list of suppliers but with non-woody biomass that includes energy crops and agricultural residues, where fuels on this list are compliant with the RHI sustainability requirements. The list was approved by BEIS 4 November 2016, and is run by FECEnergy.

[74] http://www.carbontrust.co.uk/Publications/pages/PublicationDetail.aspx?id=CTG012

[75] http://www.biomassenergycentre.org.uk/portal/page?_pageid=77,681226&_dad=portal&_schema=PORTAL

9.52. The easiest way to meet the sustainability requirements is by using the BSL or SFR, either by purchasing fuels from these lists, or registering as a self-supplier (or as a Producer- Trader if you also buy in raw materials) or a combination of these. Details of the exact participant types on each list can be found on their respective websites[76].

9.53. Participants can demonstrate that they meet the sustainability requirements by using an "approved sustainable fuel[77]", which is a fuel that has been authorised by the BSL or SFR administrator. Please note that fuel must be compliant from the date it was received by you. Therefore if your supplier is no longer on the list at the time you received it (but was at time of purchase), your fuel may not be considered to have met the requirements.

9.54. The use of these lists as a method of demonstrating compliance is only for solid biomass installations generating heat (not heat and power). Those using CHP, and/or using biogas or producing biomethane cannot use this compliance route, and should refer to the Guidance on Self-reporting.

9.55. See chapter 4, volume 2 for full details of using the BSL or SFR to demonstrate compliance against the sustainability requirements.

Self-reporting

9.56. Those who are not able to, or choose not to exclusively source from either of these lists, register as a self-supplier (or producer/trader) on them, or do not meet the RO sustainability criteria (as a biomass or biogas CHP of 1MWe or above[78]) must self-report on the sustainability requirements for the fuels they use. Self-reporters will need to collate evidence that demonstrates the consignments of fuels they used in each quarter meet the land and greenhouse gas (GHG) emission limit criteria. Please refer to the Sustainability Self-Reporting Guidance to understand the requirements for demonstrating compliance and what your next steps should be. The guidance gives further information on the greenhouse gas (GHG) lifecycle emissions and land criteria and what additional responsibilities you will have quarterly and annually to demonstrate this compliance.

9.57. Following reading those sections of the guidance, you will need to fill out an FMS questionnaire. This is a document which provides a template for agreeing your fuel measurement processes and classifications with Ofgem to give both parties assurance that you know how to report against the sustainability requirements going forward. Please refer to the FMS Guidance for advice on how to complete this.

[76] http://www.biomassenergycentre.org.uk/portal/page?_pageid=77,681226&_dad=portal&_schema=PORTAL, https://biomass-suppliers-list.service.gov.uk/applying-to-the-bsl, http://sfregister.org/

[77] RHI Regulations, Regulation 2, definition of "approved sustainable fuel"

[78] See Chapter 11 for further details

10. Biogas combustion for heat

Size eligible	All sizes.
Preliminary accreditation?	Yes.
Summary of eligibility requirements	Must generate heat from biogas alone.
Integral equipment usually included in the definition of eligible installation	• Boiler (e.g. ignition equipment, heat exchanger, electrical wiring and controls, combustion chamber, air control, housing/ container). • Exhaust gas treatment equipment and flaring etc. • Biogas production plant (e.g. anaerobic digesters, gasifiers, and pyrolysers).
Equipment not included in the definition of eligible installation. See also 4.1	• Feedstock treatment equipment and pre-processing equipment (e.g. pasteurisation equipment, materials separation equipment, silage clamps, storage buildings, and slurry tanks). • Digestate/char treatment equipment (e.g. post-digestion pasteurisation equipment and materials separation equipment).
Fuel Measurement and Sampling (FMS) questionnaire required?	Yes for all installations.

General eligibility

10.1. Biogas is defined as 'gas produced by the anaerobic or thermal conversion of biomass'[79]. Due to the cross reference to the term 'biomass'[80], biogas includes any gas produced by the anaerobic or thermal conversion of any material other than fossil fuel of peat, 'which is, or is derived directly or indirectly from, plant matter, animal matter, fungi or algae'[81]. For example, biogas could include gas produced from food or farm waste. The biogas production plant must use one of the following conversion technologies[82]:

- Anaerobic digestion: 'the bacterial fermentation of biomass in the absence of oxygen'
- Gasification: 'the substoichiometric oxidation or steam reformation of a substance to produce a gaseous mixture containing two or all of the following: oxides of carbon, methane and hydrogen'
- Pyrolysis: 'the thermal degradation of a substance in the absence of an oxidising agent (other than that which forms part of the substance itself) to produce char and one or both of gas and liquid'

[79] Act, s. 100(3).
[80] Act, s. 100(3).
[81] Act, s. 100(3).
[82] Regulations, Part 1, Regulation 2, definition of "biogas production plant"

Removal of the 200kWth biogas limit

10.2. Biogas systems of any size are eligible for RHI support if they were first commissioned on or after 4 December 2013. For biogas systems first commissioned before this date, they must be under 200kWth and installed and first commissioned on or after 15 July 2009. Please refer to the 'Installation capacity for CHP systems' section in chapter 4 for how to determine the installation capacity.

Other criteria

10.3. The plant must not generate heat from solid biomass (including solid biomass contained in waste)[83]. This means that where biogas is produced from the gasification or pyrolysis of solid biomass, those processes produce heat – and that heat is not eligible for support as biogas but may be eligible as solid biomass. This is distinguished from the combustion of the biogas realised from those processes. For example, log gasification boilers (and other gasifying boilers) would generally be classed as generating heat from solid biomass (as well as biogas) because significant amounts of heat from the solid biomass, in the form of hot gases generated by the biogas plant, would be transferred to the hot water. Plants such as these would instead be eligible as solid biomass plants and receive the solid biomass rather than biogas tariff.

10.4. An example of a plant which does not generate heat from solid biomass (and would therefore be classed as biogas) would be where syngas produced from a gasification process is quenched before being combusted (in an engine, turbine or boiler). Heat would not be passed from the solid biomass to the hot water.

10.5. Where a plant generates hot liquid/ steam from solid biomass (i.e. from the heat contained in the syngas before combustion is complete) through a heat exchanger, and another plant combusts the biogas and generates hot liquid/steam through a further heat exchanger, this would count as two separate plants (one solid biomass and one biogas). Two applications would be made to the RHI, and each plant would receive the tariff applicable to that heat generation and use.

10.6. Biogas from landfill sites is not eligible for support.

10.7. Plants configured to operate on both biogas and fossil fuel gas (e.g. where a single boiler is connected to both a biogas and natural gas supply), which are effectively dual-fuel biogas/fossil fuel boilers, will not be considered to be generating heat from biogas so will not be eligible under the scheme.

10.8. Biogas can also be upgraded to make biomethane, as set out in chapter 12, and/or used directly to produce heat. Where a company produces biogas and some is combusted to provide heat, while the rest is 'upgraded' to biomethane, the plant should apply separately for accreditation of the installation generating heat from the biogas and for registration of the biomethane production.

10.9. There is no requirement for MCS certification.

[83] Regulations, Part 2, chapter 2, Regulation 15

Certification of biogas plants

10.10. Biogas plants will still need to comply with relevant waste and environmental permitting legislation regardless of their participation in the RHI.

10.11. If, prior to 4 December 2013, some heat was already being captured and used, (for example to heat the digester of a biogas plant) then the plant is not to be considered as electricity-only and will be treated as having already been commissioned as a CHP system. It would therefore be ineligible to claim RHI on any heat produced and nor would the addition of any new or replacement heat exchanger to such a plant render it eligible[84].

10.12. A possible heat use in a biogas installation is to dry the digestate. We would generally expect this to be considered an eligible purpose if it meets the RHI requirements and satisfies the principles set out in paragraph 5.1.

Biogas and Feed-In Tariffs

10.13. The Feed-In Tariffs (FIT) scheme provides support for renewable electricity installations up to 5MWTH, including those powered by anaerobic digestion. The FITs scheme does not provide support for renewable heat. There are no limitations on receiving RHI for renewable heat where anaerobic digestion installations are also receiving FITs for renewable electricity. However, any heat used for electricity generation will not be eligible for RHI support, as outlined in the 'Ineligible heat uses' section in chapter 5.

Metering requirements[85]

10.14. Heat delivered to a biogas production plant may be an eligible use. See paragraph 6.2 onwards for consideration of eligible heat uses. The Regulations require that this must also be measured and either all of the heat, or an appropriate proportion, must be deducted from the final RHI payment calculation.

10.15. This includes any heat generated by the plant once it has passed the meter used to calculate the RHI payment (e.g. waste heat generated from the combustion of biogas), which is subsequently returned to the biogas production plant.

10.16. Please refer to chapter 13 for details of the meters which are required to perform this calculation. We will ask at the accreditation stage how this fits in to the overall heat metering process at the plant. Due to the metering requirements, the heat will have to be transferred in the form of liquid or steam. Biogas plants are specifically excluded from delivering hot air from the heat generating plant to the biogas production plant[86].

[84] This is in line with DECC's clarifying note: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/315284/clarifying_note_on_biogas_chp_eligibility.pdf

[85] Regulations, Part 4, Chapter 1, Regulation 38

[86] Regulations, Part 4, Chapter 3, Regulation 43(i)

10.17. Instead of deducting all of this heat from the final RHI payment calculation, a proportion of the heat may be calculated. This proportion must be **no less than**:

$$x/y$$

Where:

x = the heat generated by the biogas plant which is used for eligible purposes

y = the energy content of all of the biogas produced by the biogas production plant

10.18. This apportioning rule is in place for cases where the some of the heat supplied to the biogas production plant will not ultimately result in heat used for eligible purposes. For example, in the case of a CHP system, some of the heat supplied to the biogas production plant will result in biogas that is combusted to produce electricity.

10.19. If applicants would like to apportion, there must be robust calculations provided which demonstrate an appropriate proportion, and evidence provided that any relevant measurement devices are in place. There is no obligation to choose this option, and the full deduction can be made instead.

10.20. The exception to the deduction rules is when heat is contained in feedstock used at an anaerobic digestion plant (e.g. following pasteurisation of the feedstock). The heat in this feedstock does not need to be measured or deducted.

Fuel Measurement and Sampling (FMS)

10.21. Applicants must complete a FMS questionnaire, including those who will be using gasification or pyrolysis to produce biogas from contaminated solid biomass, waste, or those who will be using fossil fuels for ancillary purposes. A completed FMS questionnaire must be provided to Ofgem and agreed as part of the accreditation process. The questionnaires can be found on the RHI website[87]. Please refer to the Fuel Measurement and Sampling Guidance for more information on how to complete the questionnaire.

Sustainability requirements

10.22. You must use fuels that meet (or are exempt from) the sustainability requirements to meet your ongoing obligations and receive RHI payments. This applies to all existing and new participants – even if you are already receiving RHI payments, you will need to comply with these requirements.

10.23. As a biogas installation you must self-report against the requirements (as per Table 1 in the Sustainability Self-Reporting Guidance). Please refer to the Sustainability Self-Reporting Guidance to understand the requirements for demonstrating compliance and what your next steps should be.

10.24. The guidance will give further information on the greenhouse gas (GHG) lifecycle emissions and land criteria and what additional responsibilities you will have quarterly and annually to demonstrate this compliance.

[87] www.ofgem.gov.uk/rhi

10.25. Following reading those sections of the guidance, you will need to fill out an FMS questionnaire. This is a document which provides a template for agreeing your fuel measurement and classification processes with Ofgem to give both parties assurance that you know how to report against the sustainability requirements and where applicable, the feedstock requirements. Further information on the feedstock requirements can be found in the 'introduction to ongoing obligations' chapter within this document and Guidance Volume 2.

11. CHP (for solid biomass, solid biomass contained in waste, biogas and geothermal)

Size eligible	All sizes.
Preliminary accreditation?	Yes for: • solid biomass CHP installations • geothermal CHP installations; and • biogas CHP installations.
Tariff Guarantee available?	Yes for new solid biomass
Eligible criteria	• The CHP system must generate heat and power from A) one of the following sources: (a) geothermal; (b)biogas; (c)solid biomass (excluding solid biomass contained in waste); or (d) solid biomass contained in waste and must meet the criteria for those technologies; or B) alone or in any combination of (b), (c) and (d) above, provided that each type of fuel is burned in a separate combustion unit, • the relevant combustion units (and biogas production plant where the combustion unit(s) burn biogas)were first commissioned as part of a CHP system on or after 4 December 2013 and • The relevant combustion units (and biogas production plant where the combustion unit(s) burn biogas) were new at the time of installation. If the system uses solid biomass (excluding solid biomass contained in waste) alone or in combination with other sources of energy, is CHPQA certified and the relevant solid biomass combustion units are discrete and were first commissioned on or after 4 December 2013 it will be eligible for the bespoke Biomass CHP tariff.
FMS questionnaire required?	Yes, for any CHP application made under the combustion unit provisions or self-reporting against the sustainability requirements

General eligibility

11.1. Subject to certain exceptions discussed below, the heat output of CHP systems are only eligible for support under the RHI if the systems use one, or a combination of, the following as a source of energy:

- biogas
- solid biomass
- solid biomass contained in waste.

11.2. These plants will also have to meet the additional eligibility requirements applicable to that technology be eligible. Please see the relevant technology chapter for specific details.

Combustion units

11.3. From 28 May 2014 it is possible for CHP installations to apply for accreditation and receive support for individual combustion units. Where the fuel is solid biomass or solid biomass contained in waste, 'combustion unit' means a boiler. Where the fuel is biogas, combustion unit means a boiler, turbine or engine.

11.4. The combustion unit(s) will need to meet the RHI eligibility criteria:

- be new at the time of installation (in line with the definition in chapter 4)
- be first commissioned as part of a CHP system on or after 4 December 2013
- burn **only** either solid biomass, solid biomass in waste or biogas in each combustion unit (contamination and ancillary fossil fuel use is allowed – see volume 2, chapter 4 for further details)
- in the case of solid biomass (other than solid biomass contained in waste), the combustion unit must meet the air quality requirements as detailed in chapter 9

11.5. Where one or more biogas combustion units are being commissioned as part of a CHP system there is the additional requirement that the biogas production plant that provides the biogas which is used in the combustion unit must be new at the time of installation (in line with the definition in chapter 4) and commissioned as part of the CHP system on or after 4 December 2013.

11.6. The rest of the CHP system (other than the combustion units which meet the eligibility criteria) does not need to meet any specific requirements and any other fuels could be used. However, it is necessary to know details of the capacity as detailed in the section below, and details of the fuel input as described in volume 2 for the purpose of payment calculations.

Installation capacity for CHP systems

11.7. The Regulations state that an installation's capacity is the "total installed peak heat output capacity" of that installation (except where an application for accreditation has been made on the basis of specific combustion unit(s) being eligible – see 11.10). For CHP systems, this relates to the total heat output of the equipment in the form of usable hot liquid or steam. Applicants will need to make a case for how the capacity has been defined, including consideration of whether heat generated is subsequently used for power generation or heating.

11.8. For example, where a biogas CHP system combusts gas in an engine to generate power, and the waste heat from this power generation is subsequently used for space or process heating (in the form of hot water or steam), the CHP system's capacity would be the rated peak heat output capacity of any heat exchangers that are used to generate the hot water or steam. This capacity would include the capacity of a water jacket, unless it can be demonstrated satisfactorily that the heat could not be transferred from the water jacket heat exchanger to the heating system.

11.9. Please note that heat used to generate electricity is not eligible for RHI support, please see chapter 5 for further details.

11.10. Where an application for accreditation has been made on the basis of specific combustion unit(s) being eligible, the installation capacity of the CHP system required is the proportion of the peak heat output capacity of the CHP system applicable to the eligible combustion units. This is determined by the formula:

$$x/y \times P$$

where:

x = the total installed peak heat output capacity of all the combustion units which meet the eligibility criteria which use the same source of energy

y = the total installed peak heat output capacity of all the combustion units forming part of the CHP system

P = the total installed peak heat output capacity of the CHP system

Converted CHP installations

Date of completion of installation and first commissioning

11.11. The following rules apply:

- Biomass CHP and Biogas CHP less than 200kWth: a plant previously generating electricity only using solid biomass or biogas that was first commissioned as a CHP system on a date (the conversion date) which is on or after 15 July 2009 will be treated as a new plant installed and first commissioned on the date of conversion (irrespective of the date on which they started generating electricity);

- Biogas CHP equal to or more than to 200kWth: a plant previously generating electricity only using biogas that was first commissioned as a CHP system on a date (the conversion date) which is on or after 4 December 2013 will be treated as a new plant first commissioned on the date of conversion (irrespective of the date on which they started generating electricity);

- where the bespoke biomass CHP tariff is being applied for, or where application is being made under the combustion unit provision, a plant previously generating electricity only, using any fuel type (including fossil fuel) that was first commissioned as a CHP system on a date (the conversion date) which is on or after 4 December 2013 will be treated as a new plant first commissioned on the date of conversion (irrespective of the date on which they started generating electricity).

11.12. At the conversion date, the system would have changed from having no useful heat recovered to recovering some or all of the waste heat generated during the electricity generation process. We will expect evidence to be provided of the changes made to the existing electricity-only plant for a CHP plant to be considered new. Examples of such changes would be the addition of a heat exchanger(s) and associated equipment for the recovery of heat, or the re-use of the engine water jacket heat exchanger(s) but with the addition of new equipment to enable the heat to be recovered.

11.13. If, prior to 4 December 2013, some heat is already being captured and used (for example to heat the digester of a biogas plant) then the plant is not to be considered as electricity-only and will be treated as having already been commissioned as a CHP system. It would therefore be ineligible to claim RHI on any heat produced and nor would the addition of any new or

replacement heat exchanger to such a plant render it eligible[88].

Solid biomass CHP tariff

11.14. Solid biomass CHP installations will be eligible for the new solid biomass CHP tariff on their eligible heat output if:

- the relevant combustion unit(s) was first commissioned as part of a CHP system on or after 4 December 2013.
- the relevant combustion unit(s) are new at the time of installation
- the installation is certified under the CHPQA scheme. Applicants will have to provide evidence of current CHPQA certification as part of the accreditation process in order to be awarded this tariff
- the relevant combustion unit(s) burn solid biomass only (not including solid biomass contained in waste)
- the relevant combustion unit(s) comply with the air quality requirements
- The requirements of the first two bullet points can be deemed to be met where the combustion unit(s) was previously supplying energy for the generation of power only and the plant to which it supplies energy is first commissioned as a CHP system on or after 4 December 2013.

11.15. Participants in receipt of the new solid biomass CHP tariff will have to ensure their installation continues to be CHPQA certified each year in order to retain the new solid biomass CHP tariff. Where we establish an accredited installation is not certified under the CHPQA for any year, it will be assigned the relevant solid biomass tariff for the period of non-certification.

11.16. New solid biomass CHP installations with a date of accreditation on or after 1 August 2016 will also have payments adjusted if they have a power efficiency of below 20% on their CHPQA certificate – see Guidance volume 2, chapter 13 for more details on exactly how this works.

Interaction with the Renewables Obligation (RO)

11.17. This section does not apply to biogas CHP installations.

11.18. Solid biomass CHP installations which first generate heat and electricity before 1 April 2013 and have received accreditation under the Combined Heat and Power Quality Assurance (CHPQA) Standard, are defined under the Renewables Obligation Order 2015 or Renewables Obligation Order (Scotland) 2009 as 'qualifying combined heat and power generating stations'. (See CHPQA Guidance Note 44 for further details[89]). We interpret this to mean that they have been issued with a 'ROC eligible' certificate in addition to a 'Regular' CHP certificate, which means they are ineligible for support on their heat output under the RHI. NB for avoidance of doubt, this exception applies even if the plant has not been in receipt of the ROC uplift. See Appendix three of this volume for a diagram setting out the requirements for CHP system eligibility.

[88] This is in line with DECC's clarifying note: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/315284/clarifying_note_on_biogas_chp_eligibility.pdf

[89] https://www.chpqa.com/guidance_notes/GUIDANCE_NOTE_44.pdf

11.19. Solid biomass CHP installations which first generate heat and electricity on or after 1 April 2013, are required to make a declaration under Article 28(7) of the Renewables Obligation Order 2009 or Renewables Obligation Order (Scotland) 2009 or under Article 35(7) of the Renewables Obligation Order 2015, as to whether they want to receive an uplift for their heat under the RO for capacity installed and first commissioned after this date. If they do not make this declaration, heat output from this capacity will be eligible for the support under the RHI.

11.20. The same principle applies if further capacity is added to a CHP installation on or after 1 April 2013. If a declaration is not made for the additional capacity the heat from this capacity may be eligible for RHI payments, even if the original capacity is a 'qualifying combined heat and power generating station' or is capacity against which a declaration has been made. Eligibility will also depend on whether the other eligibility requirements for the combustion unit are met (see 5.139).

11.21. The rules of the RO scheme mean that, for solid biomass CHP installations which first generate heat and electricity on or after 1 April 2015 (or existing installations that add additional capacity), there must be a declaration under Article 28(7) of the Renewables Obligation Order 2009 or Renewables Obligation Order (Scotland) 2009 or under article 35(7) of the Renewables Obligation Order 2015 that none of the heat produced by that capacity is eligible for support under the RHI. The Regulations prevent payment being made for heat generation where such a declaration has been made. However, if the technology/fuel is eligible for RHI support, then – although RO support will not be available for the heat generated - RHI support may be available for that heat (provided that all other requirements for entry onto the scheme are met).

11.22. Energy from Waste CHP stations accredited under the RO are not eligible for support under the RHI irrespective of when they were installed and first commissioned.

Fuel Measurement and Sampling (FMS)

11.23. Applicants must complete an FMS questionnaire if they have either applied under the combustion unit provisions or are over 1MWth and not using 100% solid biomass fuel. This must be provided to us and agreed as part of the accreditation process. The questionnaires can be found on the RHI website[90]. Please refer to the document 'Fuel Measurement and Sampling Guidance' for more information on how to complete the questionnaire.

Heat meters

CHP systems first commissioned between 15 July 2009 and 28 November 2011 and registered on the CHPQA scheme

11.24. Where eligible CHP systems have a heat recovery system that was first commissioned on or after 15 July 2009, and the system was generating electricity only, using solid biomass or biogas, prior to 15 July 2009, the Regulations allow us to accept such a system's existing heat or steam meters for the RHI providing:

- the meters were installed prior to the date of commencement of the Regulations (28 November 2011) **and**
- the CHP system was registered under the CHPQA standard[91] prior to the date of commencement of the Regulations[92].

[90] www.ofgem.gov.uk/rhi
[91] http://chpqa.decc.gov.uk/
[92] Regulations, Part 2, Chapter 3, Regulation 27

11.25. Applicants who are self-reporting against the sustainability requirements must also complete the relevant sustainability sections of the FMS questionnaire. For further information refer to the FMS Guidance and the Sustainability Self-Reporting Guidance.

11.26. In practice, this means that where such a CHP system has a pre-existing Class 3 heat meter(s) that is relevant for the RHI, they will be exempt from the requirement to have a Class 2 heat meter.

11.27. All other RHI eligibility and ongoing requirements relating to metering set out in chapter 13, 'Metering eligibility requirements', must be met. If a CHP system which benefits from the above exemption in relation to existing meters needs to install additional meters to meet the RHI metering requirements, e.g. if their existing meters are not appropriately located, the exemption will not apply and these additional meters will need to comply with **all** of the requirements set out in chapter 13.

11.28. Where this section does not apply, meters used to measure the quantities must be Class 2[93] heat meters or can be better (Class 1 meters).

11.29. We may ask for evidence such as receipts, invoices or installer's documentation and CHPQA documentation to verify that the above criteria have been met.

Sustainability requirements

11.30. You must use fuels that meet (or are exempt from) the sustainability requirements to meet your ongoing obligations and receive RHI payments. This applies to all existing and new participants – even if you are already receiving RHI payments, you will need to comply with these requirements.

11.31. If you have a CHP installation using solid biomass or biogas with a capacity of 1MWe (NB. this is the electrical capacity, not the thermal capacity) or above, for which you are receiving ROCs on the electricity output and which is compliant with the RO sustainability requirements, you do not have to provide separate sustainability information under the RHI[94]. Instead, participants must submit a declaration with each quarterly period submission which states the RO sustainability requirements are being met.

11.32. Those able to use this route of compliance are **not** required to provide an annual sustainability audit report to the RHI as this is already a requirement under the RO.

11.33. If during any quarter, any consignment of fuel no longer meets the RO sustainability criteria, the participant will be required to self-report to Ofgem RHI sustainability requirements. Please refer to the Sustainability Self-Reporting Guidance for further details.

11.34. If the annual sustainability audit report submitted to the RO finds that during the previous year, any consignment of fuel used did not meet the sustainability requirements, this may result in RHI payments being affected, unless evidence can be provided that the consignment(s) in question met the RHI sustainability requirements.

[93] Regulations, Part 1, Regulation 2, definition of "class 2 heat meter"

[94] The provision that sustainability information would not need to be provided each quarter came into force on 27 July

11.35. The FMS questionnaire that the participant previously submitted to the RO will be requested at application stage. Participants can also choose to submit a specific RHI FMS questionnaire.

11.36. If paragraph 11.30 does not apply to you, then you must self-report against the requirements (as per Table 1 in the Sustainability Self-Reporting Guidance). If you have a CHP installation, you cannot use the Biomass Suppliers List (BSL) or Sustainable Fuels Register (SFR) to demonstrate compliance. Please refer to the Sustainability Self-Reporting Guidance to understand the requirements for demonstrating compliance and what your next steps should be.

11.37. The guidance gives further information on the greenhouse gas (GHG) lifecycle emissions and land criteria and what additional responsibilities you will have quarterly and annually to demonstrate compliance.

11.38. Following reading those sections of the guidance, you will need to fill out a FMS questionnaire. This is a document which provides a template for agreeing your fuel measurement processes and classifications with Ofgem to give both parties assurance that you know how to report against the sustainability requirements going forward. Please refer to the FMS Guidance for advice on how to complete this.

Important information for Biogas and biogas CHP applicants using AD.

11.39. In line with sustainability requirements, any plant fuelled from a common gas line from the Anaerobic Digestion tank will need to consider how they will derive the fuel to plant component when calculating greenhouse gas values. Note that plate efficiency is not an acceptable method for determining plant efficiency.

11.40. All installations producing biogas from anaerobic digestion with a date of accreditation on or after 22 May 2018 will be subject to feedstock requirements. Further information on the feedstock requirements can be found in the 'Introduction to ongoing obligations' chapter within this document and Volume 2.

12. Registration for biomethane producers

Size permitted	All sizes.
Preliminary registration?	Yes.
Tariff guarantee available?	Yes all sizes
Requirements	• The existing regulatory framework external to Ofgem must be adhered to at all times. No further RHI-specific accreditation standards exist • Documents required to demonstrate that the biomethane produced meets, or is expected to meet, all of the Health and Safety Executive requirements on gas safety. • Planning permission.
Integral equipment usually included in the definition of 'equipment used to produce biomethane'	• Equipment required to convert raw biogas into biomethane suitable for injection (e.g. where appropriate • CO_2 and oxygen removal, pressurisation equipment, propanation, odorant equipment). • Biogas production plant (see biogas chapter for list of equipment).
Equipment not Included in the definition of equipment used to produce biomethane'	• Equipment required to measure the energy content and volume of gas entering the network. • Any flaring equipment. • Feedstock treatment and pre-processing equipment (see biogas for list). • Digestate/char treatment equipment (see biogas for list).
FMS required?	Yes.

Biomethane as a developing technology

12.1. In this section we outline how biomethane producers can demonstrate they meet the criteria set out in the Regulations. We will review all applications against these legislative requirements.

Existing regulatory framework

12.2. There is an existing regulatory framework relating to the injection of biomethane into the gas

network. For example, the Health and Safety Executive regulates the health and safety aspects of the entry of gas on to the network. We also have a role as the network regulator. All of these regulatory requirements should be adhered to irrespective of any application for registration under the RHI. Registration under the RHI should not be regarded as verifying compliance with any other piece of legislation.

Biomethane registration requirements

12.3. Biomethane producers are treated differently to other participants in the RHI. This is because the government has decided that the Regulations and standards currently in place for biomethane injection are sufficient to ensure that the RHI requirements are met and no further RHI-specific accreditation standards are necessary. As a result, the Regulations describe the process for biomethane producers as 'registration' rather than accreditation.

12.4. Biomethane is defined in the Energy Act 2008 as 'biogas which is suitable for conveyance through pipes to premises in accordance with a license under section 7 of the Gas Act 1986 (c.44)(gas transport license)'.

12.5. As biogas is derived from biomass, we therefore need assurance at the registration stage that the biogas is derived from biomass and not some other source. This may include, for example, a description of where the feedstocks came from and what processes the feedstocks have gone through.

12.6. For the gas to be considered 'suitable for conveyance' (or transported in accordance with a gas transporter's license), it will have to meet the health and safety criteria (as defined in the transporter's Safety Case), regulated by the Health and Safety Executive, and any consumer protection measures that have been agreed by our Networks Team and / or industry (e.g. as laid out in the Uniform Network Code).

12.7. We will require documentation from the participant to demonstrate that the biomethane produced meets, or is expected to meet, all of the Health and Safety Executive requirements on gas safety. We will also require, where appropriate, evidence that any consumer protection conditions (e.g. relating to the gross calorific value (GCV) of the gas) have been met, in order for us to verify that the biomethane produced may be considered 'suitable for conveyance'.

12.8. There is a point at which biogas (which itself is the gas formed by the conversion of biomass) becomes biomethane under the Regulations. This point is when the biogas has met all of the conditions required to be 'suitable for conveyance'. For example, biomethane production may involve adding propane to the biogas in order to alter its GCV or odorising or pressurising the biogas before it is suitable for conveyance. We therefore consider that, where more than one entity is involved in producing the biomethane from biogas (or, ultimately, from biomass), the person applying for the RHI must have permission from all other parties involved. The biomethane declaration template is available on our website.

12.9. The Renewable Heat Incentive Scheme Regulations 2018 ('the 2018 Regulations')[95] (as amended by The Renewable Heat Incentive Scheme and Domestic Renewable Heat Incentive Scheme (Amendment) Regulations 2018)5 include a number of requirements relevant to producers of biomethane for injection. Those requirements include that applicants for registration must:

(1) provide details of the process used to produce biomethane for injection,
(2) specify the biogas production plant to be used for the purpose of registration,
(3) commission equipment used to produce biomethane and, at the time of making their application, and

[95] Regulations, Part 3, Regulation 32(2)(c)

(4) have commenced the injection of biomethane

12.10. In order to determine whether these requirements have been met, we will ask for the following information to accompany the application for registration:

- a schematic diagram showing the process of biomethane production from the biogas plant(s), and the point of entry on to the network

- Network Entry Agreement (NEA) and extracts of contracts with relevant third parties relating to the agreement to convey the gas on to the pipeline network

- a declaration of the volume of biomethane in cubic meters you expect to produce for injection in a typical year following any initial ramp up period in the first year)

    a. This estimate of your typical annual production is important as it will feed into the forecast data used in degression calculations.

    b. We recognise that during the first year of production, the volume of injection is likely to be lower than the following years due to the performance of the plant being optimised at the start. It is important that the estimate you provide reflects the typical expected injection per year rather than the injection for this initial year.

    c. The estimate must be for total biomethane injected into the grid in a year (inclusive of any additives such as propane)

    d. The estimate must be accurate to the best of your knowledge and belief.

- evidence of appropriate consent from regulatory authorities e.g. planning permission and environmental permits (where necessary).

- provide details of the process used to produce biomethane for injection,

- Evidence, at the time of submitting an application, that the applicant has commenced the injection of biomethane.

- Evidence of commissioning of equipment used to produce biomethane. We expect applicants to provide the evidence necessary to demonstrate they have completed the steps listed in (a – f). We may also ask for additional evidence in some cases, including in relation to any of the steps listed in the table in Appendix four of this document.

    a. **Pressure and hydrostatic testing:** Documentation showing all pipe work has been pressure tested to correct pressure rating in line with regulations and has been signed off. Documentation may include a certificate which confirms the system is air-tight for gas lies.

    b. **Appropriate certification for site wide electrical circuits:** A document demonstrating electrical testing has been carried out on all equipment used to produce biomethane (including the biogas production plant) and the plant has been electrically tested and is ready for commissioning.

    c. **Complete site acceptance testing (SAT) package:** Signed document that demonstrates (i) all functionality and testing has been successfully completed

and (ii) all alarms have been tested successfully on all equipment used to produce biomethane, irrespective of whether the biogas production and upgrading/injection equipment are located on separate sites. This document should also provide details of other person(s) who installed and tested the programmable logic control (PLC) and/or supervisory control and data acquisition (SCADA) monitoring systems.

d. **Telemetry system:** Documentation showing installation and full end-to-end testing of the telemetry system installed and commissioned for the biomethane plant.

e. **Network Entry Agreement:** A Network Entry Agreement with the local Gas Network Operator confirming the biomethane and control system is adequate for injection into the gas grid for distribution.

f. **Gas flow data:** Input and output data of gas relating to the biogas production plant, upgrading equipment and grid entry unit. For the biogas production plant, this would include information about the feedstock used and the gas produced via anaerobic digestion. For the upgrading equipment, this will include gas inputs and resultant biomethane and for the grid entry unit, this will include the quality and quantity of the biomethane that is being injected into the grid.

- A completed biomethane declaration form[96], which should include:

  - description of their biogas production plant including the size (i.e. volumetric capacity) of the digesters, the number of tanks the biogas production plant has and how much biogas you expect the production plant to produce (standard cubic meters per hour).

  - A timeline of the development of their biogas production plant including the following dates:

    - Date construction of the plant commenced
    - Date construction of the plant ended
    - Date of seeding
    - Date biogas production commenced
    - Date biomethane injection commenced

  - Photographic evidence of their biogas production plant and any ancillary equipment (e.g. pasteurisation tanks, feed equipment etc.)

[96] https://www.ofgem.gov.uk/publications-and-updates/non-domestic-rhi-biomethane-declaration-form

Assurance

12.11. In order to help ensure compliance with the scheme, we may periodically require participants to provide an independent, third party verification of their biomethane production, to confirm that the information provided to us is correct and that the biomethane has come from renewable sources.

How to register

12.12. Biomethane producers should apply to register as a participant under the RHI, preferably through the Ofgem RHI website, or via a paper application for registration. We do not encourage using a paper application, as this may take significantly longer to process.

12.13. During the registration process, applicants will be asked if public funds have been or will be received in respect of any of the equipment used to produce biomethane. If you declare that a grant has been, or will be, received (whether or not you consider the grant to be for any equipment used to produce biomethane) we may contact you for further information. If you are in receipt of a grant please refer to chapter 4, RHI interaction with publicly funded grants, for further detail on your eligibility.

12.14. Participants have an ongoing obligation to notify us if any of the information provided in support of their application for registration was incorrect. If we become aware at a later date that the information provided at registration in relation to grants was incorrect, we will consider taking enforcement action against the participant. Where we find that incorrect information was provided intentionally with the purpose of defrauding the scheme, our Counter Fraud team will investigate and where appropriate, will pass information on to Action Fraud and the relevant police authority. This may lead to criminal prosecution, in addition to suspension of payment and/or removal from the scheme. Please see volume 2, chapter 13 for further information on our approach to non-compliance within the scheme. We cannot register an applicant if it would mean RHI support being paid to more than one participant for the same biomethane.

12.15. It will be a condition of registration that you must tell us within 28 days of any change to your circumstances that may affect your registration. You may contact us with this information, or, depending on the information that has changed, amend your details in your online account. If the new information you supply affects your registration we shall notify you of our intended actions.

12.16. The date of registration for a producer of biomethane means the first day falling on or after the date of receipt by us of a completed application, which we are satisfied is contains all the required information. Assuming that you meet the requirements of the RHI for biomethane producers, then the registration date for a postal application would be the date that we received your completed, signed application.

12.17. Once you are a participant in the scheme, you are able to receive support. We will send you a statement of eligibility which will include the following:

- the date of registration
- your maximum initial capacity (this will specify the volume of biomethane in cubic meters per quarterly period you are entitled to supply for injection under your Network Entry Agreement. If you are in doubt as to your maximum initial capacity you should contact the relevant system operator and seek evidence and information in this respect.)

- the applicable tariff rate for the biomethane injected
- the process and timing for providing energy measurement data
- details of the frequency and timetable for payments
- the tariff lifetime and the tariff end date for the tariff payments
- the terms and conditions for your ongoing participation in the scheme.

12.18. Where a participant contracts with third parties in relation to the generation of renewable heat or the production of biomethane, it is the participant's responsibility to ensure via contractual or other arrangements, that these parties also comply with any relevant ongoing obligations under the RHI. The obligations which must be complied with by the participant on becoming accredited or registered remain those of the participant rather than being transferred to the third party concerned.

Inspecting the plant

12.19. We have the right to inspect all plants involved in the biomethane production process (from the biogas production to the biomethane injection point) and we may wish to do so as part of a pre-registration check. It is your duty to ensure, where you do not own all the plants involved, that you have the permission from all the other parties involved to grant us access to their sites. You will be required to submit a declaration to this effect as part of registration. This declaration is included in the biomethane declaration template found on the website.

Fuel measurement and sampling questionnaire

12.20. Applicants will be asked to complete a FMS questionnaire for biomethane producers to inform Ofgem of how you will calculate the renewable proportion of the gas that is injected, what meters are to be used at the facility and how the Gross Calorific Value (GCV) and volume will be quantified accurately for the relevant reporting periods. For further information on the FMS questionnaire, please refer to the document 'Fuel Measurement Sampling Guidance'.

12.21. The propane measurement approach is also outlined in volume 2, chapter 12 of the guidance.

12.22. We will agree an appropriate assurance regime with biomethane producers to allow us to verify that agreed procedures have been followed.

Metering volume

12.23. In your FMS questionnaire, you will be asked to provide information on the volume meters used at the injection point to measure the volume of gas entering the network. This information will include how many and what meters are being used at the injection point, and what the opening meter readings are on the day the application for registration is made. This may be included in the contractual or Network Entry Agreement information detailed above.

12.24. Once registered, participants should use the volume meters that are used for the balancing and settlement and other industry transaction purposes for measurement of volume in the RHI. These are detailed in the Uniform Network Code[97].

12.25. As with accredited biogas installations, either all of the heat used, or an appropriate proportion, (e.g. from another renewable source, or from fossil fuel) to produce the biogas which is subsequently converted to biomethane must be measured and submitted to us each quarter, so that we can take account of it in the periodic support calculation. Heat from the combustion of biogas, or waste heat from a biogas engine, is not included in this because this

[97] http://www.gasgovernance.co.uk/UNC

gas has clearly not been transferred onto the grid and received RHI. Heat meters must meet the requirements outlined in chapter 13.

12.26. Instead of deducting all of this heat from the final RHI payment calculation, a proportion of the heat may be calculated. This proportion must be **no less than**:

$$x/y$$

Where:

x = the energy content of the biogas contained in the biomethane

y = energy content of all of the biogas produced by the biogas production plant

12.27. If applicants would like to apportion, there must be robust calculations provided which demonstrate an appropriate proportion, and evidence provided that any relevant measurement devices are in place. There is no obligation to choose this option, and the full deduction can be made instead.

Measuring GCV

12.28. The equipment used for measuring the GCV of the gas for regulatory purposes (which our Smarter Grids and Governance Team need to agree and approve for non-RHI purposes) should be used for calculating the weighted average GCV of the gas over the quarterly period for RHI purposes. This would be adjusted to standard temperature and pressure.

12.29. Where a robust cumulative end-of-day energy quantity (in kWh) is available, such as that determined for trading or shipping purposes, we may consider a case for this to be an agreed source of quarterly periodic data to be submitted to Ofgem in order to support calculations of RHI payments. We would expect the metering equipment to be robust, to provide output which is available to the producer, and for arrangements to be in place to ensure Ofgem would have access to the meter output for audit purposes. Upon accepting such a case, we would expect quarterly submissions to include a breakdown of daily GCV and volume quantities for RHI purposes.

12.30. Where biomethane producers propose to blend their biomethane with natural gas prior to injection, we will review the measurement requirements outlined in the Network Entry Agreement to ensure that the measurement will be /accurate.

12.31. Biomethane producers must deduct any heat used in the production of the biogas at the plant (where this has come from an external source, such as renewable or fossil fuel gas). Further details of this can be found in volume 2 of the guidance.

Additional biomethane capacity

12.32. If your original application for registration was submitted on or after 28 May 2014 you can apply for additional biomethane capacity. Additional biomethane capacity is any capacity above that specified by us as your maximum initial capacity. Please refer to chapter 7, volume

2, which explains the requirements and how to apply for additional biomethane capacity.

Preliminary registration

12.33. If you have not yet started injecting into the grid, you can apply for preliminary registration.

12.34. At the application stage for preliminary registration, alongside the requirements set out in Schedule 2 of the Regulations (2017), you will be required to inform us of the following:

- expected date of injection
- expected volume in cubic meters you expect to inject annually (in a typical year following any initial ramp up period in the first year, see paragraph 12.13 for further explanation).
- the expected maximum initial capacity

12.35. You will need to obtain and submit a valid Connection Agreement from your pipe-line operator.

Sustainability requirements

12.36. You must use feedstocks that meet (or are exempt from) the sustainability requirements to meet your ongoing obligations and receive RHI payments. This applies to all existing and new participants – even if you are already receiving RHI payments, you will need to comply with these requirements.

12.37. Biomethane producers must self-report against the requirements (as per Figure 1 in the Sustainability Self-Reporting Guidance). Please refer to the Sustainability Self-Reporting Guidance to understand the requirements for demonstrating compliance and what your next steps should be. All biomethane producers registered under the RHI will be required to produce and submit annual sustainability audit reports. Further information on this ongoing obligation, including what the report must cover and the deadline for submitting reports can be found in the Non-Domestic RHI Sustainability Audit Guidance for Participants and Auditors.

12.38. The guidance gives further information on the greenhouse gas (GHG) lifecycle emissions and land criteria and what additional responsibilities you will have quarterly and annually to demonstrate this compliance.

12.39. Following reading those sections of the guidance, you will need to fill out a FMS questionnaire. This is a document which provides a template for agreeing your fuel measurement processes and classifications with Ofgem to give both parties assurance that you know how to report against the sustainability requirements going forward. Please refer to the FMS Guidance for advice on how to complete this.

13. Metering eligibility requirements

This chapter sets out:

- the types of meters that are allowed for the Non-Domestic RHI, and the technical requirements they must meet
- the information on meters and metering arrangements which we will be asking for during the accreditation process
- where meters should be positioned relative to the installation and heat uses, to ensure that measurements are relevant and accurate and that only eligible heat is claimed for
- requirements for meters in use for RHI purposes.

Introduction

13.1. In accordance with the Regulations, participants may only claim RHI support on eligible heat that is delivered by any heat-conveying liquid or steam[98]. If heat is delivered from other sources, such as direct air heating, this is not eligible for RHI support. All eligible installations will therefore need one or more heat or steam meters to correctly measure the amount of renewable heat that is eligible for RHI support.

13.2. Additional information for the metering requirements for biomethane plants is provided in chapter 12. For installations with a capacity of 45kWth and below, the MCS installation company should be able to advise participants on how to comply with the technical metering requirements set out below (as applicable).

13.3. This chapter contains information that is necessarily technical. The associated RHI guidance document 'Metering Placement Examples' provides examples of how the metering requirements set out in this chapter could apply in certain situations. This is intended to assist with understanding of how technical requirements could apply in practice. These are illustrative examples only, and are not intended to be an exhaustive list of all possible system configurations. However, for each application for RHI support, we will apply the principles described in this chapter when assessing whether the metering arrangements for that heating system meet the RHI eligibility requirements.

13.4. Details of how to provide ongoing meter readings to us are provided in volume 2, chapter 3 of the guidance. Ongoing meter readings are required so that we can calculate periodic payments. The ongoing obligations participants need to meet with respect to maintaining their meters can be found in volume 2, chapter 7.

13.5. For the purposes of this guidance we refer to 'heat meters' for the measurement of heat transferred by any liquid, typically hot water or water and a mixture of other agents (such as ethylene glycol). Steam meters are covered separately in the 'Steam measuring equipment (steam meters)' section below. Where heat and steam meters are referenced in this chapter, it is assumed they meet the requirements set out in the Regulations.

[98] Regulations, Part 2, chapter 2, Regulation 12(1)

Heat meters

What standard of heat meter is permissible for the RHI?

13.6. Where renewable heat is delivered by a heat conveying liquid, the Regulations require that all heat meters used for RHI purposes comply with Class 2 accuracy requirements, which means they:

- comply with the relevant requirements set out in Annex I to the 2004 Measuring Instruments Directive (MID)[99] (2004/22/EC)
- comply with the specific requirements listed in Annex MI-004 of the MID
- fall within accuracy Class 2 as defined in Annex MI-004[100].

13.7. There is an exception to this requirement for certain transitional CHP systems, please see chapter 11 for further details.

13.8. The MID sets out the requirements for a number of measuring instruments used for trade[101] MID covers meters used to measure heat by heat conveying liquids, such as hot water, in a heat exchange circuit. MID requirements in Annex I include allowable errors (accuracy classes), durability, resistance to disturbances, and inscriptions and markings that may need to be fixed to the meter. It also sets out what information must be provided by the manufacturer for installation, operation and maintenance of the meter. For further information about the MID, please see the National Measurement Office website[102].

13.9. It will be a condition of accreditation that the heat meter(s) for your installation must not in any way be tampered with to affect the meter readings of the installation.

13.10. MID provides requirements for different accuracy classes of heat meter. The government has concluded that a minimum of Class 2 requirements are applicable for the RHI[103], as set out in the Regulations[104].

13.11. To comply with the specific requirements in Annex MI-004 of the MID, all heat meters used for RHI purposes must comprise:

- a **flow sensor** (or meter) - a meter which determines the volume of fluid which has passed through a pipe within a given time period

- a **matched pair of temperature sensors** two temperature sensors that are calibrated together as a pair to make sure the temperature difference between the input and output of the system is measured to the stated accuracy level. For all types of temperature sensors we must be assured that they meet the RHI requirements. See 13.17 for information regarding externally mounted (strap-on) temperature sensors.

[99] http://www.bis.gov.uk/assets/bispartners/nmo/docs/legislation/legislation/mid/measuring-instruments- directive-text- from-oj.pdf
[100] Regulations, Part 1, Regulation 2, definition of 'class 2 heat meter'
[101] http://ec.europa.eu/enterprise/sectors/legal-metrology-and-prepack/documents/europ- standards/index_en.htm
[102] https://www.gov.uk/guidance/mid-approved-gas-and-electricity-meters
[103] Meters that fall within accuracy class 1 as defined in Annex MI-004 of the MID and meet the other appropriate eligibility requirements are also appropriate for RHI purposes (as these requirements are stricter than those for Class 2).
[104] See for example, RHI Regulations, Part 2, Chapter 3, Regulation 23.

- a **calculator/digital integrator** (though in some systems a Building Management System may take the place of the integrator) – a device which uses the information provided by the flow meter and the matched pair of temperature sensors to calculate the heat energy being transferred.

13.12. These above-listed components can be purchased together as an integrated meter. Alternatively, individual components, or sub-assemblies, can be brought together as a heat metering system. Where individual components are brought together as a heat metering system, the applicant must ensure that individual components are compatible. For example, a manufacturer of a calculator/digital integrator will advise on compatibility requirements for differing designs or sources of flow sensor and/or temperature sensors that meet the requirements set out above.

13.13. A heat meter comprising individual components which all meet or exceed Class 2 requirements (i.e. Class 1) would be accepted as meeting the requirements of a Class 2 meter (outlined above). However, if any component of the heat meter does not meet the Class 2 requirements, (e.g. the flow meter only meets the less accurate Class 3 requirements), the Class 2 requirements set out in the Regulations are not met.

13.14. Participants must ensure that any Class 2 heat meter used for RHI purposes is designed (and appropriately calibrated and properly installed) for the heat-conveying liquid used by the heating system.

13.15. We have consulted on the eligibility of heat meters with strap-on temperature sensors on the Non-Domestic RHI scheme. Following the consultation, and an independent report from the National Measurement Office (NMO)[105], we have not received evidence which satisfies us that meters with strap-on temperature sensors would meet the requirements for the Non-Domestic RHI scheme. Meters with strap-on temperature sensors will not therefore be considered eligible unless we receive evidence which demonstrates they do meet the requirements as identified in our response document[106].

13.16. We have also investigated the eligibility of ISO 4064:2014 and MID MI-001 water meters in the Great Britain ('GB') and Northern Ireland ('NI') RHI schemes and this remains in line with what was set out in our 31 May 2019 open letter[107].

13.17. Taking on board the feedback we received in response to the open letter, and having conducted further analysis, we have decided to implement the following approach (please refer to the follow-up to our open letter[108]):

- With respect to applications for accreditation that are submitted on or after 18 October 2019, no installations using affected meters will be able to receive accreditation. To receive accreditation, affected meters will either need to be replaced, or evidence will need to be provided with the application clearly showing that the meter is compliant.

- With respect to installations using affected meters that are already accredited, or for which applications were submitted on or before 17 October 2019, we remain of the view that participants should replace their affected meters as soon as possible. However, we will only enforce this when affected meters fall to be replaced due to normal operation

[105] https://www.ofgem.gov.uk/ofgem-publications/90820/nmoreportfinalversion.pdf
[106] https://www.ofgem.gov.uk/publications-and-updates/decision-eligibility-strap-temperature-sensors-non-domestic- renewable-heat-incentive-scheme
[107] https://www.ofgem.gov.uk/system/files/docs/2019/05/open_letter_on_the_eligibility_of_iso_4064_2014_and_mid_mi-001_water_meter_in_teh_gb_and_ni_rhi_schemes.pdf
[108] https://www.ofgem.gov.uk/system/files/docs/2019/10/response_to_the_open_letter_on_eligibility_of_water_meters_0.pdf

and maintenance as required by the GB and NI Regulations. At this time, the participant must replace the meter with one which can be shown to be compliant.

13.18. If the affected meters are not replaced upon the earlier of (i) the meter requiring replacement in order to ensure that it is continuously operating and properly maintained, and (ii) when re-calibration is required, then we may take compliance action under the relevant Regulations.

13.19. As a participant, should you replace a heat meter, you should ensure you discuss what type of meter you will be changing to with whomever you intend to replace the heat meter. Detailed guidance on identifying meters that meet the scheme requirements can be found in the report published by The National Measurements Office[109].

What information must be supplied when applying for accreditation?

13.20. There are a number of routes for demonstrating that an integrated heat meter meets the eligibility requirements. As part of the RHI accreditation process, we will ask for evidence to demonstrate that the meter meets the Class 2 requirements, which may be provided in all or any of four different ways. This information will be required for each model of integrated meter used for RHI purposes, as participants must demonstrate that all parts of the meter meet the requirements (including serial number and manufacturers' details).

13.21. The most straightforward method to demonstrate that the meter used for RHI purposes meets the eligibility requirements is to provide evidence that the meter (or sub-assemblies) are compliant with MID MI-004 conformity assessment procedures. A digital photograph of the meter showing meter design details, its serial number and display of its 'M' and 'CE' markings and approval numbers affixed to it could be used. Alternatively, a copy of a declaration of conformity could be used.

13.22. We will also accept other methods of demonstrating compliance with Class 2 requirements. The alternative options are:

- A (pre-MID)[110] EEC type approval certificate showing compliance with Class 2 accuracy requirements, or a digital photograph with the meter showing the EEC approval markings and verification seals affixed to it.
- A certificate from an independent test house accredited to ISO 17025 (heat meters) demonstrating compliance against the applicable European Standard (EN 1434: 2007 Parts 4 and 5) for Class 2 heat meters.
- An International Organization of Legal Metrology (OIML) Class 2 Heat Meter Certificate of Conformity.

13.23. Where the meter components are purchased separately, we will ask for evidence that each component meets the requirements.

13.24. As part of the accreditation process we will also ask for:

1. each heat meter's **manufacturer and model** or, where the components are purchased separately, the manufacturer and model of the flow sensor and digital integrator;

2. each heat meter's **serial number** or, where the components of the meter are purchased separately, the serial number of the flow meter component and digital integrator;

[109] https://www.gov.uk/government/organisations/national-measurement-office
[110] MID was implemented in GB on 30 October 2006. There is a 10 year transitional period for existing (pre- MID) approvals to continue to be manufactured and placed on the market.

3. a **brief description** of each meter, e.g. 'measures heat generated by biomass boiler' or 'measures heat being supplied to office block' allowing it to be identified on the system's schematic diagram (for further information about the schematic diagram, please see section 'Schematic diagram' below);

4. a **meter reading** for each meter, and the date on which that reading was taken; and

5. the applicant's **confirmation** that all meters were installed in line with manufacturer's instructions[111] (including any installation requirements required as part of the MID conformity assessment or other EEC, EN 1434 or OIML testing certificates, as appropriate) and that the metering system is appropriate for the measurement function (eg the possible flow rates of the fluid being measured fall between the maximum and minimum flow rate calibration range of the flow sensor or the temperature sensors are designed to measure the possible temperature range of the liquids) and was appropriately calibrated prior to use.

13.25. We may request a copy of the MID EC-type or design examination certificate or other EEC, EN 1434 or OIML testing certificates, where appropriate, for any heat meter used for RHI purposes. Where the components of the heat meter are purchased separately, the manufacturer and model of the temperature sensors and calculator/digital integrator, and the serial number of the calculator/digital integrator may also be requested.

13.26. It is a requirement that all heat meters are positioned to provide accurate measurements and we may request supporting evidence to demonstrate this.

13.27. All large (≥1MWth) installations and installations using a 'multiple' metering arrangement that deliver heat by hot liquid will be required to provide an independent report that verifies the metering arrangements in place as part of the accreditation process. This will provide further information about the heat meters and the heating system, allowing us to verify that all the relevant eligibility criteria have been met. Please see the 'Independent report on metering arrangements (IRMAs)' section in this chapter for further details of this report. This section will help you understand whether you need to provide an IRMA and if so where to find the template of the report[112] on the RHI website.

13.28. In some systems the composition of the heat conveying liquid could vary over time. This may include some heating systems where a mixture (such as a water/ethylene glycol mix) will be topped up using liquid of a different composition (such as water). In these circumstances, the applicant must demonstrate that the meters installed will always meet the general eligibility conditions. We will want to see any procedures in place to monitor and control the concentration of the heat conveying liquid and the regime for re-calibrating the meters when it is necessary to compensate for changes to heat transfer liquid composition.

Steam measuring equipment (steam meters)

What standard of steam meter is permissible for the RHI?

13.29. Where renewable heat is delivered by steam, the Regulations set out the requirements for 'steam measuring equipment' (steam meters)[113].Steam meters used for RHI purposes must have, as a minimum, the following components continuously measuring the steam

[111] This requirement is deemed to be met if the meter is installed in such a manner that Ofgem is satisfied there would be no material difference in periodic support payments as a result of the meter not being installed in line with manufacturer's instructions.

[112] www.ofgem.gov.uk/rhi

[113] Regulations, Part 1, Regulation 2, definition of "steam measuring equipment"

properties and calculating the cumulative steam energy that has passed through the measuring system as shown on the system's schematic diagram:

- a **flow meter** – which determines how much fluid (steam) has passed through a pipe over a given time period
- a **pressure sensor** – to measure the pressure of steam flowing through the pipe
- a **temperature sensor** – to measure the temperature of steam flowing through the pipe
- a **calculator/digital integrator** – which uses the information provided by the flow meter, temperature and pressure sensors to calculate the cumulative heat energy transferred through the pipe.

13.30. These components can be purchased together as an integrated meter or purchased separately.

13.31. The Regulations also require that all steam meters are capable of displaying the measured steam pressure and temperature, and the current mass flow rate and cumulative mass of steam which has passed through it since it was installed. To accommodate cases where cumulative readings may be reset during the calibration process, we will consider this to also include steam meters capable of displaying the measured steam pressure and temperature, and the current mass flow rate and cumulative mass of steam which has passed through it since it was installed or calibrated.

13.32. It is a requirement that all steam meters are positioned to provide accurate measurements and we request supporting evidence to demonstrate this.

13.33. We expect you to install steam measuring equipment that is capable of delivering the levels of reliability and accuracy associated with accepted industry good practice. Where available, compliance with International, European or British Standards including ISO 5167 (orifice plates) is likely to be indicative of good practice, as is the use of methodologies provided in the Carbon Trust Good Practice Guide 018 or the CHPQA guidance notes (CHPQA guidance)[114].

What information about steam meters is required when applying for accreditation?

13.34. As part of the accreditation process we will ask for:

- each steam meter's **manufacturer and model** or, where the components are purchased separately, the manufacturer and model of the flow meter component and digital integrator;
- each steam meter's **serial number** or, where the components of the meter are purchased separately, the serial number of the flow meter component and digital integrator;
- the date of the **most recent calibration** of the steam meter;
- a **brief description** of each meter, e.g. 'measures steam generated by biomass boiler' or 'measures steam being supplied to sterilisation process' allowing it to be identified on the schematic diagram (for further information about the schematic diagram, please see the 'Schematic diagram' section below);
- a **meter reading** for each meter, and the date on which that reading was taken;

[114] http://chpqa.decc.gov.uk/guidance-notes/

and

- **confirmation** that all meters were installed in line with manufacturer's instructions[115] and, where appropriate, that the metering system is appropriate for the measurement function (such as the flow rate and the calibration range of the temperature and pressure sensors) and calibrated prior to use[116].

13.35. The most recent calibration dates and the manufacturer and model of the calculator/digital integrator, temperature and pressure sensors should always be available upon request.

13.36. All installations that deliver heat by steam will be required to provide an independent report that verifies the metering arrangements in place as part of the accreditation process. This will provide further information about the steam meters and the heating system, allowing us to confirm that all the relevant eligibility criteria have been met. Please see section 'Independent report on metering arrangements' below for further details of this report.

Meter placement and numbers of meters: all installations

General Metering Requirements

13.37. This section covers how many meters you will need and where they should be located in order to comply with the Regulations.

13.38. The Regulations require all eligible installations to have a minimum of one Class 2 heat meter installed to enable "the kWhth of heat generated by the plant which is used for eligible purposes to be determined"[117]. This is referred to as the **eligible heat output (EHO).** Where the heat is delivered by steam, steam measuring equipment and Class 2 heat meters to measure condensate returning to the plant as may be necessary will be required.

13.39. The Regulations specify that necessary meters and/or steam measuring equipment must be positioned to provide accurate measurements to be eligible for accreditation under the RHI[118]. Where your meters are positioned will determine the number of 'quantities' (see the Glossary in Appendix 1 for a full definition) to be measured in order to determine the EHO for RHI payment purposes.

13.40. The number of 'quantities' required to calculate the EHO will determine whether we categorise an installation as using a standard or multiple metering arrangement for RHI payment purposes. These terms are used to determine the relevant RHI payment calculation as set out in volume 2, chapter 6. The terms 'standard' and 'multiple' are explained in more detail in the subsequent sections.

13.41. In specific circumstances, the Regulations allow applicants to disregard heat loss from external piping, or to submit heat loss calculations in place of installing additional meters[119]. Applicants who wish to do either of these must complete a Heat Loss Assessment (HLA).

[115] This requirement is deemed to be met if the meter is installed in such a manner that Ofgem is satisfied there would be no material difference in periodic support payments as a result of the meter not being installed in line with manufacturer's instructions.
[116] Regulations, Part 2, Chapter 3, Regulation 28(2)
[117] Regulations, Part 2, Chapter 3, Regulation 23
[118] Regulations, Part 2, Chapter 3, Regulation 23 and Part 7, Regulation 75
[119] Regulations, Part 2, chapter 3, Regulation 23(3) and 75 (4) and (5)

What is a Heat Loss Assessment (HLA) and how does it work?

13.42. The HLA is a spreadsheet based tool available from the Ofgem website. It helps to assist with calculations to determine whether heat losses from external pipework may be disregarded, and/or whether a heat loss calculation can be submitted in place of installing additional heat meters for one of the following reasons:

- physical constraints – it is not reasonably practical to install a heat meter or steam measuring equipment[120]
- reasons of safety – it is not safe to install the heat meter in the required position
- environmental conditions – the environment in which the meter is positioned might affect its readings
- metering would provide less accurate results than a heat loss calculation[121]
- it is financially overly burdensome to install additional meters. From collaboration with industry, we have taken this to be where the cost of installing any additional required heat meters would be more than five per cent of the total plant installation costs, or greater than £50,000[122]
- ineligible heat losses – where the associated annual heat loss from external pipework would equate to less than £100 in RHI periodic support payments.[123]

13.43. External pipework located underground can be considered as being 'properly insulated'[124] where it can be demonstrated that the pipework has been insulated in accordance with BS EN 253 (2009); BS EN 15632:2 or 3 (2010); BS EN 15632:4 (2009); or BS EN 15698:1 (2009). Possible methods of demonstrating this are as follows:

- Provide a test certificate confirming that your make and model of pipework has been insulated in accordance with one of the above standards
- Provide a photo that shows a stamp on your pipework indicating insulation has been in accordance with one of the above standards (if accessible)

Other forms of evidence may be submitted which Ofgem will assess on a case-by-case basis

13.44. External pipework located above ground can be considered as being 'properly insulated' where it can be demonstrated that the maximum permissible heat losses outlined in British Standard BS5422:2009[125] are not exceeded. The 'above ground' tab of the HLA will determine whether an individual pipe length meets this regulatory definition. This tab should be completed for each external pipe length located above ground regardless of whether the individual length is greater or less than 10m.

13.45. If the definition of properly insulated has been met, the associated heat loss can be disregarded in the following circumstances:

- for each individual external pipe length that is 'properly insulated' and 10m or less in length, and/or

[120] Regulations, Part 7, Regulation 75(5)(a).
[121] Regulations, Part 7, Regulation 75 (5)(b).
[122] Regulations, Part 7, Regulation 75 (5)(c).
[123] Regulations, Part 7, Regulation 75 (5)(d).
[124] Regulations, Part 1, Regulation 2, definition of "properly insulated".
[125] BS 5422:2009: 'Method for Specifying Thermal Insulating Materials for Pipes, Tanks, Vessels, Ductwork and Equipment Operating within the Temperature Range -40oC to +700oC'

- where the annual average heat loss in kWhth from all external pipe lengths that are 'properly insulated' and greater than 10m in length is **less than 3%** of the projected annual output of the plant in kWhth.

13.46. Where the annual average heat loss in kWhth from all external pipe lengths that are properly insulated and greater than 10m in length is **3% or greater** of the projected annual output of the plant in kWhth, the associated heat loss cannot be disregarded. In this case there are two options:

- install additional heat meters as required
- complete a Heat Loss Calculation for all external pipe lengths that are 'properly insulated' and greater than 10m in length.

13.47. For external pipe lengths that are 'properly insulated' and greater than 10m in length, a Heat Loss Calculation will always be accepted regardless of the total value of the losses, however these losses will be deducted from periodic support payments.

Proxy measurements

13.48. Where installations have additional back up gas or electricity boilers supplementing the RHI eligible heat output from the plant, the Regulations allow the relevant gas or electricity meter to be installed to measure this fuel consumption[126]. A calculation may then be performed to work out the associated heat produced (kWhth) based on an assumption that 100% of the fuel is converted into heat. This figure may then be used as part of determining the eligible heat output quantity at each quarterly periodic data submission.

13.49. The gas or electricity meter readings would also be required to be submitted on a quarterly basis.

Defining standard and multiple metering arrangements based on a system's EHO

13.50. The Regulations require meters to be installed so 'the heat generated by the plant which is used for eligible purposes'[127] can be measured. We refer to this as the eligible heat output (EHO), which is used as the basis for calculating RHI payments. For metering purposes it is implicit in this regulatory definition that the EHO should be calculated using either (i) or (ii) detailed below:

(i) **'Standard' metering:** one quantity is required to be measured to calculate the EHO. This one quantity must equate to one of the following:

- the **Heat Generated by Eligible Installation (kWhth) [HGBI]** where there are NO ineligible heat uses
- the **Heat Used for Eligible Purposes (kWhth) [HUEP]** where there is NO ineligible heat generation plant which may contribute to the output measured by any RHI-relevant heat meter.

The RHI payment calculation = Tariff x EHO. This means that for standard systems, where one quantity is being measured, the RHI payment formulae will be either:

- Standard 1 = Tariff x **HGBI**; or
- Standard 2 = Tariff x **HUEP**

[126] Regulations, Part 5, Regulation 75 (6)(a) & (b)
[127] Regulations, Part 2, Regulation 23

(ii) **Multiple metering:** two or more quantities are required to be measured and then combined as follows to calculate the EHO from the installation.

These quantities must include both of the following:

- the **Heat Generated by Eligible Installation (kWhth) [HGBI]**, which means one or more meters placed at the eligible installation
- the **Heat Used for Eligible Purposes (kWhth) [HUEP]**, which means one or more meter placed at the eligible heat use**.**

You must also have an additional meter or meters to enable either one of the following to be calculated[128].

(i) the **Total Heat Generated by all the plants supplying heat to the heating system (kWhth) [THG]**, which means meters at all points of heat generation **or**

(ii) the **Total Heat Used (kWhth) [THU]**, which means meters at all points of heat use on the installation.

The RHI payment calculation = Tariff x EHO. For systems using a multiple metering arrangement, where two or more quantities are being measured, the RHI payment formulas will be either:

- Multiple 1 = Tariff x [(**Eligible Heat Use**) x (**Eligible Heat Generation**)/ (**Total Heat Generated by all plants (kWhth) [THG]**,)] or
- Multiple 2 = Tariff x [(**Eligible Heat Generation**) x (**Eligible Heat Use**)/ (**Total Heat Use**)]

13.51. Refer to the RHI guidance document, 'Metering Placement Examples', for examples and schematics to assist in working out whether your system uses a standard or multiple metering arrangement for RHI payment purposes.

13.52. To work out what your metering options are, see the guidance document 'Understanding your metering requirements'[129].

What is a heat loss calculation and how do I complete one?

13.53. If heat loss from external pipework cannot be disregarded but you feel that it would be overly burdensome to install one or more additional heat meters, you can make a case to submit a heat loss calculation. A heat loss calculation may also be submitted if you have external storage tanks for which associated heat losses need to be accounted for. A heat loss calculation generates a quarterly heat loss figure (QHLF) for your installation. The QHLF is the 'Annual Average Heat Loss Figure', divided by four and rounded to the nearest kWhth. It will be deducted from your quarterly periodic support payments.

13.54. Completing a heat loss calculation in place of additional metering can only be accepted for the reasons outlined above in the 'What is a Heat Loss Assessment (HLA) and how does it work?' section. In addition, a minimum of one heat meter or steam meter will always need to be installed. For steam systems, applicants need to install the minimum number of Class 2 heat meters necessary to measure any condensate returning to the plant.

13.55. For guidance on how to complete a HLA and HLC, please see the Heat Loss Assessment User

[128] The applicant can choose which of these needs to be metered for RHI payment purposes. It will most likely depend upon physical accessibility for meter installation and additionally the number of individual points of heat generation or heat use required to be metered and thus the minimum number of required meters. See the 'Tariffs and Periodic Support Payments' chapter of RHI Guidance, volume 2.

[129] https://www.ofgem.gov.uk/publications-and-updates/understanding-your-metering-requirements

Guide available on the Ofgem website.

13.56. You will also need to include any required supporting evidence shown in the 'Submission Checklist' tab. This information and evidence will be reviewed on a case-by-case basis by us.

Is it mandatory to use the Ofgem automatic heat loss calculator?

13.57. The Regulations define a 'heat loss calculation' as a calculation of heat loss which is carried out in accordance with the 2007 CIBSE (Chartered Institute of Building Services Engineers). Guidance Document C – reference data. The preferred method for performing a heat loss calculation is to use the 'automatic' calculators contained within the HLA. These calculator spreadsheets has been created by us in line with the definition of a 'heat loss calculation' as described above. It was created by technical experts and has been reviewed by industry peers.

13.58. If you choose not to use our automatic heat loss calculator you should perform your own bespoke calculation based upon CIBSE Guide C heat loss calculation methodology. It is essential that this be a robust and verifiable calculation.

13.59. For further information on completing the heat loss assessment or submitting the case for a heat loss calculation please see the Renewable Heat Incentive Heat Loss Assessment User Guide on our website[130].

Meter placement for installations where the heat transfer medium is a liquid (i.e. not steam)

13.60. This section describes the meter placement requirements for heating systems where the heat transfer medium is a liquid. For steam, please see the section called 'Meter placement for installations where the heat transfer medium is steam' below.

13.61. For installations where the heat transfer medium is a liquid, heat meters will be required to directly measure some of four possible 'quantities' for the heating system of which the installation forms part ('the heating system').

13.62. For standard metering arrangements one of either of the following and for multiple metering arrangements both of the following is required:

- heat generated by the eligible installation, prior to any common piping or vessels
- heat used for eligible purposes by the heating system[131]. This must not include any heat that is used for ineligible purposes. (Examples of ineligible purposes are given in chapter 6, 'Heat uses').

And, for multiple metering arrangements only, one of either:

- total heat generated by all plants supplying hot liquid to the heating system (this applies to all plants, whether they are eligible for the RHI or not)
- total heat used [THU] on the system for eligible and ineligible purposes (kWhth) for all purposes by the heating system (this applies to all heat uses whether they are eligible or ineligible).

13.63. For all four quantities listed above, the flow meter component of the heat meter should be

[130] www.ofgem.gov.uk/RHI

[131] Regulations, Part 2, Chapter 3, Regulation 23(2)

installed in the pipe as indicated by the manufacturer, and located on either:

- the return pipe directly leaving the eligible purpose/ ineligible purpose or entering the installation/heat generating plant(s); or
- the flow pipe[132] directly leaving the installation/heat generating plant(s) or entering the eligible purpose/ineligible purpose.

13.64. The temperature sensors must be placed so that they measure:

- the temperature of the liquid as it leaves the installation/heat generating plant(s) or enters the eligible purpose/ineligible purpose
- the temperature of the liquid leaving the eligible purpose/ineligible purpose or returning to the installation/heat generating plant(s).

13.65. For specific examples of the above please refer to the flow charts in the RHI guidance document, 'Metering Placement Examples', which will refer you to the relevant schematic.

Meter placement for installations where the heat transfer medium is steam

13.66. All steam meters used for RHI purposes must meet the technical requirements set out in the 'Steam measuring equipment (steam meters)' section above.

13.67. Depending on whether the installation uses 'standard' or 'multiple' metering arrangements, steam meters will need to be positioned to measure one or a combination of the following 'quantities':

- heat generated in the form of steam by the eligible installation
- heat in the form of steam used for eligible purposes by the heating system. This will require:
  - a steam meter to measure the energy in the form of steam that is delivered to the eligible purpose, and
  - heat meters or steam meters positioned to measure heat which is returned from the eligible purpose in the form of condensate, low pressure steam, or a two phase flow[133] of condensate and steam[134].
- total heat generated in the form of steam by all plants supplying heat to the heating system
- total heat in the form of steam used by the heating system for both eligible and ineligible uses. This will require:
  - a steam meter to measure the energy in the form of steam that is delivered to the eligible and/or ineligible purpose
  - heat meters or steam meters positioned to measure heat which is returned from the eligible purpose in the form of condensate, low pressure steam, or a two phase flow[135] of condensate and steam[136].

[132] The pipe carrying the hot water flow leaving an installation or heat use is commonly referred to as the flow pipe.

[133] A two-phase flow is one in which two phases flow simultaneously – in this case, the two phases are gas (steam) and liquid (water)

[134] Regulations, Part 2, Chapter 3, Regulation 23(2)(b)

[135] A two-phase flow is one in which two phases flow simultaneously – in this case, the two phases are gas (steam) and liquid (water)

[136] Regulations, Part 2, Chapter 3, Regulation 23(2)(b)

13.68. If the feedwater temperature for all plants is the same, the energy in the hot water delivered to the eligible installation and any ineligible plant(s) does not need to be metered (see example D.6 in the Metering Placement Examples document).[137]

13.69. The energy in the hot water delivered to the eligible installation and any ineligible plant or plants will need to be metered if the feedwater temperature for all plants differs. For an illustration of how the metering arrangements in this situation might look, please refer to Example D.7 in the Metering Placement Examples document.

13.70. Where any combination of condensate, non-condensable gases and steam are discharged, the steam meter(s) measuring steam delivered to an eligible purpose must be positioned so that they will not include heat lost via such discharges.

13.71. The previous paragraph would generally apply to devices including steam traps and blowdown valves, however, we are aware that well maintained steam traps and related devices may be an integral part of best practice system design. Where steam traps and related devices are well maintained and are appropriate to the system, we would not consider these devices to be an ineligible use for metering purposes. We may seek assurance, including through the Independent Report on Metering Arrangements (see section 'Independent Report on Metering Arrangements' below), that such devices are appropriate to the system, and are properly maintained.

13.72. Where steam is used for internal processes, such as feed water pre-heating, de-aeration or any other such returns to the installation, steam meters measuring steam delivered to the eligible purpose must be positioned so that they exclude steam used for these purposes. Where this is not possible, calculation of the amount of steam used for such purposes using metering by difference, may be permitted. Please see the 'Metering by difference' section in this chapter for further details. For further information about internal heat, see chapter 5.

13.73. Often the fluid that returns from the eligible purpose will be a two-phase mixture of hot water and steam. We expect applicants to know the conditions of this returned fluid in order to determine whether a steam meter or heat meter is most appropriate for measuring its energy content. We may ask for evidence showing that the choice of meter is appropriate for the typical conditions of the returned fluid.

13.74. Where the returned fluid is wholly or primarily hot water, the heat meter should have one temperature sensor in the return pipe from the eligible purpose and use the datum used by the steam meters in place of the second temperature sensor. Typically this datum will be 0ºC[138].

13.75. Where the fluid returned from the eligible use is wholly or primarily steam, additional temperature and pressure sensors must be located in the return pipe leaving the eligible purpose (in addition to a flow meter).

13.76. In line with industry good practice, we expect participants to return as much fluid from the eligible purpose as practically possible. We may ask for information or evidence to confirm this is the case.

13.77. Flow meters, pressure sensors, temperature sensors and calculators/digital integrators must be clearly marked on the schematic diagram. The schematic diagram must also show which meter components are used to derive the energy measured by particular steam meters. Refer

[137] For an installation using 'combined' metering for RHI payment purposes, as the heat generated by the eligible installation and the total heat generated by all plants that deliver heat to the heating system only appear in the tariff calculation formula as a ratio, the enthalpy difference between the steam and the feedwater cancels out in the tariff calculation formula. For further details of this formula, please see chapter 5 RHI Guidance volume 2.

[138] See, for example, https://www.chpqa.com/guidance_notes/GUIDANCE_NOTE_23.pdf

to the RHI guidance document, 'Metering Placement Examples' for more information.

Isolated ineligible plants

13.78. There are certain situations where an ineligible plant supplying heat to the same end-uses as an RHI installation may not need to be metered for the purpose of RHI payments. You will need to demonstrate that such ineligible plant are isolated such that they cannot contribute to the output as measured by any RHI-relevant heat meter, nor affect Ofgem's ability to determine the kWhth of heat generated by the eligible installation which is used for eligible purposes.

13.79. Applicants submitting a case that an ineligible plant may be considered isolated will need to demonstrate the following:

- The ineligible plant is operated in such a way that the heat from it does not contribute to the output as measured by any RHI-relevant heat meter.
- Adequate controls are in place such that the output from the ineligible plant does not affect Ofgem's ability to determine the kWhth of heat generated by the eligible installation which is used for eligible purposes.

13.80. Suitable examples of controls where an ineligible plant may be considered isolated could include:

- Where eligible heat is supplied to a building via a permanent interface such as a plate heat exchanger or low loss header plus a non-return valve (see Metering Placement Examples, example E.1). In these instances it may be possible to demonstrate that the ineligible plant is located on a separate heat distribution system to the primary circuit served by the eligible installation and that no RHI- relevant heat meters will be affected.
- Where there are adequate controls in place (valves, control units, etc.) to isolate the ineligible plant such that during its operation, Ofgem's ability to determine the kWhth of heat generated by the eligible plant which is used for eligible purposes would not be affected. This could include controls such as an electrical switch linked to a diverter valve so as to enable the user to switch from the eligible to ineligible heat generating plant in a manner that would not affect any RHI-relevant heat meters (see Metering Placement Examples, examples E.2 and E.3).

13.81. The examples in the 'Metering Placement Examples' document are only a representation of a few likely cases. We will review these on a case-by-case basis using the principles set out above.

More than one eligible installation connected to the same heating system

13.82. Where more than one eligible installation is connected to the same heating system (e.g. a biomass boiler and a heat pump), each eligible installation must be metered separately even though in effect they would be defined as the same 'quantity' (i.e. eligible heat). This is to ensure that the renewable heat contribution can be accurately measured for RHI payment purposes, as different technologies receive different tariffs, and therefore require separate applications. Where an installation comprises multiple plants of the same technology, it may be possible for the plants to share a meter for RHI purposes. Please see the 'Shared meters' section below for further information.

Location of meters on boilers with heat recirculation

13.83. We are aware that boilers may be incorporated into a heating system in conjunction with a "back-end-loop", which recirculates heat directly to the boiler while bypassing the main heating circuit or any further heating loads. We understand that this will be standard practice for certain boiler types, including biomass boilers. We would consider best practice system design to involve meter placement after the back-end-loop, in order to protect against recirculated heat being measured for the purposes of RHI payment calculations. We will examine evidence that emerges through the administration of the scheme, and may at a later date include a requirement that meters be placed after the back-end-loop in all cases.

Shared meters

13.84. An eligible installation with multiple component plants that use the same source of energy and technology may use one heat or steam meter to measure the heat generated by some or all the component plants, provided those plants:

- are eligible to receive the same tariff
- share the same tariff start date and tariff end date
- in our opinion, can be served by a single meter that is capable of measuring the required quantity[139].

13.85. This section does not apply where additional RHI capacity is added to an installation (after the original installation has been accredited). For further details on additional capacity please see volume 2, chapter 9.

13.86. If you have multiple plants of the same source of energy and technology, but you think they should be considered as separate installations, it will need to be demonstrated that they are on separate heat distribution systems. This is because according to the Regulations[140], plants of the same source of energy and technology that are on the same heating system and are not already accredited must be treated as one installation. The number of heat meters used does not affect whether the plants would be considered as one installation.

13.87. The shared meter approach allows plants using the same energy source and technology to be grouped together and metered by just one heat or steam meter. In practice, we will generally permit a shared meter where the heat generated by one or more of the plants comprising the eligible installation can be **directly** metered by a single heat or steam meter. For example, the return temperature sensor would need to be placed prior to any heat from other sources entering the heating system, and the flow temperature sensor after any pre-heating. Where direct measurement is not possible, each plant will need to be metered individually.

13.88. Refer to the flow charts in RHI guidance document, 'Metering Placement Examples', for relevant examples.

13.89. It should be made clear on the schematic diagram and in the application for accreditation where an eligible installation is comprised of multiple component plants. See chapter 2, 'How to apply when you have multiple plants' section for further information.

Installations in series

13.90. Where one eligible installation is used in series with another, for example a solar thermal installation preheats feed water to a biomass boiler, heat meters (or steam meters if appropriate) must be positioned to directly measure the heat generated by **each** installation

[139] Regulations, Part 2, Chapter 3, Regulation 26
[140] Regulations, Part 2, Chapter 2, Regulation 19

and to allow measurement of the contribution made by **each** eligible installation to the total eligible heat output. Refer to RHI guidance document, 'Metering Placement Examples' for a relevant example.

Metering by difference

13.91. In general, we will require direct measurement of the quantities described in the paragraphs above[141]. Combining meter readings to obtain a quantity required for the RHI tariff calculation may affect the accuracy with which that quantity has been measured so direct measurement of the quantities will ensure that readings used for RHI payment purposes are accurate.

13.92. We recognise that in some circumstances direct measurement may not be possible and in those cases we will give consideration to measuring by difference on a case-by-case basis. For example, if a Class 2 heat meter measures quantity A and another Class 2 heat meter measures quantity B, then we may permit these measurements to be used to calculate the RHI-required quantity C, where "C = A – B".

13.93. We are most likely to grant permission for measuring by difference where there is good reason for not using direct measurement, and where measuring by difference can provide an acceptable level of accuracy. In this case, we would usually expect all relevant metering equipment to have been calibrated at the same time and by the same person to reduce any calibration errors.

13.94. Measuring by difference will be agreed in writing, and will include the agreed means of calculation.

Installation of meters

13.95. As part of your application, you will need to declare that all heat or steam meters (and meter components where these were purchased separately) to the best of your knowledge still conform to the manufacturer's specifications (e.g. they have not been modified in any material way or, if repaired or refurbished, replacement parts were sourced from the original manufacturer) and still maintain relevant accuracy (i.e. within the Class 2 or other eligibility requirements).

13.96. You will also be required to ensure that all meters and their associated components are installed in accordance with the manufacturer's specifications (including any installation requirements required as part of the MID EC-type or design examination certificate or other EEC, EN 1434 or OIML testing certificates where appropriate). For example, manufacturers of flow meters often stipulate that the meter must:

- have a flow conditioner or be placed a defined number of upstream and downstream straight pipe diameters from any obstruction or plant to ensure that the meter is not affected by flow disturbances or perturbations
- have the temperature (and, where appropriate, pressure) sensors placed to ensure that the temperature or pressure measurement is that of the heat- conveying liquid or steam and is not affected by other factors, such as other heat sources or the piping configurations.

13.97. You must ensure that the meters installed are appropriate for the operating conditions of the heating system. You should keep records of the relevant manufacturer's instructions and relevant installer's receipts/documentation as we expect these to be available upon request.

[141] The exception to this is the measurement of heat used in systems where heat is delivered by steam.

13.98. We have identified meter installation errors as a significant contributor to non-compliances that can affect RHI payments. Applicants are encouraged to ensure their meters are installed in line with all relevant instructions, including the selection on the appropriate locations for flow meters (e.g. flow or return pipe) and the orientation of all components. Applicants are encouraged to identify installers who have expertise in heat meter installation and an understanding of RHI requirements.

Schematic diagram

13.99. During the accreditation process, applicants will be required to provide a schematic diagram of the installation and the heating system of which it forms part. This diagram will form a key part of the application for accreditation.

13.100. This diagram will need clearly to show, as appropriate to the heating system of which the installation forms part:

- the relative positions of the eligible installation(s) (including any component plants), building boundaries, any ineligible plant(s), eligible heat use(s), any ineligible heat use(s) and heat rejection facility/facilities
- the relevant piping connections between all plants within the eligible installation(s)
- the relevant piping connections between all eligible installations, all ineligible plants and eligible or ineligible uses of heat all valves, heat exchangers, low loss headers, pumps or other components which may serve to isolate an ineligible plant from the RHI relevant heating system
- building boundaries
- the relative positions of the relevant heat and steam meters and their associated components as listed under sections 'Heat meters' and 'Steam measuring equipment (steam meters)' above, and
- for any installation using external piping (whether above ground or buried), the relevant measurement (in metres) of any/ all individual external pipe lengths (this includes both flow and return pipe lengths).

13.101. With regard to metering arrangements, the schematic diagram (including a key) must clearly show for each meter used for RHI purposes, as appropriate:

- the meter sub components' positions (ie positions of temperature sensors, pressure sensors, flow meters and any flow conditioners/straighteners)
- which measurements will be combined by the calculator/digital integrator to generate the meter reading
- the meter serial number, as listed in the applicant's application for accreditation.

Independent report on metering arrangements (IRMA)

13.102. Where an installation can be classified as falling into one or more of the following scenarios, we have the right to require an independent report on metering arrangements, which must be completed by an independent person.

- The installation has a capacity of 1MWth or above
- The installation is classed as having a multiple metering arrangement for RHI payment purposes
- The installation uses steam as the heat transfer medium.

This report should demonstrate that the metering and measuring requirements imposed by chapter 3 of Part 2 of the Regulations have been met[142].

13.103. Please note that generally we will not require the following installations to submit an IRMA where:

- they have a capacity of 45kWth or below, or
- they are classed as having standard metering for RHI payment purposes.

13.104. We reserve the right to request the submission of an IRMA for such installations if we are not satisfied by the other evidence that the metering arrangements for the system meet the scheme requirements. Relevant applicants may choose not to obtain a report in advance of making their application but should be prepared to provide one on request.

13.105. An IRMA will also be required in the following scenarios:

- Where additional RHI capacity[143] takes an accredited installation's capacity over 1MWth.
- Where additional RHI capacity takes an accredited installation's capacity over 45kWth and the installation is considered to have a multiple metering arrangement for RHI payment purposes.
- Where a change is made to the installation/heating system that results in an RHI- accredited installation moving from a standard to multiple metering arrangement classification for RHI payment purposes[144]. It will be a condition of accreditation for all participants with accredited installations that should this third scenario arise, the participant will be required to produce an IRMA for their accredited installation.

13.106. Further information about additional RHI capacity and standard and multiple metering arrangement classifications can be found in chapter 13, and in volume 2, chapter 9.

Who can write the report?

13.107. In order to ensure the report is of an appropriate standard, the Regulations require the IRMA to be completed by a 'competent person'.

13.108. This is interpreted as a person that meets all of the following criteria:

1. An experienced and suitably qualified engineer (at least HND or equivalent in an engineering discipline from a recognised academic institution).
2. Has demonstrable experience and expertise in flow measurement and heat/steam

[142] Regulations, Schedule 1, paragraph 1 (2)(z)(v)

[143] Additional RHI capacity' is defined in the Regulations (Part 8, Regulation 76(2)) as a plant which is— (a) first commissioned after the date on which an accredited RHI installation ('the original installation') was first commissioned; (b) uses the same source of energy and technology as the original installation; and (c) supplies heat to the same heating system as that of which the original installation forms part.

[144] Regulations, Part 7, Regulation 66

measurement systems demonstrated by training and development records. Details of training will be asked for in the report.

3. Has a relevant background (involved in energy, utilities, building services, heating system design, heating system operation & maintenance).

4. Covered by Professional Indemnity Insurance of at least £1m (through employer or directly).

5. Is unbiased and impartial.

13.109. Over time we will keep these criteria under review, and we may in future ask for further competence criteria to be met as the number and levels of qualification of people in the marketplace increases.

13.110. Prospective participants may be required to demonstrate that the competent person is, and is seen to be, unbiased and impartial. We will consider each case on its facts but we consider that a competent person is unlikely to be regarded as unbiased and impartial where, for example:

- he or she is, or is an employee of, the owner or heat user
- he or she is related to the owner or heat user
- he or she is contractually obliged to author reports exclusively for a given owner
- the submission of the report could have a material impact on a significant portion of his or her income.

13.111. For avoidance of doubt, this would allow the designer or meter installer to complete the report, where they were in a normal arms-length commercial relationship with the applicant, and the bullet points listed above did not apply.

13.112. As with the 'competent person' criteria, over time we will keep under review the above examples of persons we would consider unlikely to be regarded as unbiased and impartial.

13.113. In line with responses to our 2013 public consultation on the Independent Report on Metering Arrangements, we confirm that we will not regard an owner of the installation as being independent[145]. The owner of an installation will therefore not be an appropriate person to produce the report.

13.114. The competent person producing the report must undertake a visit to the installation and complete the report. Where this report is required, applicants are responsible for ensuring it is carried out by a competent person who meets the criteria set out above. Trade bodies should be able to provide further advice if required.

What should the report cover?

13.115. We have developed a report template, which should be used to submit the required information. This is to ensure that all reports are consistent and provide the information we require to confirm metering arrangements are appropriate for the RHI. The IRMA template is available on the Ofgem RHI website[146]. The competent person is required to follow this template as closely as possible and input one of the acceptable responses for each question, except in the comment boxes where they can comment freely.

[145] For details see the summary of responses available in the document 'Renewable Heat Incentive (RHI): Updates to the Independent Report on Metering Arrangements (IRMA) template' published in August 2013 and available on the Ofgem website, www.ofgem.gov.uk/rhi

[146] www.ofgem.gov.uk/rhi

13.116. The report will cover the installation's metering arrangements for RHI purposes, including:

- whether meters and sensors are correctly positioned and robust against tampering
- confirming that where any steam traps or related devices regarded as eligible for metering purposes are observed, there is no evidence that these are inappropriate to the system, inadequately maintained or inappropriately vented
- whether meters and sensors are installed in accordance with the manufacturer's instructions and, where relevant, any installation requirements required as part of the MID EC-type or design examination certificate or other EEC, EN 1434 or OIML testing certificates where appropriate
- whether meters and sensors meet the technical requirements set out elsewhere in this chapter
- whether the system is configured so that any significant heat losses are accounted for by the meter and sensor positioning
- whether the schematic diagram is an accurate representation of the installation and the heating system of which it forms part
- confirming how each 'quantity' required for RHI payment purposes would be accurately determined based on the installed meters and any accompanying calculations
- whether external piping meets the 'properly insulated' criteria and that the associated metering will be sufficient for RHI payment purposes.

13.117. The competent person must sign a declaration, confirming that they meet the eligibility and competency criteria and that the information provided in the report is accurate to the best of their knowledge.

What happens if we are not satisfied with the report?

13.118. In order for the installation to be accredited to the RHI, those installations requiring a report must have it satisfactorily completed and provided to us. If we are not satisfied with any portion of a report, we will explain our concern to the applicant directly. For example, the report must be completed on the template provided. If it is not, we will notify the applicant that the report will not be reviewed until it is provided on the template. It is the applicant's responsibility to resolve any problems and resubmit a new or amended report as appropriate. This may require the applicant to obtain further verification and sign off from the competent person who completed the initial report.

13.119. Where the IRMA report provider has signed that they wish to be informed of any issues with their report we may provide feedback directly to the IRMA provider.

14. Introduction to ongoing obligations

This chapter sets out:
- An overview of the ongoing obligations you will have as a participant on the Non-Domestic RHI scheme.
- You should be complying with many of these from the date you apply for the scheme in order to be eligible for payments from this date.
- An overview of replacement plants

Introduction

14.1. As well as ensuring you meet the eligibility criteria for the RHI scheme, when you apply you should already be thinking about the ongoing obligations you will have as a participant on the scheme. Your date of accreditation, and when you will begin accruing payments, is usually confirmed as the date you applied for the scheme. This date may change if your application is not considered to be 'properly made' and we cannot be certain that you were eligible for payments on the date you applied, or if there is any evidence to show that you were not eligible from that date. You therefore need to ensure that you submit a complete and high quality application, and that you are complying with your ongoing obligations at the time you apply.

14.2. Detailed guidance on how to fully comply with your ongoing obligations for your installation can be found in the RHI Guidance, volume 2 but we have provided a summary, as an introduction, here in four sections - general, fuels, metering and other technology specific requirements:

General ongoing obligations

14.3. You must ensure that your installation continues to meet all the eligibility criteria for the scheme and comply with any conditions of your accreditation specified at the point of approval.

14.4. You must notify Ofgem if any of the information provided as part of your application is incorrect.

14.5. You must notify Ofgem within 28 days if any of the following occur:

- You have ceased to comply with an ongoing obligation, realise you will soon be unable to comply or it comes to your attention that your circumstances affecting periodic support payments or eligibility have changed (refer to volume 2 and the Regulations themselves for a full list regarding this).
- Changes are made to the heating system of which the RHI installation is part, including addition or removal of heat generating plants (fossil and/or renewable) and/or heat uses.
- A change to any heat loss assessment is necessary – including pipework lengths/insulation and operating hours. This list is not exhaustive.
- A change of ownership of part or all of the RHI installation.

- A change of location of the RHI installation.
- A change of location of any heat meters used for calculating periodic payments.

14.6. You must maintain your RHI installation to the satisfaction of Ofgem – we strongly advise you to maintain your installation to a high quality in line with the manufacturer's instructions. Please keep a record of your service and maintenance documents.

14.7. You must allow reasonable access to Ofgem or our authorised agent, for example if your site is selected for audit.

14.8. You must not generate heat for the predominant purpose of increasing RHI payments.

Ongoing obligations in relation to fuels

14.9. All biomass fuel used at your installation from the date you apply to the scheme must meet the sustainability requirements from 5th October 2015 onwards – this applies to ALL existing participants as well as new applicants to the scheme. For detailed information on how to comply please see chapter 9 of this guidance document, chapter 4 in volume 2, and the Sustainability Self-Reporting Guidance. We have also created an Easy Guide to Sustainability which provides a good overview and starting point.

14.10. For applications made after 23 September 2013 you must only burn fuels in your solid biomass boiler which are permitted within the scope of your boiler emissions certificate(s) which you have submitted to Ofgem from the date you apply to the scheme. This includes the:

- fuel type (chip, pellet or log)
- origin (e.g. virgin, virgin-waste blend, waste) and;
- fuel moisture content.

If an Environmental Permit subsists in relation to your installation you must remain compliant with the requirements of that Permit.

14.11. The RHI Regulations require all participants to keep records of type of fuel used and fuel purchased for the duration of their participation on the scheme. For an example of how you may wish to do this please see the Guide to keeping fuel records.

14.12. For permitted ancillary and contaminated fuel uses participants must also keep records of this fuel use and report this use to Ofgem in the appropriate way for your technology type and size (see chapter 4 of volume 2 for more detail).

Ongoing obligations in relation to metering

14.13. You must ensure that your meters are in continuous operation, are properly maintained and periodically checked for errors. All your payments are based on these meter readings so these need to be accurate.

14.14. All heat meters for RHI purposes must be re-calibrated every 10 years or within the period recommended by the heat meter manufacturer, whichever is the soonest.

Other technology-specific ongoing obligations

Combined Heat and Power

14.15. You must use only one source of energy (except for solid biomass contaminated with fossil fuel) in a combustion unit forming part of a CHP system.

14.16. Please refer to volume 2 for full details regarding ongoing obligations in relation to CHPQA certification.

Ground source heat pumps

14.17. If your application for accreditation for a ground source heat pump was made on or after 28 May 2014 and that ground source heat pump is capable of heating and cooling you must keep details of the calculation of the design heat load.

Biogas

14.18. Heat must not be delivered by air from their accredited RHI installation to the biogas production plant producing the biogas for combustion.

14.19. All installations producing biogas from anaerobic digestion with a date of accreditation on or after 22 May 2018 will be subject to feedstock requirements. These requirements are in addition to the sustainability requirements addressed elsewhere in this guidance and will limit the RHI payments issued for eligible heat generated from biogas where less than 50% of the total biogas yield (by energy content) is derived from wastes or residues. The limitation of the payments will be calculated by reference to the biogas yield (by energy content) that is not derived from wastes or residues.

14.20. Participants subject to the new feedstock requirements will be required to report annually on the proportion of biogas derived from consignments of feedstock that are not classified as wastes or residues (feedstock classification will be agreed as part of the review of participants' Fuel Measurement and Sampling (FMS) procedures).

14.21. Where the capacity of an installation is greater or equal to 1MWth participants will be required to extend the scope of their annual sustainability audit reports to include the information (including calculations and supporting evidence) provided in relation to the feedstock requirements.

14.22. For the avoidance of doubt, installations generating biogas from advanced conversion technologies such gasification and pyrolysis will be exempt from the feedstock requirements.

Biomethane

14.23. All biomethane producers injecting biomethane derived from biogas that was produced by anaerobic digestion that are registered on or after 22 May 2018 will be subject to feedstock requirements. These requirements will limit the RHI payments issued for eligible heat generated from biogas where less than 50% of the total biogas yield (by energy content) is derived from wastes or residues. The limitation of the payments will be calculated by reference to the biogas yield (by energy content) that is not derived from wastes or residues.

14.24. Biomethane producers who are subject to the new feedstock requirements will be required to report annually on the proportion of biogas derived from consignments of feedstock that are not classified as wastes or residues (feedstock classification will be agreed as part of the review of participants' Fuel Measurement and Sampling (FMS) procedures).

14.25. Biomethane producers who are subject to the new feedstock requirements will be required to extend the scope of their annual sustainability audit reports to include the information (including calculations and supporting evidence) provided in relation to the feedstock requirements.

14.26. Further information on the ongoing obligations for biomethane producers registered on the RHI can be found in volume 2.

Replacement plant

14.27. From the 1st October 2018, participants who wish to replace their accredited plant will be able to do so, as long as they meet the criteria set out below. Eligible replacement plants will retain the same tariff and scheme lifetime as the original plant which they have replaced.

14.28. A replacement plant must be a like-for-like replacement, which means it must be a plant which uses the same source of energy and technology as the original plant. It must also meet the eligibility requirements applicable to the original plant.

14.29. In addition, replacement plants which generate heat from solid biomass must comply with the current air quality requirements, for more information on air quality. This includes participants who joined the Non-domestic RHI prior to the original introduction of these requirements. For further information on replacement plants, please see chapter 12 of the Non-domestic RHI Guidance: Volume 2.

14.30. Please note replacement plants are treated differently under the Feed-in Tariff (FIT) scheme. If your installation is accredited under both the RHI and FIT schemes and you replace all or part of your plant, this may affect your FIT accreditation. If you are in doubt over whether a change to your installation would cause you to lose FIT accreditation, please contact your FIT licensee in the first instance.

Further information

14.31. The information in this chapter is for introductory information only and is not intended to be exhaustive. Please refer to volume 2 for full detail regarding ongoing obligations and to identify which apply to you.

14.32. You are required to make an annual declaration that all ongoing obligations relating to your installation are being complied with and that your installation still meets the relevant eligibility criteria for the scheme.

14.33. Ofgem can request evidence at any time pertaining to all eligibility requirements under which you were accredited or in relation to any ongoing obligations relevant to your RHI installation.

Appendix one – glossary of RHI terms

Accreditation

In order to receive support under the RHI, an eligible installation will have to be accredited by us. Accreditation (which is defined in the Regulations) is the term that we use to denote admission by us of an applicant to the RHI once we determine that the installation meets the eligibility criteria of the scheme and that the application for accreditation is properly made.

Additional RHI capacity

Additional RHI capacity, which is defined in the Regulations, means a plant which is first commissioned after the date on which an RHI installation was first commissioned, uses the same source of energy and technology as the original plant and supplies heat to the same heating system.

Additional biomethane capacity

Additional biomethane capacity means any biomethane which exceeds the maximum initial capacity specified by us when first registered to the scheme and, which is supplied at the same injection point.

Additional plant

Additional plant means a heat generating plant which uses a different technology or source of energy to an existing accredited RHI installation but is connected to the same heating system as the accredited RHI installation.

Ancillary fossil fuel

Ancillary fossil fuel refers to the small amounts of fossil fuel necessary for the effective operation of the installation.

Annual declaration

The annual declaration is a confirmation that must be signed by the Authorised Signatory to confirm that the accredited RHI installation/registered biomethane producer has met the eligibility criteria and ongoing obligations of the scheme for the previous 12 months.

Authorised signatory

An authorised signatory is a person who is authorised to open and use an account with the Ofgem RHI website or provide information by post, submit periodic data and complete the RHI annual declaration.

Bioenergy

This term is used as shorthand for any of the following technologies: solid biomass, solid biomass from waste, biogas, biomethane.

CHP

'CHP' is defined in the Regulations and refers to a Combined Heat and Power plant.

Commissioned

This means, in relation to an eligible installation, that all tests required by industry standards for the installation to be able to deliver heat for the purpose for which it was installed have been completed. For a legal definition, please see the Regulations.

Common header

This is the main pipe to which plants supply heat, and from which heat uses are supplied. A heating system may have multiple common headers.

Complex installation

A complex installation is any installation that is not considered simple (NB this is only relevant to applicants who applied for accreditation before 24 September 2013).

Flow pipe

The pipe carrying the hot water flow leaving an installation or heat use is commonly referred to as the flow pipe.

Fuel measurement and sampling (FMS)

The term 'fuel measurement and sampling' (FMS) refers to the way in which the renewable biomass proportions of input fuels are determined. By 'measurement', we mean determining the amount or quantity of a fuel (for example in tonnes or cubic meters). By 'sampling', we mean taking small sample amounts of fuel and testing them to determine specific properties such as their GCV.

Installation capacity

The installation capacity is defined in the Regulations as the 'total installed peak heat output capacity of a plant' (which includes the 'total installed peak heat output capacity' of a single plant (installation) made up of two or more component plants).

Kilowatts (kW)

A kilowatt is a measure of power i.e. the **rate** at which energy is transferred or converted. A kilowatt is equal to 1 kilojoule of energy transferred/converted each second.

Kilowatts thermal (kWth)

As above but where the energy is converted to heat specifically.

Kilowatt-hours (kWh)

A kilowatt-hour is the measure of energy transferred or converted over a period of time. A kilowatt-hour is equal to the amount of energy generated by an installation with a power capacity of 1kW in an hour **or** an installation with a power capacity of 2kW in a half-hour etc.

Kilowatt-hours thermal (kWhth)

As above, but where the energy being measured is heat specifically

Maximum initial capacity

In relation to biomethane producers refers to the volume of biomethane in cubic meters per quarterly period you are entitled to supply for injection under your Network Entry Agreement.

Multiple metering arrangement

An installation which uses a multiple metering arrangement is any installation that is not considered to be using standard metering and therefore requires a combination (i.e. two or more) quantities to be measured for RHI payment purposes. (NB this is an administrative definition only applicable to applicants applying for accreditation on or after 24 September 2013).

Nominated individual

An individual within an organisation nominated to act on the organisation's behalf in relation to the RHI.

Ongoing obligations

Ongoing obligations refer to the obligations that need to be met to remain accredited or registered to the scheme. The term is defined in the Regulations.

Participant

A participant is defined in the Regulations as either the owner of an accredited RHI installation, a representative owner or a producer of biomethane who has registered with the authority to receive the RHI. In practice this means that once the owner or representative owner of an eligible installation or a biomethane producer receives accreditation or registration respectively to the RHI scheme, he/she will be referred to as a participant in the RHI scheme.

Periodic support payments

RHI support will be delivered to participants in the form of quarterly 'periodic support payments', the term being defined in the Regulations.

Periodic data

Periodic data is the information participants will need to submit on a regular basis as an ongoing obligation, and in order for us to calculate the appropriate payment.

Quantity

The term 'quantity' is used for RHI payment calculation purposes and is defined as any individual or combined measurement of 'heat use' or 'heat generation'. The heat use may be considered either eligible or ineligible, and 'heat generation' means heat generated by the eligible installation or from an additional ineligible plant. The number of quantities being measured on a heating system will define whether the system uses standard or multiple metering arrangements for RHI payment purposes. (NB this definition is only applicable to applicants applying for accreditation on or after 24 of September 2013).

Renewable Heat Incentive

The Renewable Heat Incentive is a government environmental programme designed to provide long-term financial support to renewable heat installations to encourage the uptake of renewable heat.

Representative owner

Where there is more than one owner of an accredited RHI installation, the owner with the authority to act on behalf of all owners is referred to as the representative owner.

Return pipe

The pipe carrying the cool liquid flow returning from an installation or heat use is commonly referred to as the return pipe.

Schematic diagram

The schematic diagram is an illustration of the installation and heating system for which RHI accreditation is being applied for.

Simple installation

A simple installation is an installation that is not a CHP system, does not deliver heat by steam, does not supply heat to an ineligible purpose, and where all the uses of the heat produced are in the same building as the heat generating plant (NB this is relevant to applicants who applied for accreditation before 24 September 2013).

Standard metering

An installation which uses standard metering is an installation which only requires a single 'quantity' to be measured for RHI payment purposes. The single 'quantity' can be either the 'Heat Generated by Eligible Installation (kWhth) [HGBI]' by the plant where there are no ineligible heat uses; or the 'Heat Used for Eligible Purposes (kWhth) [HGBI]' on the system where there is no ineligible heat generation plant. (NB this is an administrative definition only applicable to applicants applying for accreditation on or after the 24th of September 13).

Appendix two – RHI Emissions Certificate

This certificate provides evidence that the tested boiler meets the air quality requirements of the non-domestic Renewable Heat Incentive (RHI). It must be issued by a testing laboratory. Applicants applying for the RHI with biomass boilers must submit a certificate with their application, or alternatively, an environmental permit. An electronic version is available here: https://www.ofgem.gov.uk/publications-and-updates/getting-emissions-certificates-right-renewable-heat-incentive

1. TEST HOUSE	
a) Name and address of the testing laboratory that has carried out the required tests and issued this certificate * **if different, include details of both*	
b) Name and signature of the person authorised by the testing laboratory to issue the certificate	Name: Signature:
c) Date of issue of this certificate, together with certificate reference number for this certificate **Please see Note A*	Date: *dd/mm/yyyy* Certificate reference number: *Optional:* reference number of original test report on which this certificate is based:
d) If the testing laboratory that has carried out the required tests is accredited to BS EN ISO/IEC 17025:2005, date of accreditation and accreditation number *(if testing conducted on or after 24 September 2013, the testing laboratory must be BS EN ISO/IEC 17025:2005 accredited at the time of testing)*	Date: *dd/mm/yyyy* Accreditation number:

2. PLANT - *Please see Note B*	
a) Name of the plant tested	
b) Model of the plant tested* **Please ensure this is the same as in the manufacturer's documentation and boiler nameplate*	
c) Manufacturer of the plant tested	
d) Installation capacity* of the **tested** plant in kilowatts (kWth) **The total installed peak heat output capacity*	
e) Is the plant a manually stoked, natural draught plant? (without a fan providing forced or induced draught)	yes/no
f) (i) Date the plant was tested* (ii) Please confirm that NOx and PM have been tested on the same occasion **This is in reference to the emissions testing for PM and NOx, not any wider*	*dd/mm/yyyy* yes/no

range of tests. A specific date is required. Please provide the date of test performed at ≥85% of the installation capacity. *If more than one model has been tested or testing has been conducted on different dates for different fuels, please list each date with details.*	
g) Please list all the plants in the type-testing range* of the tested plants to which the certificate applies, if any[147]. Please include the **installation capacity** of each model. **This must follow the ratio rules:* *If the smallest plant in the range is 500kWth or less, the largest plant in the range can't be more than double the smallest.* *If the smallest plant in the range is over 500kWth, the largest plant in the range can't be more than 500kWth greater than the smallest.*	

3. FUELS	
a) Types of fuels used when testing *(Where relevant, the fuel should be classified according to EN303-5, referencing the relevant EN14961 standard for **specific classification** (superseded by EN17225). We don't expect broader categories such as 'beech'.*	
b) Based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NOx) *(Where relevant, the fuel should be classified according to EN303-5, referencing the relevant EN14961 standard for **specific classification** (superseded by EN17225). We don't expect broader categories such as 'beech'.*	
c) Moisture content of the fuel used during testing. (If multiple fuel types have been tested state all.)	xx%
d) Maximum allowable moisture content* of fuel that can be used with the certified plant(s) that ensures RHI emission limits are not exceeded. **This value may be obtained from ranges specified in relevant EN14961 standard for specific fuel classifications or EN303-5 when not applicable. Different fuel types should state different maximum allowable moisture contents.*	yy%

4. TESTS	
Confirm which requirements the emissions of NOx and PM have been tested in accordance with. **Either 4a or 4b must be confirmed to be a valid RHI certificate.**	
a) **Was the testing carried out in accordance* with all of the provisions relevant to emissions of PM and NOx in either BS EN 303-5:1999 or BS EN 303-5:2012?[148]** **It is not a requirement that the tested plant must be within the scope of one of*	yes/no

[147] The type-testing approach enables testing laboratories to provide assurance that all boilers in a given range meet the air quality requirements, without needing to specifically test each boiler.

[148] BS EN303-5:1999 and 2012 explain what should be measured and when.

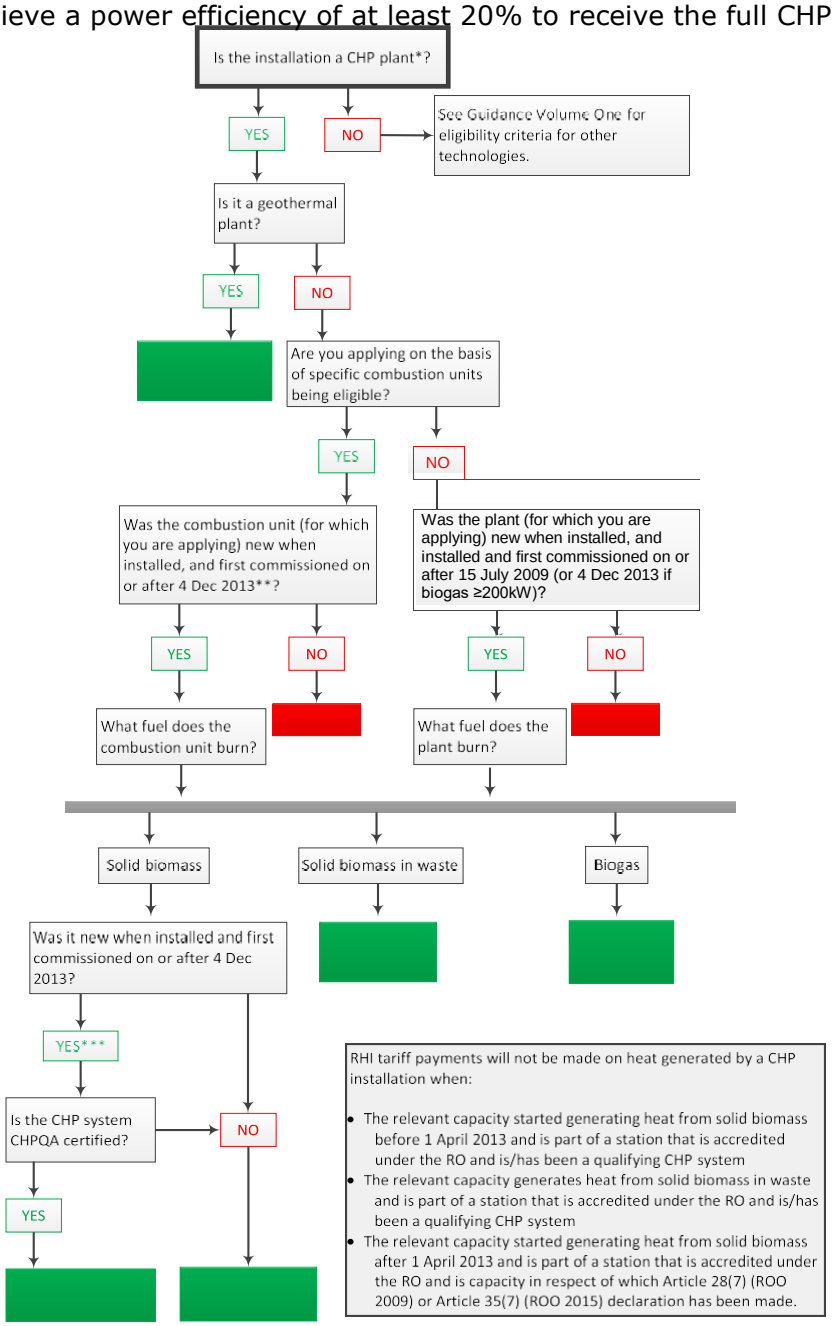
these standards, as long as the test lab can confirm that all of the relevant provisions were followed appropriately	
b) **Was the testing carried out in accordance with <u>all</u> of the following requirements?** (i) - EN 14792:2005 in respect of NOx emissions - EN 13284-1:2002 or ISO 9096:2003 in respect of PM emissions[149] (ii) emissions of PM represent the average of at least three measurements of emissions of PM, each of at least 30 minutes duration (iii) the value for NOx emissions is derived from the average of measurements made throughout the PM emission tests.	yes/no
c) Please confirm the plant was tested at ≥85% of the installation capacity of the plant.	yes/no
d) Please confirm the test shows that emissions from the plant were no greater than 30 g/GJ PM and 150 g/GJ NOx.	yes/no
e) Measured* emissions of PM in **g/GJ** net heat input **This average value should be from the test confirmed in 4c Results from partial load tests are not required.* *This value must be in the specified units.*	
f) Measured* emissions of NOx in **g/GJ** net heat input **This average value should be from the test confirmed in 4c. Results from partial load tests are not required.* *This value must be in the specified units.*	

Note A: If details from a previously issued certificate or an original test report are being transferred to this RHI emission certificate template, please note that this document must be **issued by the testing laboratory** as a separate certificate. The issue date and certificate reference number should be in relation to *this* certificate produced using the RHI template, not the issue date and reference number of the original certificate or test report.
Note B: If you are including multiple tested plants on one certificate, please ensure that all sections are completed for each tested plant, and are laid out such that it is clear which details relate to which tested plant. If a type-testing range is included as well, please show clearly which type-testing range relates to which tested plant(s), following the type-testing range ratio rules outlined in 2g.

[149] These standards explain how to make the PM and NOx measurements.

Appendix three –CHP system eligibility

The figure below demonstrates the eligibility of CHP systems following 28 May 2014. Please see chapter 11 for full eligibility details. In addition all biomass CHP systems should see Guidance Volume 2 chapter 13, which details ongoing obligations for biomass CHP systems in relation to CHPQA certification. Those systems with a date of accreditation on or after 1 August 2016 will have to achieve a power efficiency of at least 20% to receive the full CHP tariff.



Please note that 'combustion unit' refers to a boiler in relation to a biomass CHP system, and in relation to a biogas CHP system it refers to a boiler, turbine or engine along with the biogas production plant in the context of this diagram.

Appendix four – Evidence associated with overall commissioning process

Information and documentation	Nature of item[150]
Commissioning & Operating procedures: A clear and complete written plan and set of procedures for the commissioning and operation of all parts of the biomethane plant, including the biogas production plant. The document would also outline any maintenance that would need to be carried out on the live plant.	Good Practice
Health and Safety (H&S) File: The H&S file must be completed in accordance with the The Construction (Design and Management) Regulations 2015[151]. This is a file containing information relating to the project which is likely to be needed for health and safety purposes during any subsequent construction work.	Good Practice
Designers Risk Assessment (DRA): The DRA must be completed in accordance with the The Construction (Design and Management) Regulations 2015[10]. The DRA will include assessments for specific hazards and state what is required to address them. Such risks may include: work at height; control of substances hazardous to health (COSHH); manual handling; noise; vibration and lead.	Good Practice
Construction Phase Plan (CPP): The CPP must be completed in accordance with the Construction (Design and Management) Regulations 2015[10] by the person(s) / contractor(s) responsible for the project.	Good Practice

[150] 'Good practice' and 'Critical' ratings are provided in the context of assessing commissioning of equipment used to produce biomethane for injection under the RHI. It is not providing legal advice on whether particular items are required by law.
[151] The Construction (Design and Management) Regulations 2015. No.51.

Emergency procedure and contact details: A plan for emergencies that can have a wider impact. Special procedures needed for emergencies such as serious injuries, explosion, flood, poisoning, electrocution, fire, release of radioactivity and chemical spills. The Management of Health and Safety at Work Regulations 1999[152] cover these procedures. The Dangerous Substances Regulations 1990[153] covers sites where at least 25 tonnes of dangerous substances are held.	Good Practice
Site piping and instrumentation diagram (P&ID): Diagram(s) of the entire plant detailing the physical placement of all equipment and the places where systems, including the biogas production plant and upgrading equipment, connect with one another.	Critical
Site electrical: A drawing, or drawings, showing the gas to grid connection, usually in the form of a single line drawing or a number of individual drawings for each process areas and how they all interface.	Critical
Complete set of drawings and specifications, confirmed as built, operation and maintenance documents and spares list: These are hand over documents that demonstrate each component of the plant meets the applicants specification and have been installed as specified by the owner.	Good Practice
Appropriate consent from regulatory Authorities: Written confirmation of compliance with obligations from other Authorities e.g. planning permission and environmental permits (where necessary).	Critical
Written Scheme of Examination (WSoE) if applicable: This would be where an insurance company has ensured the gas to grid process is fit for injetcion and distribution. This document is produced in line with the gas/pressure systems standards and regulations.	Critical

[152] The Management of Health and Safety at Work regulation 1999. No. 3242, (as amended) 2003. No. 454 and 2006. No. 384.
[153] The Dangerous Substances (Notification and Marking of Sites) Regulations 1990. No. 304.

Commissioning & Operating procedures: A clear and complete written plan and set of procedures for the commissioning and operation of all parts of the biomethane plant, including the biogas production plant. The document would also outline any maintenance that would need to be carried out on the live plant.	Critical
Complete list of plant items: A document that lists every component of the plant (including the biogas production plant).	Good Practice
Mechanical construction completion certification: Certificates that civil work, mechanical work and electrical work has been competed tested and signed off, prior to commissioning.	Good Practice
Pressure and hydrostatic testing: A set of document showing all pipe work has been pressure tested to correct pressure rating in line with regulations and has been signed off. Documentation may include a certificate which confirms the system is air-tight for gas lies.	Critical
Appropriate certification for site wide electrical circuits: This would be a document that would be issued demonstrating that electrical testing has been carried out on all equipment used to produce biomethane (including the biogas production plant) and the plant has been electrically tested and is ready for commissioning.	Critical
CE Marking: Where applicable, a declaration of conformity for the entire plant, including the biogas production plant.	Good Practice
Cable testing: Certification of cabling pressure test (X volts for Y Time).	Good Practice
Switchboard Factory Acceptance Tests (FAT) and Site Acceptance Test (SAT) certification: This includes inspection, pressure tests & functionality checks.	Critical

Earthing system test certifications: Documentation demonstrating the all equipment used to produce biomethane as a whole has had an earthing survey and a report has been issued and signed-off.	Critical
Network communication certification: Evidence that communication signals from gas to grid have been tested and are working correctly. Such communications include those between the gas plant and telemetry systems and the SCADA/PLC control systems.	Good Practice
Telemetry system: Documentation showing installation and full end-to-end testing of the telemetry system, installed and commissioned for the biomethane plant.	Critical
Instrument and Monitoring: A statement/certificate that the instrument and monitoring devices, including export meters, have been calibrated in line with the manufactures recommendation.	Critical
Complete site acceptance testing (SAT) package: Signed document that demonstrates (i) all functionality and testing has been successfully completed and (ii) all alarms have been tested successfully on all equipment used to produce biomethane, irrespective of whether the biogas production and upgrading/injection equipment are located on separate sites. This document should also provide details of other person(s) who installed and tested the programmable logic control (PLC)/supervisory control and data acquisition (SCADA) monitoring systems.	Critical
Certification from Network Operator: A network entry agreement with the local Gas Network Operator that the biomethane and control system is adequate for injection into the gas grid for distribution.	Critical

System purge: Certification demonstrating the entire system has been purged, including all the equipment used to produce biomethane.	Good Practice
Gas flow data: Input and output data of gas relating to the biogas production plant, upgrading equipment and grid entry unit. For the biogas production plant, this would include information about the feedstock used and the gas produced. For the upgrading equipment, this will include gas inputs and resultant biomethane and for the grid entry unit, this will include the quality and quantity of the biomethane that is being injected into the grid.	Critical
Sampling and testing off site: In cases where the data relating to the gas to grid supply is not locally monitored, Ofgem would need to verify that the readings taken at the biomethane plant and the monitoring site are identical.	Critical