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for all gas and electricity customers

Renewable Heat Incentive Guidance
Volume One: Eligibility and how to apply

Consultation

Reference:	84/11	**Contact:**	RHI Development Team
Publication date:	24 June 2011	**Team:**	New Schemes Development
Response deadline:	5 August 2011	**Email:**	RHIguidanceconsultation@ofgem.gov.uk

Overview:

This is a draft Guidance document for the Renewable Heat Incentive (RHI), a new Government financial incentive scheme worth £860m to promote the uptake of renewable heat. This is a consultation and we welcome comments from stakeholders on the contents of this document.

Ofgem will administer the RHI on behalf of Government, in accordance with the RHI Regulations 2011 once they come into force. The overarching policy and detailed legislative framework for the RHI are the responsibility of Government. Ofgem's E-Serve division already has extensive experience in delivering similar environmental schemes, such as the Renewables Obligation and Feed-in Tariffs.

Volume One of the Guidance describes the eligibility requirements of the RHI and how prospective participants can become accredited or registered as applicable.

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

The Guidance is aimed at prospective RHI participants in the non-domestic sector and sets out how Ofgem intends to administer the scheme. It is not intended to be a definitive legal guide to the RHI.

Context

This document describes how the Gas and Electricity Markets Authority (Ofgem) will administer the Renewable Heat Incentive (RHI), a world first Government environmental programme designed to increase the uptake of renewable heat technologies and reduce the UK's carbon emissions. It is a key measure for the UK to meet its renewable energy target of 15 per cent by 2020 as required by the European Union. As with other environmental programmes we deliver for the Government, including the Renewables Obligation and the Feed-in Tariff scheme, it is our aim to administer the RHI as effectively and efficiently as possible.

To achieve an uptake of renewable heat technologies, the Government intends to introduce the RHI in two phases. From 30 September 2011, it is expected that the RHI will be available to parties in non-domestic sectors with eligible installations, and to producers of biomethane. The Government has stated that it expects to open the domestic sector element of the scheme to align with the Green Deal, which is intended to be introduced in October 2012, though this will require further Regulations. The RHI policy and tariff rates are set by the Government, but the RHI will be administered by Ofgem.

The Secretary of State for Energy and Climate Change is using enabling powers contained in the Energy Act 2008 to introduce the Renewable Heat Incentive (RHI) to Great Britain. Subject to the Renewable Heat Incentive Regulations 2011 (the Regulations) and the proposed amendment to the Energy Act 2008 completing their passage through Parliament, we expect the RHI to be open for applications from 30 September 2011 subject to Parliamentary and State Aid approval.

Administration of the RHI is a key part of Ofgem's forward work plan and is reflected in Ofgem's Corporate Strategy 2011-2016[1] under 'Theme 4 - Ensuring the timely and efficient delivery of Government programmes for a sustainable energy sector'.

Associated documents

Readers should be aware of the following documents which support this publication.

- Energy Act 2008[2]
- DECC Renewable Heat Incentive Policy Document[3]
- Renewable Heat Incentive: Impact Assessment[4]

[1]http://www.ofgem.gov.uk/About%20us/CorpPlan/Documents1/Corporate%20Strategy%20and%20Plan%202011%20-%202016.pdf
[2] http://www.decc.gov.uk/en/content/cms/legislation/energy_act_08/energy_act_08.aspx
[3]http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/policy/renewableheat/1387-renewable-heat-incentive.pdf
[4]http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20

- Renewable Heat Incentive Regulations 2011[5]
- Draft Independent Report on Metering Arrangements (supplementary appendix to this publication)

mix/renewable%20energy/policy/renewableheat/1381-renewable-heat-incentive-ia.pdf
[5] http://www.legislation.gov.uk/

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Executive Summary

The RHI is a world first Government environmental programme designed to increase the uptake of renewable heat technologies and reduce the UK's carbon emissions. Broadly speaking, the scheme provides a subsidy per kWth of eligible renewable heat generated from accredited installations. The Government expects to provide £860m of subsidy between 2011/12 and 2014/15 under this scheme.

The Government has appointed Ofgem to administer the RHI. Ofgem's E-Serve division has extensive experience in delivering similar environmental schemes, such as the Renewables Obligation and the Feed-in Tariff scheme. The Government is responsible for developing the underpinning RHI policy including setting tariffs, establishing the legislative framework, and the introduction of further scheme elements in 2012.

Scheme Eligibility

Initially the scheme will support non-domestic renewable heat installations and the production of biomethane for injection in the national gas grid.

The Government has stated that it proposes that the RHI will be available to the domestic sector alongside the Green Deal which is intended to be introduced from 2012. In the interim, the domestic sector may be eligible for the Renewable Heat Premium Payment, which is a separate, complementary grant scheme to the RHI. Further information on the Renewable Heat Premium Payment will be available later in the year from DECC.[6]

The following renewable heat technologies will be supported initially:

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

Participants will also need to meet several other eligibility requirements which are explained in this Guidance. These include demonstrating that the heat is used for an eligible purpose, that metering arrangements are appropriate, and that certain grants have not been received.

[6] http://www.decc.gov.uk

Participants will be able to apply via the Ofgem RHI website from the start of the scheme, expected to be 30 September 2011 subject to Parliamentary and State Aid approval.

Ongoing obligations

Once part of the scheme, participants will need to comply with a number of ongoing obligations which are explained in this Guidance such as regular submission of heat data, meter readings and fuel data for certain bioenergy installations. Participants will also be expected to maintain their heating equipment and meters, and report any significant changes to their installation or heat uses to Ofgem. Participants will be required to make annual declarations to Ofgem confirming their compliance, and may be selected for audits and/or a site inspection. Failure to comply with ongoing obligations may lead to Ofgem taking compliance action against a Participant.

Guidance Document Structure and consultation

The Guidance sets out our procedures for the administration of the RHI under the Regulations. Volume One provides details on eligibility requirements and how to apply for the RHI. Volume Two provides details of the ongoing obligations on participants, how periodic support payments are calculated, and our compliance and enforcement powers. We are also consulting on the format of the Independent Metering Report for large and/or complex installations, which is being published in draft as a supplementary appendix.

The Guidance is not a definitive legal guide to the RHI, although its publication is made in accordance with the Regulations and prospective participants are expected to comply with its provisions.

This is a draft of the Guidance and is published for consultation. We ask a number of questions on our proposed administration of the scheme. We require responses to the consultation to be submitted to Ofgem by **5 August 2011**.

1. Introduction

Question box

Question 1: Are there any areas where you disagree with our interpretation of the Regulations.

Policy Context

1.1. The European Union's (EU's) 2009 Renewable Energy Directive[7] obliges the UK to meet 15 per cent of its heat, transport and electricity consumption from renewables by 2020. Renewable energy will help the UK and the EU to meet targets to reduce carbon emissions and improve energy security by making better use of indigenous and non-finite resources. The UK Government also sees great potential in the development of jobs in the green economy.

1.2. Though the EU did not issue sector-specific targets except for renewable transport, the UK will need to develop each sector substantially to meet the target. In 2009 the Government published a central delivery scenario[8] which indicated that around 30 per cent of electricity, 12 per cent of heat and 10 per cent of transport fuel consumption would be met by renewable energy. For each of the sectors, the Government is putting in place financial incentives, or obligations on suppliers to encourage renewable energy.

RHI overview

1.3. The RHI is a new Government environmental programme designed to increase the uptake of renewable heat technologies and reduce the UK's carbon emissions. Broadly speaking, the scheme provides a subsidy per kWth of eligible renewable heat generated from accredited installations. The objective of the RHI is to significantly increase the proportion of the UK's heat that is generated from renewable sources, beginning to replace a heat sector that is currently dominated by fossil fuel technologies. It aims to encourage the uptake of renewable heat technologies by compensating for barriers to their adoption, including the current higher upfront costs and operational expenditure for these technologies as compared to those using traditional fossil fuels.

1.4. The Government intends to introduce the RHI in two phases:

[7] 2009/28/EC
[8] http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/renewable%20energy%20strategy/1_20090717120647_e_@@_theukrenewableenergystrategy2009.pdf

- In the first phase, addressed in this Guidance document, the RHI will be available to parties with eligible installations in **non-domestic sectors**, and to producers of biomethane. Subject to the passage of the Regulations through Parliament, the first phase is expected to begin on **30 September 2011** subject to Parliamentary and State Aid approval.

- The Government has stated that they expect to introduce a second phase of the scheme for the **domestic sector** alongside the Green Deal intended to be from **late 2012**. This phase will require further Regulations to be introduced and is not covered in this Guidance document. Before the RHI is made available to the domestic sector in 2012, they may be eligible for the **Renewable Heat Premium Payment (RHPP)**, a grant scheme which is complementary to the RHI. DECC are expected to release further details of the RHPP later in the year.

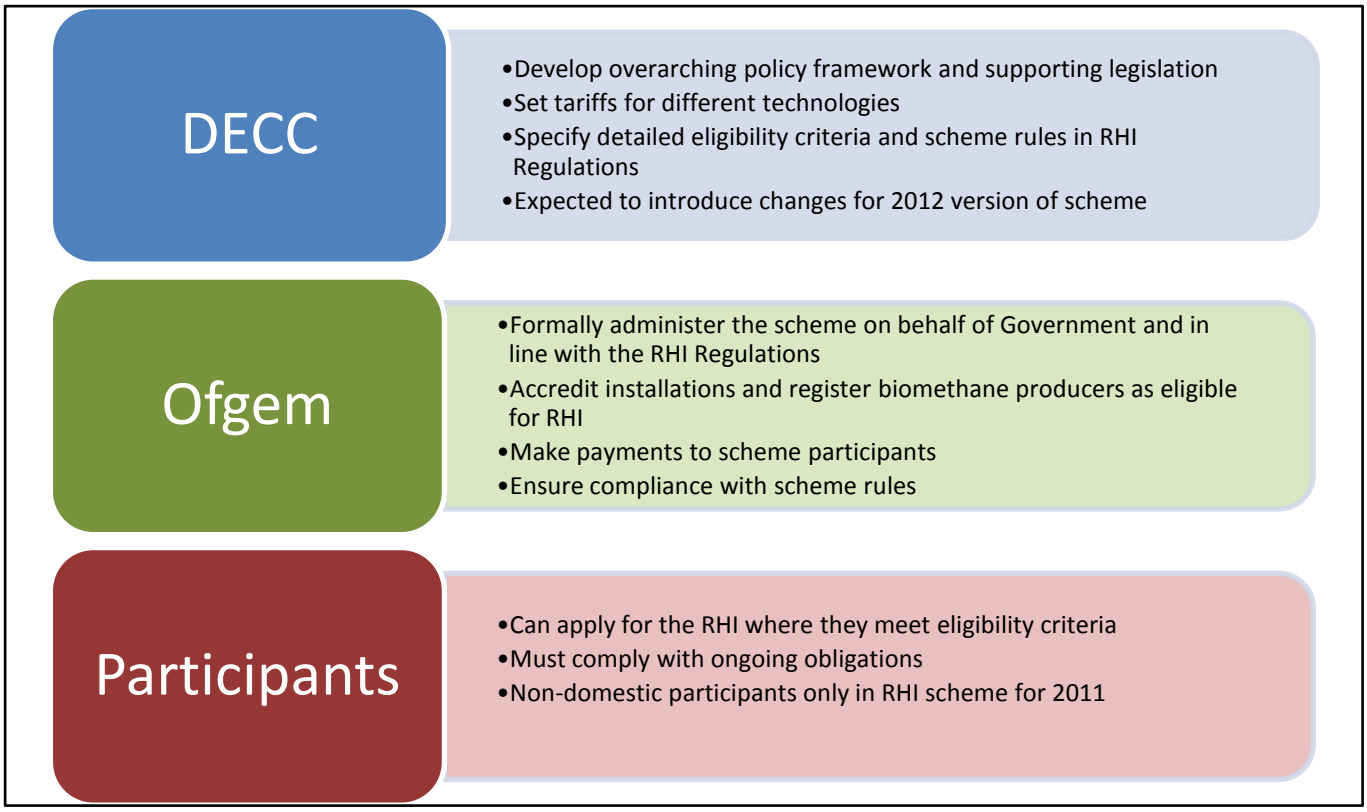
1.5. A range of renewable heat technologies will be supported under the RHI. These include solar thermal, ground and water source heat pumps, biomass and biogas boilers, geothermal, energy from solid biomass in municipal waste and biomethane injection into the gas grid. Payments to will be made on a quarterly basis over a 20 year period to the owner of the RHI installation or producer of biomethane.

Respective Roles

1.6. The Government is responsible for developing the underpinning RHI policy including setting tariffs, establishing the legislative framework, and the introduction of further scheme elements in 2012. Any queries about these aspects should be addressed to DECC.

1.7. The Government has appointed Ofgem to administer the RHI. Ofgem's E-Serve division already has experience in delivering similar environmental schemes, such as the Renewables Obligation and Feed-in Tariffs.

Government, Ofgem and participants are involved in making the RHI work and each plays a distinct but important role in the scheme. The diagram below provides a brief overview of the responsibilities of each entity.



Ofgem's Key Functions

1.8. The Regulations detail Ofgem's key functions with respect to the RHI. The use of 'Ofgem', 'us', 'our' and 'we' are used interchangeably when referring to the exercise of our powers and functions under the RHI.

1.9. Key functions for Ofgem include:

- Accreditation of installations and registration of producers of biomethane which meet the eligibility criteria
- Publishing guidance for participants and prospective participants to understand how to apply and how to comply with the conditions of the RHI
- Making payments to participants for the eligible heat generated or biomethane produced on a quarterly basis

- Monitoring and enforcing compliance with the upfront 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 on the progress of the RHI on a 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.

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

Publication of 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; conduct of inspections and handling reviews of decisions.

Publication of tariffs

1.12. We will publish an adjusted tariff table on an annual basis to reflect changes in the Retail Prices Index (RPI).[9] 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.

Reporting

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

- aggregated details of accredited installations and fuel type

- aggregated details of the technology replaced

[9] The general purpose domestic measure of inflation in the United Kingdom. More information available from the Office of National Statistics (www.statistics.gov.uk)

- 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
- details of biomethane producers

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

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

We will aim to update this information daily.

Additional information

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

Queries

1.16. Any queries relating to our functions under the Regulations should be emailed to [*operational team email address to be confirmed in final version of Guidance*] with the nature of the query clearly marked. If you are a 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 [*operational team contact number to be confirmed in final version of Guidance*].

Guidance documents

Overview

1.17. The Guidance is split into two volumes that should be referred to by participants and prospective participants in the RHI.

- **Volume One** (this volume) provides an overview of the RHI, including Ofgem's powers and duties with respect to the RHI, and information on the eligibility requirements which an applicant must meet and the accreditation or registration process which an applicant must go through in order to become accredited for the scheme and be eligible for incentive payments.

- **Volume Two** details the payment calculation and payments provisions for the RHI, and ongoing obligations with which a participant needs to comply with in order to receive RHI payments. This includes information about how to submit periodic data to Ofgem, including meter readings and annual declarations. Consequences of non compliance, inspection arrangements and the review process are also outlined.

1.18. There are two main purposes of the Guidance. The first purpose is to help clarify how the RHI works, what the criteria for joining the RHI are, and what your ongoing obligations would be once you are a participant in the RHI. The second purpose of the Guidance is to set out our interpretation of the RHI Regulations where we have discretion. This means that, for example, where the regulations allow us to ask you for evidence, in the Guidance we provide more detail on what form the evidence should generally take.

Legal disclaimers

1.19. The Guidance does not claim to anticipate every scenario which may arise. Where a scenario arises which is not addressed in these procedures, we will adopt an approach which we consider to be consistent with the relevant legislation. Any separate guidance published in addition to this Guidance will be posted on our website.

1.20. This Guidance is for guidance only and is not intended to provide comprehensive legal advice on how the Regulations should be interpreted or to itself 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.

1.21. 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.

Date of this Guidance

1.22. The Guidance will apply from the coming into force of the Regulations, expected to be 30 September 2011.

Devolved Administrations

1.23. In accordance with the Energy Act 2008 (as amended) (the Act), we can only make payments to eligible renewable heat installations that are generating heat in England, Wales and Scotland, or to biomethane producers injecting into the grid in these regions. Amendments to the relevant legislation are a matter for the Secretary of State and Scottish Ministers. Northern Ireland will not be included in the RHI as the province is not currently covered by the legislation in the Act. The Isle of Man and the Channel Islands are excluded from the scheme.

Treatment of personal data

1.24. All personal data collected from participants by Ofgem will be processed in accordance with the Data Protection Act 1988. Please note that some personal data will be shared with DECC for the purpose of monitoring the scheme and that, where appropriate, that data may be shared with the Devolved Administrations.

2. How to apply

Chapter Summary

This chapter sets out what accreditation under the RHI means, who can apply, how to determine how many applications you need to complete, and what the process is for applying to the scheme.

Accreditation under the Renewable Heat Incentive

Overview

2.1. In order to receive support under the RHI, an eligible installation will have to be accredited by Ofgem. Accreditation is the process by which we determine whether an installation meets the eligibility criteria of the scheme and the owner agrees to the conditions of participation.

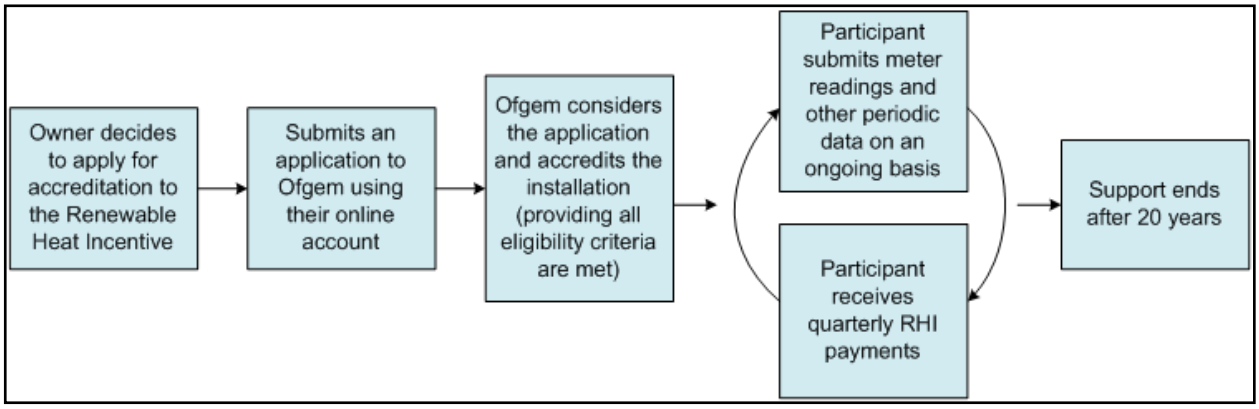
2.2. In order to gain accreditation for an installation, an applicant will have to demonstrate to us that an installation meets the RHI eligibility criteria including that:

- the installation is of an eligible renewable heat technology type and size
- the installation was completed and first commissioned on or after 15 July 2009, and
- that the heat is used for 'eligible purposes': heating space, heating water or for carrying out a process where the heat is used in a building.

2.3. For a full eligibility checklist and more detailed information on the eligibility criteria, including the requirements for individual technologies, please see Chapter Three, 'General Eligibility Requirements' and Chapter Four, 'Supported technologies and fuels' respectively.

2.4. 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 Eight, 'Registration for Biomethane Producers'.

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



What is an installation?

2.5. An eligible installation for the purposes of the RHI means a plant which meets the eligibility criteria. A plant as defined in the Act 'includes any equipment, apparatus or appliance'.

2.6. Applicants should only apply once for each installation for which they wish to claim RHI support. An installation can be only consist of one plant unless two or more plants meet the following conditions:

- the plants use the same source of energy and technology (e.g. ground source heat pump)
- the plants form part of a common heating system, and
- none of the plants have already been accredited as an RHI installation.

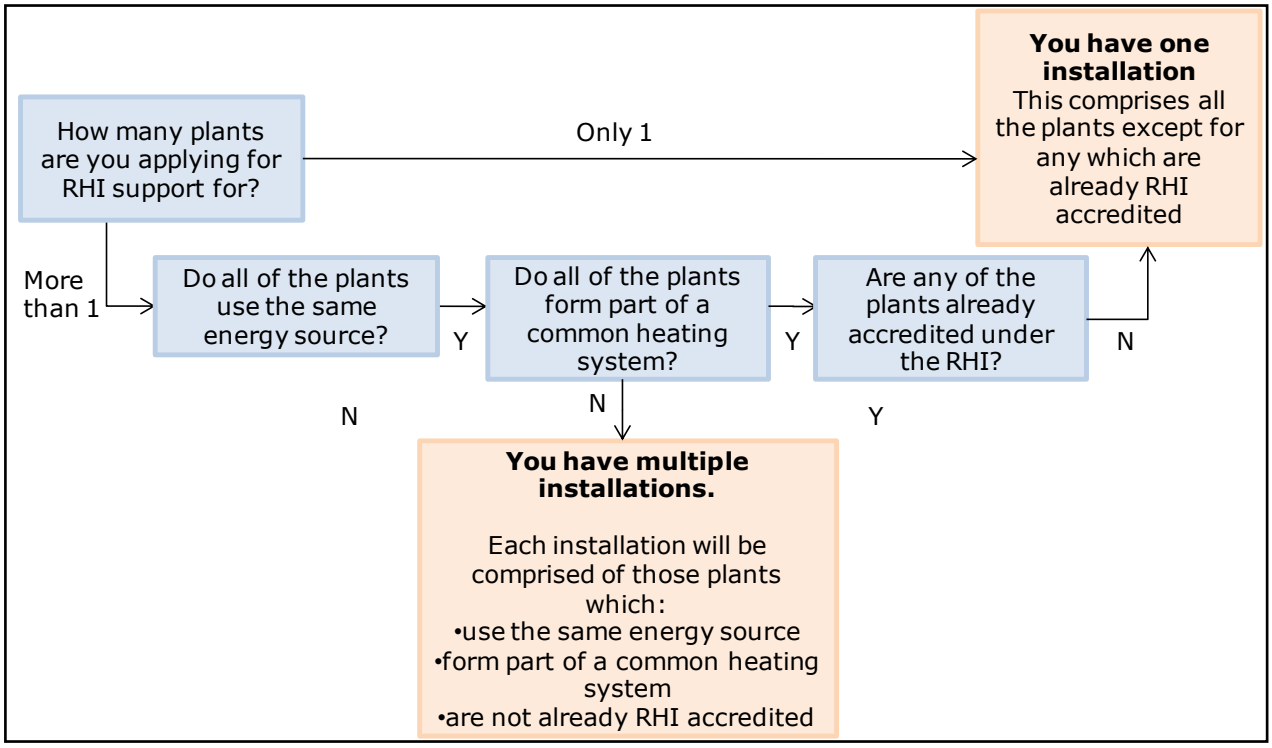
In these cases, two or more component plants may be regarded as a single plant for RHI purposes.

2.7. For example, if you wanted to apply for RHI support for two biomass boilers supplying heat to a common heating system, these would be treated as a single plant and your 'installation' would comprise both biomass boilers. You would submit a single application including information on both boilers, rather than submitting two separate applications.

2.8. If your plants do not use the same source of energy or form part of different heating systems, they will be considered to be standalone not component plants and, therefore, will be treated as separate installations. You will have to apply for accreditation for each installation (plant) separately in this instance. Separate metering arrangements will also apply.

2.9. Please see Figure 2 to assess whether you should submit a single or multiple applications for RHI support.

Figure 2: Do I need to submit a single application for RHI support or multiple applications?



2.10. Where an installation comprises more than one component plant (i.e. forms a single plant) we will consider the *combined installation capacity* of the component plants when determining the appropriate eligibility criteria for the installation. For example, the independent report on metering arrangements (see Chapter Seven of this volume and the supplementary appendix for further information on the independent report) would be required if the combined installation capacity of both boilers as discussed in paragraph 2.7 is equal to or greater than 1MWth.

2.11. If one or more of the plants are already accredited under the RHI, the addition of a further plant will be treated as 'additional capacity.' Please refer to Volume Two, Chapter Seven, 'Treatment of additional capacity' for further information on how to apply for accreditation for the additional plant(s).

The owner of the installation must be the applicant

2.12. It is a requirement that the owner, or where more than one person is the owner, one of the owners as agreed with the other owners ('representative owner'[10]), of an installation be 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 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. 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').

2.13. 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[11] defines the 'owner' to be the person in possession of the plant under that agreement. We may require evidence from the applicant to verify that such an agreement is in place.

2.14. As part of the application for accreditation, the applicant will be required to declare that the applicant is the owner of the relevant eligible installation, or a person authorised to act on the owner's behalf.

2.15. Where an installation has more than one owner, or the installation is comprised of more than one plant which have multiple owners, these owners will need to reach an agreement about who will be the representative owner nominated to apply and receive the RHI payments. 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.

2.16. Please note that only owners (with the exception of a representative owner or nominated individual) can apply for the RHI. Agents or other third parties will not be allowed to apply on behalf of an installation's owner.

Inspections and access to third party premises

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

[10] 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.
[11] http://www.decc.gov.uk/en/content/cms/legislation/energy_act_08/energy_act_08.aspx

2.18. In instances where the eligible heat use occurs on third party premises not owned or controlled by the participant, the participant will be required, as a condition of accreditation, to ensure access (by contractual or other means) for Ofgem (or our authorised agents) to these premises for the purpose of verifying eligible heat use.

2.19. Further information regarding our approach to the audit and inspection of accredited installations can be found at Chapter 11 of Volume Two of this Guidance.

What sectors are currently eligible to apply for the RHI?

2.20. Only installations that provide heat to premises other than for the use of one domestic premises are eligible for the RHI in 2011. 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.'[12]

2.21. For example, an eligible installation could serve:

- a single, non-domestic premises, e.g. a hairdresser
- 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. district heating supplying a block of flats.

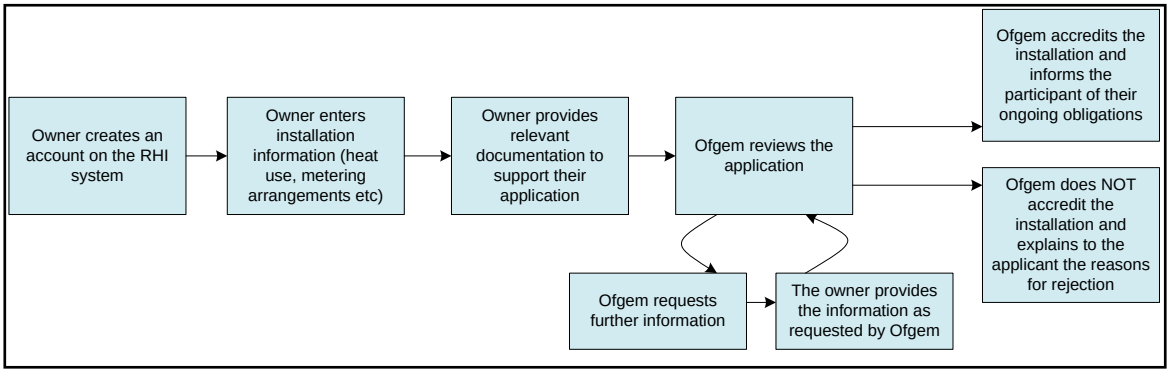
2.22. Residential premises that have been significantly adapted for non-residential use may be eligible for the RHI. In practice this means that although a house where an individual works or runs a business from home would be considered a domestic property, an installation supplying heat to a house converted to be, for example, a shop or 'bed and breakfast' may be eligible for the RHI in 2011. We will consider the eligibility of these properties on a case-by-case basis, taking into account the treatment of such properties for ratings purposes.[13] If heat from your installation is to be used in a converted premises please explain this on your application form. We may ask you for further evidence.

2.23. Renewable heating installations serving a single private residential dwelling are currently not eligible for the RHI. This includes single renewable heating units installed by a company, private landlord or registered social landlord, in one or

[12] Regulations, Part 2, Chapter 2, 15 (2)
[13] www.voa.gov.uk/publications/public_fact_sheets/working_from_home.html

more individual dwellings (but does not cover district heating systems where multiple dwellings are served by a central renewable heating unit). The Government has stated that the domestic sector will be eligible for RHI support from October 2012. In the meantime, prospective domestic participants may wish to consider applying for the RHPP. Further information about the RHPP can be found at www.decc.gov.uk/RHI.

Figure 3: How to apply for accreditation



2.24. To apply for accreditation for an installation, you will need to apply online via the Ofgem RHI website (www.ofgem.gov.uk). If you are unable to apply online, you will be able to call Ofgem to request a paper application form. We do not encourage you to apply using a paper application, as we cannot take account of any time taken in posting out the forms to you in determining the date on which your payments will begin to accrue (accreditation date). For details of how we determine your accreditation date, please see below.

2.25. Please note that you are only able to apply for accreditation once the scheme is open for applications, currently expected to be 30 September 2011, subject to Parliamentary and State Aids approval.

2.26. For most installations, you can only apply for full accreditation once the installation has been first commissioned. The only exception to the rule on pre-commissioning accreditation is if the installation is 1MW or larger. Please see paragraphs 2.38-2.39 for further information. This provision for large installations is separate to preliminary accreditation. Preliminary accreditation is the process where an applicant can receive in principle accreditation for an installation by demonstrating that, once built, an installation would be expected to meet the eligibility criteria of the scheme. For full details, please see Chapter Six of this volume.

2.27. If you are completing the RHI application process online, please be aware that all accreditation questions relevant to your installation will need to be answered before you can submit your application. The information you will be required to provide at the application stage will depend on the technology type and size of your installation. To receive accreditation, you must also declare at this stage

that you (or the owner(s) you represent) will continue to meet the ongoing obligations required by the scheme to receive accreditation. For further information on these obligations, please see Volume Two of the Guidance.

2.28. Once you have submitted your application, we will review it 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 you should therefore check for follow-up communication from Ofgem. Once we have received all of the necessary information, we will review your application for accreditation.

2.29. If we are satisfied that all of the relevant eligibility criteria have been met and that the applicant is able to comply with the ongoing obligations of the scheme, we will then accredit the installation and the applicant will become a participant in the scheme. We will notify you in writing whether your application for accreditation has been successful.

2.30. As a general principle, we expect participants to retain evidence relating to the installation's design and installation, such as technical calculations, drawings, commissioning data or other operating and maintenance documentation, as applicable to the installation. We may ask to see this during the accreditation process or as part of an audit.

2.31. 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 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.

2.32. If your application is not successful, you will be notified in writing of the reason(s) why. You are entitled to ask for a review of the decision to reject an application for accreditation. For more information on how to request a review, please see Volume Two, Chapter 12 of this Guidance.

2.33. It will be a condition of accreditation that you must notify us within 28 days of any changes to your accredited installation or to any of the plants, including the installation of another plant, supplying heat to a heating system or which your

accredited installation forms part. 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 tariff rate or your eligibility to receive RHI payments we shall notify you and advise you as to what we intend to do in the circumstances. If we need more time to investigate the changes you have advised us of, we may temporarily suspend your periodic support payments until we are satisfied of your continuing eligibility.

2.34. Please also note that before your installation is accredited, we may arrange for a site inspection to be carried out so that we can be assured that the installation is eligible and should be accredited.

Date of accreditation

2.35. The date of accreditation is the later of either the date on which an application (which is complete and which demonstrates the eligibility of an installation) is received by Ofgem or the date the installation was first commissioned. As in most cases, we do not accept accreditation applications for installations which are not yet commissioned, we expect the date of accreditation to be the date we received your application, provided we are satisfied that your application is complete and that all of the eligibility criteria were met at this point. The date of accreditation for your installation is the date from which your RHI payments will be calculated.

2.36. If we are not satisfied that your application contains all the required information, the date of accreditation will be the date on which this outstanding information is provided to us, subject to all eligibility criteria being met at that time. If we are not satisfied that all the eligibility criteria were met on the date you submitted your complete application (for example, an extra meter is required), the date of accreditation will be the date on which you have demonstrated to us that the installation has met all of the relevant eligibility criteria. For more information on these criteria, please see Chapter Three of this Guidance

2.37. If you are submitting a paper application, please note that provided we are satisfied all eligibility criteria have been met, your accreditation date will be the day on which your completed, signed accreditation application was received by Ofgem (not the date on which a paper application form was requested). We recommend that proof of posting/delivery should be obtained when submitting postal applications.

Early applications for 1MW or larger installations

2.38. If your installation has already been built and is 1MW or larger, you can apply for accreditation in the month prior to your installation being first commissioned. This early application for accreditation period provides more time for accreditation to be processed and could minimise any delay to your initial payment. Apart from this difference, the process for applying for accreditation

for 1MW or larger installations is the same as that discussed in the 'How to apply for accreditation' section above.

2.39. For installations of 1MW or larger for which accreditation was applied for within two months prior to the installation being first commissioned, the accreditation date will be the date of first commissioning. This is provided that all other relevant eligibility criteria have also been met. You will need to contact Ofgem to advise that your installation has been first commissioned and we will require evidence such as the initial meter readings from the installation.

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

2.40. To install an eligible installation means to build and/or put in place the relevant plant. At this stage, the plant has not begun generating heat. To 'commission' a plant means that all necessary tests required by industry standards have been completed and the plant is able to deliver heat for the purpose 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.

3. General Eligibility Requirements

Chapter Summary

This chapter sets out the general eligibility criteria for the RHI such as that an installation must be new and the heat generated be used for eligible purposes. This chapter also discusses the requirements for transitional combined heat and power (CHP) installations. Please see the following chapter for details on the requirements for individual technologies.

Question box

Question 1: Are there sections on the eligibility requirements of the scheme which require greater clarity? If so, how can these sections be improved?

Legislation

3.1. The Act, which provides for the establishment of the RHI scheme, lists the sources of energy and technologies which may be eligible for support. Those sources of energy and technologies which will receive support from the commencement of the RHI in 2011 are set out in greater detail in the Regulations. The Regulations also determine the other criteria which must be met by prospective participants in order to qualify for such support.

What is eligibility?

3.2. If you want to apply for RHI accreditation for an installation, you will need to demonstrate to Ofgem that the installation meets the eligibility criteria for the RHI. There are some general eligibility criteria which all applicants will need to meet in order for the installation to be accredited and for the owner of the installation to become a participant in the RHI. These are listed below in the 'General eligibility checklist'.

3.3. Further eligibility criteria may need to be satisfied in relation to particular technologies and fuels. For more detailed information on specific eligibility criteria for supported technologies and fuels for eligible and ineligible heat use please see Chapter Four, 'Supported technologies and fuels' and Chapter Five, 'Heat Uses'.

3.4. Please note that producers of biomethane should refer to Chapter Eight, 'Registration for biomethane producers' for the specific requirements for biomethane producers.

General eligibility checklist

- The installation is an eligible renewable heat technology type and size (please see table below).
- The installation was completed and first commissioned on or after 15 July 2009 (or is a CHP installation which was converted to become an eligible CHP system on or after 15 July 2009 (a transitional CHP installation))
- The heat generated by the installation is used for 'eligible purposes': heating space, heating water or for carrying out a process where the heat is used in a building
- No grants from public funding have been received for purchasing or installing the installation.
- The plant was new at the time of installation.
- The plant uses either liquid or steam as the heat delivery medium.

Eligible technologies and sizes

Table 1: Eligible technologies and sizes

Eligible technology	Eligible sizes
Solid biomass; solid biomass contained in municipal waste (incl. CHP)	All scales
Ground-source heat pumps; Water-source heat pumps	All scales
Geothermal (inc. CHP)	All scales
Solar thermal	Less than 200 kWth
Biogas combustion, except from landfill gas (inc. CHP)	Less than 200 kWth
Biomethane injection	All scales

3.5. Appendix 6 contains a table of the technologies DECC have stated that they are considering for inclusion in 2012 but which are not currently eligible for the RHI.

Installation capacity

3.6. For the purposes of the RHI, the installation capacity will be the total installed peak heat output capacity of the installation. For most technologies, the installation capacity should be simple to establish as it will be part of the information provided by the manufacturer. We will require details of the installation capacity as part of the accreditation process.

3.7. For bespoke equipment, as part of the accreditation process you may have to provide us with technical evidence to prove the installation capacity.

Installation capacity for CHP systems

3.8. The Regulations state that an installation's capacity is the "total installed peak heat output capacity" of that installation. For CHP systems, this relates to the total heat output of the equipment in the form of usable hot liquid or steam, irrespective of whether heat generated is subsequently used for power generation or heating.

3.9. For example, where a solid biomass CHP system uses a steam boiler to generate electricity and subsequently deliver heat to a separate process, the CHP system's capacity would be the total peak heat output capacity of the boiler(s) which originally generated the superheated steam supplied to the steam turbine.

3.10. In the example where a biogas CHP plant 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 the heat exchanger that is used to generate the hot water or steam.

3.11. Please note that heat used to generate electricity is not eligible for RHI support, please see Chapter Five of this volume for further details.

RHI interaction with publicly funded grants

3.12. The Regulations state that:

- RHI support will only be available for an eligible installation if no grant from public funding has been *paid* or will be paid in respect of any of the costs of purchasing or installing the eligible installation, or
- where a grant from public funding has been paid for an eligible installation that was completed and first commissioned on or after 15 July 2009 but

before the date the RHI regulations come into force, it has been paid back to the grant-making body or person.

3.13. Ofgem will interpret 'paid' in this context to mean 'received' ie the owner(s) of the installation have received all or part of publicly funded grant funds.

3.14. Public funding means:

- any public funding (other than RHI) as grants or benefit provided, for example, under central or devolved government schemes or by public authorities at regional or local level, or under European schemes.

3.15. In practice, this means that if you have received a publicly funded grant of any value for the costs of purchasing or installing the installation between 15 July 2009 and the [date the Regulations come into force], the installation will not be eligible to receive RHI support.

3.16. A grant will only be allowed to be retained and RHI support received where the grant was received for costs other than the purchase or installation of the installation. We will assess applications where a grant of this type has been received on a case-by-case basis.

3.17. If you want to decline the grant offer or pay back the grant you have already received for the purchase or installation costs of an installation to allow your application for the RHI to be considered, please contact the grant making body or person directly. Before we can accredit your installation, you will need to provide evidence to us that you either declined the offer or repaid the grant in full.

3.18. It is important to note that if public funding is received for the purchase or installation costs of an installation that is commissioned after the [date the Regulations come into force], the installation will not be eligible for RHI support and the installation cannot become eligible by paying the public funding back.

3.19. All prospective participants will be asked during the accreditation process if public funding has been received for an installation. If you have declared that you have received a grant for the costs of your installation, whether or not you believe the grant was for the costs of purchasing or installing the installation, we may contact you for further information.

3.20. The Government's approach on grants and other public funding is subject to State Aid clearance by the European Commission. It is possible that the terms of any clearance may require stricter rules on grants, in which case we expect the Government to issue further information on this in due course.

Date of installation and commissioning

3.21. Installations are only eligible for the RHI if they are both installed and first commissioned after 15 July 2009. An installation will not be eligible if it was installed before this date, but commissioned afterwards. Ofgem will not consider applications for accreditation for installations that were installed and/or commissioned prior to this date.

3.22. Plants that are recommissioned after 15 July 2009 will not be eligible for the RHI. The plant must be new at the time of first commissioning. The first commissioning date of the plant must be on or after this date. Please see paragraph 3.17 below for the exception to this rule for transitional CHP plants.

Transitional installations

3.23. Transitional installations are installations that were installed and first commissioned on or after 15 July 2009 but before the start date of the RHI. As for installations installed after the start of the RHI, transitional installations have to meet the other eligibility criteria for the RHI. This includes the microgeneration requirements as discussed below in paragraphs 3.23-3.25 and metering requirements which are discussed in Chapter Seven, 'Metering eligibility requirements'.

3.24. Transitional CHP installations are an exception to the requirements set out above. A plant which was previously generating electricity only and was first commissioned as a CHP system on a date (the conversion date) which is on or after 15 July 2009 will be considered for the purposes of the RHI to be a transitional CHP installation. These installations are treated as if they are new plants installed and first commissioned on the date of conversion.

3.25. Transitional installations will be eligible for the same 20 year period of support as for those installations commissioned after the start of the scheme, starting from the date of accreditation (which cannot be prior to the start of the scheme). For avoidance of doubt, please note that payments will not be backdated to the date of first commissioning.

New plant

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

3.27. Converted equipment will not be eligible for the RHI. Also, re-commissioned equipment will not be eligible. This includes equipment that is decommissioned

and re-commissioned in situ, or equipment that has been decommissioned at one location, moved, and installed and re-commissioned at a new location.

Location of the installation

3.28. If you want an installation to remain accredited under the RHI the installation must not be moved. Accreditation is awarded for the installation at the location that is provided at application. This is not transferable.

Heat delivery medium

3.29. The installation must use liquid or steam as a medium to deliver heat to the eligible use. Installations which use other media, such as air, to deliver the heat to the eligible use are not eligible for the RHI.

Microgeneration requirements (installations of 45kWth or less)

3.30. Some installations of 45kWth or less will require both installers and plant to be certified under the Microgeneration Certification Scheme (MCS)[14] or an equivalent scheme. The technologies this applies to are outlined in the table below. For technologies not requiring this certification we will verify eligibility based on the other documentation required from RHI applicants as part of the accreditation process.

Table 2: Which technologies require MCS certification or not

Technologies requiring MCS certification	Sub-45kWth technologies 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	Energy from waste combustion

3.31. Equivalent schemes include Solar Keymark[15] for solar thermal installations, or any other scheme accredited under European Standard EN45011.[16] Both the technology and the company or person installing it will need to be certified under the MCS scheme or equivalent. When applying for support, applicants will be asked for details of MCS or equivalent certification. If applicants intend to

[14] Details of which are available at www.microgenerationcertification.org.
[15] Please note that Solar Keymark certifies products, but not installers.
[16] ISBN 0580294153. Copies can be obtained from the British Standards Institution at www.bsigroup.com.

apply using an MCS 'equivalent' scheme, the must prove to Ofgem that both installer and technology have been certified by a scheme accredited under EN45011.

3.32. MCS certification will not be required for the relevant technologies in the following two scenarios:

- if the combined installation capacity is more than 45kWth, then MCS will not be required. For example, where a system is made up of 2 x 25kW biomass boilers, then the two boilers will not need to be MCS certified or MCS installed
- if additional capacity of less than 45kWth is added[17] to an existing RHI system and takes the total installed capacity over 45kWth, then the additional capacity will not need to be MCS certified or MCS installed. For example, where a participant already has an accredited 25kWth ground source heat pump (GSHP), if they apply for a second 25kWth GSHP which is connected to the same heating system, then MCS will not be required for the second GSHP.

District and community heating

3.33. 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. 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 building in terms of RHI eligibility and support levels. District heating, where more than one building is being served, will be subject to the 'complex' metering requirements as described in Chapter Seven.

3.34. Ofgem will require access rights to any non-domestic premises connected to a district heating system to ensure that heat is being used for eligible purposes. This will apply even where the relevant premises are owned by a third party and provision or procurement of access will be made a requirement during the accreditation process for district heating systems.

Fossil fuelled and dual fuelled biomass plant

3.35. The Government's policy is clear that no fossil fuel heat is to be supported, even in relation to channelling waste heat, as the role of the RHI is to promote

[17] Whether before or after 12 months of the first commissioning date.

progress towards targets EU Renewable Energy Directive. Where a fossil fuelled plant is present, it must be metered separately (please see Chapter Seven for further information). The fossil fuel derived element of any heat as metered will not be eligible for support under the RHI. For example, heat generated by a solar thermal plant linked to a gas boiler would be eligible, so long as the gas boiler was metered separately and excluded from the heat for which RHI support was claimed. Component plants which use renewable and fossil-fuels together in a single boiler and which are not capable of separate metering are not eligible for the RHI.

3.36. Biomass plants must use renewable fuels as their only primary fuel use but have specific permitted uses for fossil fuels in the same boiler. For further details, please see the biomass section in Chapter Four of this volume.

4. Supported technologies and fuels

Chapter Summary

This chapter discusses the technologies and accompanying fuels eligible for the RHI, as well as any additional eligibility criteria specific to a technology. A table of currently ineligible technologies has been included for ease of reference. Please see the following Chapter Five for further information on eligible and ineligible heat uses.

Question box

Question 1: Do stakeholders agree with our approach to approving the eligibility of MCS solid biomass products? If not, what would be a better alternative?
Question 2: Are there any products which stakeholders believe meet the solid biomass as 'primary fuel source' definition which would be excluded by our interpretation?
Question 3: Are the CEN/TS 14961:2005 group of standards widely used in biomass boiler warranties or boiler specification?
Question 4: Is the documentation required for solid biomass plants over 45kW widely available?
Question 5: Do stakeholders know of other standards or recognised procedures that could be used to determine the coefficient of performance for heat pumps with a capacity above 45kWth?
Question 6: We seek stakeholders' views on our approach to accrediting heat pumps with fully integrated electrical heaters, in particular whether there are any additional eligibility requirements that we should specify or if there is a capacity above which it is not common practice to install such heat pumps?

Supported technologies and fuels

4.1. To be eligible under the RHI, except for producers of biomethane, an installation must generate heat using one of the eligible technologies. Chapter Three discusses the general eligibility criteria of the scheme. This Chapter sets out the additional eligibility criteria that are specific to a particular technology.

Solar thermal

4.2. Only solar thermal installations comprising liquid filled flat plate or evacuated tube solar collectors will be eligible for RHI support. The total installation

capacity must not exceed 200 kWth. For further information on how to determine your installation capacity, please see the 'Installation Capacity' section in Chapter Three.

4.3. 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.

4.4. Any solar thermal installations of 45 kWth or less must be MCS certified under the MCS or equivalent scheme. See paragraphs 3.23-3.25 for further information.

4.5. For solar thermal systems larger than 45kWth, Ofgem will verify eligibility based on the documentation provided by RHI applicants as part of the accreditation process.

4.6. 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.

Geothermal energy

4.7. 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 metres 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.

4.8. Ofgem will verify eligibility based on the documentation required from RHI applicants as part of the accreditation process. Please see Appendix Three, 'Additional information to be provided at accreditation' for more information. There is no requirement for geothermal systems to be MCS certified.

Heat pumps

General eligibility

4.9. Heat pumps that generate heat using shallow geothermal or hydrothermal naturally occurring energy from the ground or surface water are eligible for the

RHI, providing that the heat is subsequently transferred by liquid or steam.[18,19] We refer to such heat pumps here as 'ground source heat pumps' and 'water source heat pumps' respectively.

4.10. 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 RHI purposes; please see the Geothermal section above for information pertaining to such installations.

4.11. Air source heat pumps, including air-to-water and air-to-air heat pumps are not eligible for the RHI in 2011. Exhaust air heat pumps are also ineligible for the RHI. For a brief description of each of the different types of heat pump, please refer to DECC's RHI Policy Document.[20]

4.12. Heat pumps provided as a single unit with an integrated electrical immersion heater are eligible for the RHI. Electrical heaters should be for back-up purposes only. For such heat pumps, meters should be located to ensure that only renewable heat generated is measured. We expect this to be possible for installations at the larger scale. At the smaller scale, if it is not possible to measure the renewable heat separately, we may ask for evidence that demonstrates this is the case.

4.13. Both ground and water source heat pumps with an installation capacity of less than 45kWth must be certified under the MCS or an equivalent scheme. For further information about MCS certification, see the MCS paragraphs above.

4.14. In addition to the general eligibility criteria outlined above, the Regulations require both ground and water source heat pumps to have a coefficient of performance (COP) of at least 2.9.[21] The coefficient of performance 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*'.[22]

4.15. The policy rationale for this criterion is set out by the Government in the RHI Policy Document, which explains that this is 'a proxy for the EU standard for renewable energy measured. To avoid introducing a potentially complex system in advance of the Commission's guidelines (on how the seasonal performance

[18] Regulations, Part 2, Chapter 2, Regulation 8(a)
[19] This includes open loop heat pumps.
[20] DECC *RHI Policy Document, March 2011* at http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Renewable%20energy/policy/renewableheat/1387-renewable-heat-incentive.pdf
[21] Regulations, Part 2, Chapter 2, Regulation 8(c)
[22] Regulations, Part 1, Regulation 2, definition of "coefficient of performance"

factor should be measured), rather than referring to usable heat or seasonal performance, the RHI will require a COP of 2.9'.[23]

4.16. 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.

4.17. Where heat pumps are set up as a multiple unit installation, each unit will be treated as a component plant making up a single installation for the purposes of the RHI. The COP must be provided for each different make and model of unit comprising the installation as part of the accreditation process. 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

4.18. We expect participants to provide evidence that the COP has been determined in accordance with accepted industry good practice.

4.19. 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.

4.20. 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 to, and the basis on which the participant considers this approach indicative of good practice. Relevant industry standards for these purposes may include, for example, test conditions for gas-driven heat pumps as set out in the ECA Energy Technology Criteria List or as recommended by the Japanese Standards Association. 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.

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

[23] DECC *Renewable Heat Incentive policy document*, p36

Electricity-driven heat pumps

4.22. Many heat pumps are sold as a packaged unit, comprising the compressor, condenser, expansion valve and evaporator. In this case, the manufacturer of the packaged unit will be considered as the heat pump's manufacturer for RHI purposes.

4.23. For packaged electrically-driven heat pumps, participants will be required to state the COP of the heat pump as part of the accreditation process, and provide evidence to support this. Typically, such evidence would be **one of the below**:

- evidence that the appliance is listed on the MCS list or the Enhanced Capital Allowance (ECA) Energy Technology List;
- copy of manufacturer's documentation, stating the heat pump make and model and the associated COP, tested in accordance with EN 14511;
- copy of manufacturer's test report, stating the heat pump make and model and the associated COP, tested in accordance with EN 14511;
- copy of independent third party test report, stating the heat pump make and model and the associated COP, tested in accordance with EN 14511.

Gas-driven heat pumps

4.24. Gas-driven heat pumps are also eligible for the RHI. For such heat pumps, appropriate evidence to support the declaration of COP will encompass any item listed above for electricity-driven heat pumps (replacing the requirement of testing COP in accordance with EN 14511 by the relevant test conditions including reference to any industry standard or guidance which has been adhered to), **or**:

- design calculations by the manufacturer or installer setting out the expected heat pump performance which clearly states the heat pump COP and provides technical justification for this figure, including for the test conditions at which the COP was calculated.

4.25. For some gas-driven heat pumps, manufacturers may provide documentary evidence of the primary energy ratio (PER) instead of the COP. The primary energy ratio is defined as the ratio of the energy provided to the heating system, usually as hot water, to the amount of primary energy (e.g. fuel) used by the heat pump. To calculate the COP in accordance with the definition in the Regulations, participants will need to convert the PER to a COP using the following formula:

Primary Energy Ratio / engine efficiency = Coefficient of performance[24]

4.26. For example, if the heat pump engine has an efficiency of 35 per cent and a PER as declared by the manufacturer of 1.3, the equivalent COP figure would be 3.7.

4.27. For gas-driven heat pumps where the manufacturer's documentation specifies the PER only, this may be provided as evidence for the COP value declared. We may ask participants to provide evidence to support the engine efficiency figure used in their calculation of the COP. Participants will need to enter the COP figure in the RHI IT system as part of their application for accreditation.

Bespoke heat pumps

4.28. 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 is no standard technical documentation. In this case, participants should provide a copy of either:

- design calculations and commissioning data, signed off by the manufacturer or installer setting out the expected heat pump performance. 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, or
- documentation from a recognised test house stating the heat pump COP and providing a justification for this, including for the test conditions at which the COP was determined.

Reversible heat pumps

4.29. 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,[25] any cooling generated by operating the heat pump in reverse is not eligible for RHI support. Therefore, heat pumps that will only be used for generating cooling are not eligible for the RHI.

4.30. In accordance with the Regulations, participants must therefore ensure that their metering arrangement allows them to only measure heat generated, and where appropriate discount any cooling generated by running the heat pump in

[24] http://www.heatpumpcentre.org/en/aboutheatpumps/heatpumpperformance/Sidor/default.aspx
[25] DECC RHI Policy Document, March 2011, p36.

reverse.[26] 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 Appendix Two, 'Meter placement examples.'

Biomass

General biomass criteria

4.31. 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.

4.32. 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'.[27] Examples of fuels that usually meet this definition include clean wood chip, straw and wood pellets.

4.33. 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

4.34. Whereas some technologies have an upper limit on capacity to be eligible under the RHI, solid biomass boilers are eligible at all scales.

'Solid'

4.35. 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.

4.36. 'Wet' fuels such as food waste could still be considered solids (i.e. where solids are contained in water). Where there is doubt as to whether a fuel is solid or liquid, applicants must provide evidence to satisfy us that the fuel is a solid at ambient conditions.

4.37. Where there is doubt about fuels which could be either solid or liquid at ambient conditions, we will consider liquids as including the fuels listed in paragraph 2.3 of the 'Communication from the Commission on the practical implementation of

[26] Regulations, Part 4, Chapter 3, Regulation 35(3)
[27] Act, s. 100(3)

the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels'.[28] Liquids therefore include viscous liquids such as waste cooking oil, animal fats, palm oil, crude tall oil and tall oil pitch.

Solid biomass as 'primary fuel source'

4.38. The Regulations require that to be eligible, a biomass boiler must be 'specifically designed and installed to use solid biomass as its only primary fuel source'. This means that boilers capable of operating primarily on coal, oil or other fossil fuels are ineligible, as are dual-fuel or co-firing fossil fuel/biomass boilers.

General documents to keep

4.39. All biomass and biogas participants must keep planning permission documents, environmental applications and permits required under other legislation (such as air quality legislation, the Environmental Permitting (England and Wales) Regulations 2010 or the Pollution Prevention and Control (Scotland) Regulations 2000). We will generally not require these at the accreditation stage, but we may ask for these documents as a follow-up to verify details provided about the boiler, such as the fuel(s) the boiler is designed to run on.

Heat medium

4.40. A solid biomass installation must include a boiler to be eligible for the RHI. The Regulations specify that the installation's heat must be transferred through liquid or steam, and this liquid or steam must be metered (see Chapter Seven of this volume 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 solid biomass as 'primary fuel source' outlined above.

Requirements for plants of 45kWth and under

4.41. Biomass products of 45kWth and below must be under MCS or an equivalent scheme.

4.42. These plants are also not permitted to burn any fossil fuel or biomass contaminated with fossil fuel at the plant (i.e. in the same boiler). Other fossil fuel boilers metered separately are allowed (although heat generated by them is not eligible for the RHI).

[28] Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:160:0008:0016:EN:PDF

4.43. Plants must meet the solid biomass 'as primary fuel source' definition. MCS certify that solid biomass products are tested to meet certain standards, but the product would not automatically meet this definition because it has been certified by MCS.

4.44. We will treat MCS-certified products tested to the following standards in relation to meeting the 'as primary fuel source' definition:

- Standards "BS EN 303-5:1999 Heating boilers - Part 5: Heating boilers for solid fuels, hand and automatically fired, nominal heat output of up to 300kW. Terminology, requirements, testing and marking." and "BS EN 14785:2006 - Residential space heating appliances fired by wood pellets. Requirements and test methods." – these will generally be eligible because the stoves/ boilers tested to this standard and approved by MCS are generally not capable of operating on ineligible fuels[29]

- Standard "BS EN 12809:2001+A1:2004 - Residential independent boilers fired by solid fuel. Nominal heat output up to 50 kW Requirements and test methods" –products produced to this standard would only meet the definition where the fuel used to test the product was a biomass fuel (as defined in the standard), rather than the fossil and peat fuels listed in the standard.

- Standard "BS EN 13240:2001+A2:2004 - Room heaters fired by solid fuel. Requirements and test methods" – these products would generally not meet the definition, as we could not be confident that the stove (when fitted with a back-boiler) is not capable of operating primarily on ineligible fuels.

4.45. MCS installation companies and product manufacturers are able to provide advice on what standards each product was tested to. Most biomass products available have been tested to the BS EN 303-5:1999 standard so meet the definition. Applicants will be asked at the accreditation stage to provide us with the name of the standard to which the product was tested (e.g. BS EN 303-5:1999).

Solid biomass plants between 45kWth – 1MWth

4.46. Solid biomass boilers at this scale must meet the solid biomass 'as primary fuel source' definition and the applicant must demonstrate that this definition is met.

4.47. To evidence this, participants must keep documentation related to the purchase and installation of the plant, such as a warranty, construction specification, contract or invoice that demonstrates that the boiler was 'specifically designed and installed to use solid biomass as its only primary fuel source'. We will ask for these documents to verify eligibility on a sample basis.

[29] Pellet stoves would also be required to operate with a back boiler, as outlined above

4.48. An example of this evidence is a boiler warranty showing a fuel specification that clearly shows that the boiler is designed to use biomass as its primary fuel source, and that fossil fuel is not stated as being a fuel that can be used in the boiler. This would generally be sufficient to demonstrate that the boiler is a biomass boiler and meets the definition.

4.49. The manufacturer may also provide a reference in the warranty to detailed fuel specifications under the CEN/TS 14961:2005 standard, which would also generally be sufficient to demonstrate meeting this requirement.

4.50. Any 45kWth – 1MWth sized plant proposing to use biomass contaminated with fossil fuel would need to keep and provide at our request further evidence, such as the inclusion in the fuel specification stating that the contamination will be within the permitted ranges outlined in the Regulations (please refer to Volume Two of this Guidance). This might include copies of a fuel specification stating maximum contamination levels.

Solid biomass boilers of 1MWth and above

4.51. Solid biomass installations at this scale must meet the solid biomass 'as primary fuel source' definition and the applicant must ensure that this definition is met. To demonstrate this, participants must keep documentation related to the purchase of the installation, such as a warranty, specification, contract or invoice that demonstrates that the boiler was 'specifically designed and installed to use solid biomass as its only primary fuel source'. We will ask for these documents to verify eligibility on a sample basis. An example of this evidence is a boiler warranty showing a fuel specification that clearly shows that the boiler is designed to use biomass as its fuel source, and that fossil fuel is not stated as being a fuel that can be used in the boiler. This would generally be sufficient to demonstrate that the boiler is a biomass boiler and meets the definition. The manufacturer may also provide a reference to detailed fuel specifications under the CEN/TS 14961:2005 standard, which would also generally be sufficient to demonstrate meeting this requirement where biomass is clearly the only fuel listed.

4.52. Evidence needs to be provided to support this claim. Where documentation shows that during the design and installation of the plant there is no indication that heat is, or will be generated from fossil fuels (apart from those ancillary uses permitted in the Regulations, as outlined in Volume Two, Chapter Four, 'Ongoing fuelling eligibility requirements' of this Guidance), we will generally accept this as sufficient evidence that the plant meets this eligibility criterion.

4.53. The documentation used for this could include:

- a design specification or construction contract relating to the plant, detailing the fuels to be used

- air quality or other environmental permits relating to the fuel used at the plant

- a fuel specification written by the installer or applicant detailing the fuels the plant was designed and installed to operate on

4.54. Where a plant proposes to use biomass contaminated with fossil fuel, further documentation will be required, such as a fuel specification stating that such contamination is within the permitted ranges determined by the Regulations (please refer to Volume Two, Chapter Four of this Guidance).

4.55. The fuel specification would also need to state that the plant was not designed and installed to operate on fossil fuel (except for those ancillary purposes permitted in the Regulations), peat, or biomass which is heavily contaminated with fossil fuel.

4.56. These documents will be compared, where applicable, to the fuel measurement and sampling questionnaire and ongoing provision of fuel data to verify this eligibility requirement. For further details on the content and purpose of the questionnaire and the provision of fuel data, please see Volume Two, Chapter Five.

Biomass contained in municipal waste

4.57. Installations using biomass contained in municipal waste can only use this municipal waste as their fuel source. If the installation is to be eligible for the RHI, non-municipal waste cannot be burned at the plant.

4.58. 'Municipal waste' has the same meaning as in paragraph 21 of the Waste and Emissions Trading Act 2003 ('WSET'). This is:

- waste from households, and

- other waste that, because of its nature or composition, is similar to waste from households.

4.59. It is clear from this definition that where an installation uses household waste only, this waste can be viewed as 'municipal waste'.

4.60. Where a participant wishes to use a mixture of household waste and other waste ('mixed waste'), Ofgem will need to be satisfied that all of this mixed waste can be regarded as municipal waste. This is because installations which use biomass contained in waste other than municipal waste are not eligible for support under the RHI.

4.61. In assessing whether mixed waste may be treated as municipal waste, Ofgem will have regard to the interpretative guidance on the meaning of municipal waste under paragraph 21 of WSET as contained in the Department of Environment, Food and Rural Affairs' 'Consultation on meeting EU Landfill Diversion Targets' and subsequent decision document, 'Summary of responses to the consultation on meeting EU Landfill Diversion Targets in England' (the 'Defra Guidance'). The Defra Guidance regards waste as meeting the WSET definition of municipal waste when it falls into specified categories of the List of Wastes (formerly known as the European Waste Catalogue). Further information on the List of Wastes is available from the Environment Agency.[30]

4.62. Therefore, currently, all waste types categorised under Chapter 20 and certain waste types (as listed in the Defra Guidance) from Chapters 15 and 19 of the List of Wastes will be considered municipal waste for RHI purposes. If changes are made to the Defra Guidance in the future, Ofgem will aim to align its policy on interpreting the meaning of municipal waste accordingly.

Biogas combustion for heat

4.63. Biogas is defined as 'gas produced by the anaerobic or thermal conversion of biomass'.[31] Because of this link to the definition of biomass, this does not include any gas produced from fossil fuel or peat, only from fuel 'which is, or is derived directly or indirectly from, plant matter, animal matter, fungi or algae'.[32] For example, this could include gas produced from food or farm waste.

4.64. The biogas installation must meet one of the following conversion technology definitions.[33]

- 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'.

[30] http://www.environment-agency.gov.uk/static/documents/Business/low_guide_v1.2_1397222.pdf
[31] Act, s. 100(3).
[32] Ibid
[33] Regulations, Part 1, Regulation 2, definitions.

200kWth biogas limit

4.65. Only biogas systems of 200 kWth or below are eligible for RHI support. This is based on the 'total installed peak output capacity'[34] of the heat generating equipment. Where the plant is a CHP plant, it is the heat generating capacity (by which we mean the generation of hot water or steam in the form of a boiler) rather than the combined heat and electrical output capacity that is the capacity for the purposes of the RHI.

Other criteria

4.66. In addition to the biogas upper limit, regulations state that the plant must not generate heat from solid biomass (including solid biomass contained in municipal waste).[35] This means that where liquid or steam is heated from solid biomass, the plant would not be eligible as a biogas plant. For example, log gasification 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 but not combusted, would be transferred to the hot water. Plants such as these would be eligible as solid biomass plants. Plants which are capable of metering the heat (hot liquid or steam) generated from the solid biomass separately from the heat generated from the biogas (e.g. where separate boilers are used) would effectively be two plants, one biogas and one solid biomass, and each would receive the tariff applicable to that heat generation.

4.67. Biogas from landfill sites will not be eligible for support.

4.68. Biogas can also be upgraded to make biomethane, as set out in the section on biomethane below, 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 installation generating from the biogas and for registration of the biomethane production.

4.69. There is no requirement for MCS certification of biogas plants.

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

[34] Please see the 'Installation Capacity' section in Chapter Three for an explanation of this term.
[35] Regulations, Part 2, Chapter 2, Regulation 11(c)

Biogas and Feed-In Tariffs

4.71. The Feed-In Tariffs scheme (FITs) provides support for renewable electricity installations up to 5MW, including those powered by anaerobic digestion. FITs 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 Five, 'Heat uses'.

Combined heat and power

4.72. The heat output of CHP systems is eligible for support under the RHI so long as the system uses geothermal, biogas, solid biomass contained in municipal waste or solid biomass as a source of energy. These plants will have to meet the applicable technology requirements (geothermal, biogas, solid biomass contained in municipal waste or solid biomass) detailed above to be eligible.

4.73. The Regulations state that where a plant fuelled by solid biomass (including solid biomass contained in municipal waste) also generates electricity, the plant will not be eligible if it is accredited under the RO and has at any point since receiving that accreditation been a 'qualifying CHP' generating station within the meaning of that Order.[36] A 'qualifying CHP' generating station in this respect means a generating station that has received accreditation under the Combined Heat and Power Quality Assurance Scheme (CHPQA) as a 'ROC eligible' station. This means that they have been granted a 'ROC eligible' certificate in addition to a 'Regular' CHP certificate (see CHPQA Guidance Note 44 for further details[37]). For the purposes of accreditation under the RHI, CHP plants which have not been registered as ROC eligible plants under the CHPQA will be treated in the same way as any other plant. See Appendix 3 of this volume for a diagram setting out the requirements for CHP system eligibility.

4.74. During the next RO Banding Review, the Government will consider whether to allow CHP installations completed on or after 15 July 2009 which are or have been claiming the ROC uplift to switch from the RO to the RHI. Please refer to the RHI Policy Document for more information on this.

Biomethane injection to the grid

4.75. Production of biomethane for injection into the gas grid will be eligible for the RHI. Please see Chapter Eight of this volume for further information.

[36] Regulations, Part 2, Chapter 2, Regulation 9(2)
[37] https://www.chpqa.com/guidance_notes/GUIDANCE_NOTE_44.pdf

Ineligible technologies

4.76. The earlier parts of this Chapter set out the technologies which are eligible for the RHI. For ease of reference, Table 2 below sets out a number of technologies which are ineligible the RHI for 2011. This is not an exhaustive list of ineligible technologies.

Table 3: Ineligible technologies in 2011

INELIGIBLE TECHNOLOGIES IN 2011	
Co-firing of biomass with fossil fuel	The Government will not be supporting the co-firing of biomass with fossil fuels in single boilers under the RHI. Regulations place obligations on the type of boiler installed (see solid biomass eligibility section) and on the fuels used on an ongoing basis (see section on ongoing fuelling requirements).
Exhaust air heat pumps	Exhaust air heat pumps use air extracted from inside the building, for example from kitchens or computer server rooms, as their air source. They are particularly useful in very well insulated buildings which require mechanical ventilation. However, they are not classified as renewable under the Renewable Energy Directive as they do not rely solely on outside air and therefore will not be eligible for the RHI.
Transpired solar thermal panels	The Government have confirmed that direct air heating and transpired solar panels will not be supported under the RHI as they are not counted as a renewable technology under the RED.
Fossil fuel fired CHP	The Energy Act 2008 only allows the RHI to support renewable energy and therefore the Government have confirmed RHI will not support fossil-fired CHP.
Waste heat from fossil fuel	The Government have confirmed the exclusion of waste fossil fuel heat from the RHI as it is not renewable and therefore does not count towards the UK's renewable energy targets.

5. Heat uses

Chapter Summary
This chapter sets out:

- The principles underlying the Government's policy on heat uses that will be eligible for RHI support;
- The uses of heat that will be eligible for RHI support;
- The ineligible heat uses which will not be eligible for RHI support.

Question box

Question 1: Do stakeholders agree with our interpretation of 'building', in particular what constitutes 'permanent or long-lasting' and a 'wholly enclosed structure'? If not, what alternative tests would be appropriate?

5.1. The RHI Policy Document 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.

5.2. This Chapter does not apply to biomethane plants; please see Chapter Eight for an explanation of the registration process for such plants.

Eligible heat uses

5.3. The Regulations state that the RHI will support heat that is used for 'eligible purposes': heating a space, heating water or for carrying out a process where the heat is used in a building.[38] Our interpretation of these terms is described in more detail below.

[38] Regulations, Part 1, Regulation 2 (definition of 'eligible purpose') and Regulation 3(2)

- **Heating a space:** 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**: the heating of water 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, 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 paragraphs 2.20-2.23.

- **Carrying out a process**: the use of heat to carry out a specific process such as industrial cooking, drying, pasteurisation or chemicals manufacture. It also includes heat that is subsequently 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 paragraphs 5.11-5.14 below.[39]

Any heat that is not used for an eligible purpose is classed by the Regulations as an 'ineligible purpose', and such heat is not eligible for RHI support.[40]

5.4. To be eligible for RHI support, heat must be used for eligible purposes within a building. For example, 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 cold temperatures;

- Underground heating of open external spaces, e.g. recreational facility;

- Heating of open air or partially enclosed swimming pools.

5.5. The RHI 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'.[41] We will ask for information about the building(s) in which the heat is used as part of the accreditation process.

5.6. To illustrate how we will apply this definition of a building in practice, we include below some indicative examples. 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.

- We would normally consider that tents, polytunnels and similar structures are erected on a temporary basis and therefore are not eligible because they

[39] Regulations, Part 1, Regulation 2, definition of 'process'
[40] Regulations, Part 1, Regulation 2, definition of 'ineligible purpose'
[41] Regulations, Part 1, Regulation 2, definition of 'building'

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 'long-lasting' use such as porta-cabins, static caravans, greenhouses and shipping containers could be regarded as 'permanent or long-lasting' provided they remain in the same location.

- Structures which are erected externally but are themselves 'fully enclosed on all sides with a roof or ceiling and walls' such as distillation columns and silos would be eligible. However, open structures such as uncovered tanks, reservoirs and channels would be excluded. 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.

- The eligibility of a 'wholly enclosed' 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, garages etc.) is not affected.

5.7. 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.

5.8. 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.[42] We may do this as part of the accreditation process or at any time after the installation has been accredited. Where your installation is supplying heat to a third party, you must ensure that you are able to provide this evidence. We will also require, as a condition of your accreditation, that you secure rights of access for our inspection agents from any third party heat users so that we are able to verify that heat is being used for eligible purposes. 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 Two, Chapter 10, 'Compliance and Enforcement Powers'.

5.9. 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 Ofgem to verify that only heat which is eligible for the RHI is being supported. The information requested will include:

- Which of the eligible purposes described above are supplied with heat from the heating system of which the eligible installation forms part;

[42] Regulations, Part 4, Chapter 3, Regulation 34(n)

- A brief description of what the heat is used for, including whether any heat is used for ineligible purposes or exported to third parties.

5.10. Participants will also be required to make an upfront and ongoing declaration that they are not generating heat for the predominant purpose of increasing their RHI payments.

Ineligible heat uses

5.11. 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. Some specific uses of renewable heat are excluded by the Regulations, and these are outlined below. This is not an exhaustive list of all ineligible purposes, as we cannot account for every scenario in this Guidance.

5.12. 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 Ofgem for RHI payment purposes must not include any heat that has been used for ineligible purposes.

5.13. The following heat uses are ineligible for RHI support:

- Cooling generated by heat pumps run in reverse (see Chapter 4, paragraphs 4.29-4.30 for further details of how such cooling must be accounted for).[43]

- From the point where it is metered for the purposes of calculating RHI support, renewable heat must not be used to generate electricity.[44] 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, heat returned to a biogas digester and condensate/steam returns to an installation are not eligible for support.[45] Process internal heat uses not covered in this guidance document will be treated on a case-by-case basis.

[43] Regulations, Part 4, Chapter 3, Regulation 35
[44] Regulations, Part 1, Regulation 2, definition of "process"
[45] Regulations, Part 2, Chapter 3, Regulation 17 & Part 5, Regulations 38 and 39

If you believe that your installation has such a heat use, please contact us either by email on (operation team email address to be confirmed) or (operational team phone number to be confirmed). Chapter Seven sets out more detail of how process internal heat should be accounted for when providing meter readings and heat output data to Ofgem.

- The biogas heat output from a biogas plant which is then fed back into the biogas production unit, or heat from any other source (such as solar thermal) which is used for heating the biogas production plant. Please see the biogas metering section in Chapter Seven of this volume for details of how meters must be arranged to account for this.

5.14. 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 and must not be included in meter readings provided to us.

6. Preliminary accreditation provisions

Chapter Summary

This chapter sets out the requirements for applicants seeking preliminary accreditation under the RHI.

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

What does it mean?

6.2. Preliminary accreditation means an organisation can submit plans and evidence 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, we will grant preliminary accreditation, which may include conditions.

6.3. Receiving 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.

Who is eligible for Preliminary Accreditation?

6.4. Preliminary accreditation is expected to be used for larger, more complex and bespoke installations, where greater up front clarity on eligibility may be needed. The regulations only allow applications for preliminary accreditation for the following technologies:

- geothermal
- biogas
- solid biomass and solid biomass contained in municipal waste installations – but note this is only available for those proposed installations above 200kWth capacity.

6.5. We will require you to provide evidence that relevant planning consent to construct or operate an installation has been obtained when applying for preliminary accreditation. This means that an installation:

- has been granted the necessary planning permission, or
- such planning permission is not required and appropriate evidence of this provided to us.

6.6. We may, upon an application by the person who proposes to construct or operate the installation, grant preliminary accreditation. Given time limits on planning consents and permissions, we will only grant preliminary accreditation if the consent or permission is current.

Administration of Preliminary Accreditation

6.7. All applicants which receive preliminary accreditation for an installation will be required to advise us of any material changes made to the installation. 'Material changes' means changes to the installation as planned or built which may affect the tariff of the installation under the RHI, or that would mean that the installation would no longer be considered eligible to receive full accreditation under the RHI. Applicants should contact us for advice if they are in any doubt as to whether the changes they are considering are material.

6.8. If the configuration of the installation's meters had not been finalised at the time of applying for preliminary accreditation, please note that we would expect to make it a condition of preliminary accreditation that the final metering arrangements of the installation must comply with the eligibility requirements of the RHI.

6.9. Please note that the eligibility requirement in relation to publicly funded grants also applies to applicants for and recipients of preliminary accreditation. If you are awarded preliminary accreditation and then subsequently receive a publicly funded grant for the costs of purchasing or installing the equipment, this is likely to render you ineligible for full accreditation and/or lead to our withdrawal of your preliminary accreditation. For further information on the publicly funded grants requirement, see Chapter Three, paragraphs 3.5-3.13.

6.10. 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

6.11. We will confirm preliminary accreditation in writing to the applicant. Preliminary accreditation is effective from the date we issue the notification letter to you or

in some circumstances a later date we may specify in the notice, for example where the applicant was required to complete an action before preliminary accreditation would be granted. The letter will also specify any conditions attached to the preliminary accreditation.

6.12. Alternatively we may contact applicants to specify what further information is needed before preliminary accreditation can be granted.

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

Conversion to full accreditation

6.14. Once an installation in receipt of preliminary accreditation has been built, the owner of the installation will need to apply for full accreditation in order to become a participant in the scheme and receive RHI periodic support payments. As part of their application for full accreditation they should give the reference number of the preliminary accreditation that had been received.

6.15. In assessing the application for full accreditation, we will take into account the preliminary accreditation granted.

6.16. Where the installation has been built 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 way such that if we had know about it at the time of preliminary accreditation we would not have granted the preliminary accreditation, or

- there has been a material change in circumstances or a change in applicable legislation since the date of preliminary accreditation which means that an installation which would have been eligible for full accreditation when the preliminary accreditation was granted is not now eligible for accreditation because of these changes.

6.17. Please note that all applicants for, and recipients of, preliminary accreditation should be aware of the eligibility requirement regarding the RHI and publicly funded grants. If you receive a grant following the receipt of preliminary accreditation, you should notify Ofgem as soon as possible as this may affect your eligibility to receive full accreditation to the RHI. For further information, please see Chapter Three, paragraphs 3.5-3.13.

7. Metering eligibility requirements

Chapter Summary

This Chapter sets out:

- The types of meters that are allowed for the RHI, and the technical requirements they must meet;
- The information relating to 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;
- Ongoing requirements that relate to meters whilst in use for RHI purposes.

Question box

Question 1: Do stakeholders know of other documentary evidence that could demonstrate that a heat meter meets the Class 2 requirements as set out in the Regulations?
Question 2: Do stakeholders agree with our approach to meter placement for complex installations where heat is used for eligible purposes in more than one building?
Question 3: Do stakeholders agree that it is reasonable to require an independent report on metering arrangements for all installations classed as complex for RHI metering purposes?
Question 4: Do stakeholders agree with the competency criteria proposed for the person permitted to undertake the independent report on metering arrangements?
Question 5: Do stakeholders have any comments on the draft independent report on metering arrangements which is being consulted on alongside this Guidance as a supplementary Appendix?
Question 6: Do stakeholders have any comments on the proposed approach for measuring energy returned in the form of condensate outlined in Paragraphs 7.61-7.64? We would be interested to hear of any alternative approaches that could measure the energy in the condensate return in accordance with Regulation 17.

7.1. In accordance with the Regulations, participants may only claim RHI support on eligible heat that is delivered by any heat-conveying liquid or steam.[46] Where

[46] Regulations, Part 2, Chapter 2, Regulation 12(1)

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.

7.2. Information on metering for biomethane plants is provided in Chapter Eight; the requirements set out in this Chapter do not apply to such plants.

7.3. For installations with a capacity below 45kWth, the MCS installation company should be able to advise participants on how to comply with the technical metering requirements set out below (as applicable).

7.4. This Chapter contains information that is necessarily technical. Appendix Two, 'Meter 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 below when assessing whether the metering arrangements for that heating system meet the RHI eligibility requirements.

7.5. Details of how to provide ongoing meter readings and heat output data to Ofgem are provided in Volume Two, Chapter Four of this Guidance.

7.6. 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.

Heat meters

What standard of heat meter is permissible for the RHI?

7.7. 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:

- comply with the relevant requirements set out in Annex I to the 2004 Measuring Instruments Directive (MID)[47] (2004/22/EC), and
- comply with the specific requirements listed in Annex MI-004 of the MID, and

[47] http://www.bis.gov.uk/assets/bispartners/nmo/docs/legislation/legislation/mid/measuring-instruments-directive-text-from-oj.pdf

- fall within accuracy Class 2 as defined in Annex MI-004.[48]

There is an exception to this requirement for certain transitional CHP systems, please see paragraphs 7.30-7.31 below for further details.

7.8. The MID sets out the requirements for a number of measuring instruments used for trade.[49] 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.[50]

7.9. 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, as set out in the Regulations.[51,52]

7.10. 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** (such as two thermocouples[53]) - 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, and

- 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.

7.11. 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

[48] Regulations, Part 1, Regulation 2, definition of 'class 2 heat meter'
[49] http://ec.europa.eu/enterprise/sectors/legal-metrology-and-prepack/documents/europ-standards/index_en.htm
[50] http://www.bis.gov.uk/nmo/technical-services/product-certification/MID/heat-meters
[51] See for example, Regulations, Part 2, Chapter 3, Regulations 16 and 17.
[52] 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).
[53] The pipe carrying the cool water flow returning from an installation or heat use is commonly referred to as the return pipe.

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.

7.12. A heat meter comprising individual components which all meet or exceed (i.e. Class 1) Class 2 requirements 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.

7.13. 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.

What information needs to be supplied when applying for accreditation?

7.14. 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 from four possible options. This information will be required for each model of integrated meter used for RHI purposes.

7.15. The most straightforward method to demonstrate that the meter used for RHI purposes meets the eligibility requirements is to provide evidence that the meter has been submitted and shown to comply 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 the manufacturer's declaration of conformity could be used.

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

- A (pre-MID)[54] 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; or
- 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; or

[54] 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.

- An International Organization of Legal Metrology (OIML) Class 2 Heat Meter Certificate of Conformity.

7.17. Where the meter components are purchased separately, we will ask for evidence that each component meets the requirements. This evidence could be manufacturer's documentation or conformity assessment/testing certificates, for example.

7.18. 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;
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;
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 paragraphs 7.83-7.84 ('Schematic diagram');
4. a **meter reading** for each meter, and the date on which that reading was taken;
5. the participant's **confirmation** that all meters were installed in line with manufacturer's instructions (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 (e.g. 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;

7.19. 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.

7.20. All large or 'complex' installations 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 paragraphs7.94-7.96 ('Independent metering report') for further details of this report, and the supplementary appendix to this Guidance to see a draft of the report.

Steam measuring equipment (steam meters)

What standard of steam meter is permissible for the RHI?

7.21. Where renewable heat is delivered by steam, the Regulations set out the requirements for 'steam measuring equipment' (hereafter referred to as steam meters).[55]

7.22. Steam meters used for RHI purposes must have, as a minimum, the following components continuously measuring the steam 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** – a meter which determines how much fluid (steam) has passed through a pipe over a given time period;
- A **pressure sensor** – a device for measuring the pressure of steam flowing through the pipe;
- A **temperature sensor** – a device for measuring the temperature of steam flowing through the pipe;
- A **calculator/digital integrator**– a device which uses the information provided by the flow meter, temperature and pressure sensors to calculate the cumulative heat energy transferred through the pipe.

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

7.24. 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.[56]

7.25. We expect that participants will install steam measuring equipment which 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).[57]

[55] Regulations, Part 1, Regulation 2, definition of 'steam measuring equipment'
[56] Regulations, Part 2, Chapter 3, Regulation 20
[57] http://chpqa.decc.gov.uk/guidance-notes/

What information about steam meters needs to be supplied when applying for accreditation?

7.26. 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
- each steam meter's **serial number** or, where the components of the meter are purchased separately, the serial number of the flow meter component
- 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 paragraphs 7.83-7.84)
- a **meter reading** for each meter, and the date on which that reading was taken
- the participant's **confirmation** that all meters were installed in line with manufacturer's instructions 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.[58]

7.27. The most recent calibration dates and the manufacturer and model of the calculator/digital integrator, temperature and pressure sensors are expected to be available upon request.

7.28. 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 verify that all the relevant eligibility criteria have been met. Please see paragraphs 7.94-7.96 for further details of this report.

Additional information for systems with more than three RHI-relevant meters

7.29. Where a system has more than three RHI-relevant meters, we will also ask for a description of the metering arrangements relating to the eligible installation and heat uses. This should explain how the metering arrangement will enable the

[58] Regulations, Part 2, Chapter 3, Regulation 20(2)

relevant heat output figures required for tariff calculation purposes to be determined. Further details about which figures are required are set out in Chapter Four, 'Provision of periodic data – heat output data and supporting meter readings', of Volume Two.

CHP systems currently registered on the CHPQA scheme

7.30. Where eligible CHP systems have a heat recovery system that was first commissioned on or after 15 July 2009 but before the date of commencement of the Regulations, and the system was generating electricity 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 **and**
- the CHP system was registered under the CHPQA standard[59] prior to the date of commencement of the Regulations.[60]

7.31. 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 of a Class 2 heat meter.

7.32. All other RHI eligibility and ongoing requirements relating to metering set out in Chapter Seven, 'Metering eligibility requirements', must be complied with. If a CHP system which benefits from the above exemption in relating 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 Seven.

7.33. 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.

Meter placement: simple and complex installations

7.34. This section sets out where meters need to be located in order to comply with the Regulations. The Regulations classify installations as either 'simple' or 'complex' for RHI metering purposes.[61] This classification in turn determines which quantities must be measured, and where meters must be located.[62] It also

[59] http://chpqa.decc.gov.uk/
[60] Regulations, Part 2, Chapter 3, Regulation 19
[61] Regulations, Part 2, Chapter 3, Regulations 16 and 17
[62] Regulations, Part 2, Chapter 3, Regulations 16 and 17 & Part 5, Regulations 38 and 39

affects how payments are calculated, as set out in Chapter Two, 'Periodic support payments', in Volume Two of this Guidance.

7.35. 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 to ensure that its renewable heat contribution can be measured for RHI payment purposes. Where an installation comprises multiple plants, it may be possible for the plants to share a meter for RHI purposes, please see paragraphs 7.69-7.73 ('Shared meters') for further information.

Is your installation 'simple' or 'complex' for RHI metering purposes?

7.36. If the answer to any of the questions below for **any** of the plants comprising your installation is 'Yes', then the Regulations require the installation to be classed as **complex** for RHI metering purposes.

- Is the plant a **CHP** system (a plant where power is generated and waste heat from the power generation process is recovered and used for eligible purposes)?
- Is heat generated by the plant delivered by **steam**?
- Does the plant generate heat that is supplied to one or more **ineligible purpose** (see Chapter Five for details of what constitutes an ineligible purpose)?
- Is the heat generated by the plant used within **more than one building**?

7.37. If the answer to all the questions above is 'No' for **all** plants comprising an eligible installation, then the installation will be classed as 'simple' for metering purposes, and for the calculation of payments as set out Chapter Two, 'Periodic Support Payments' in Volume Two of this Guidance.

7.38. Where an installation is comprised of multiple plants, it will be classed as 'complex' for RHI metering purposes where any of its component plants are classed as complex.

7.39. Whether an installation is classed as simple or complex for RHI metering purposes is illustrated in Figure 4 below.

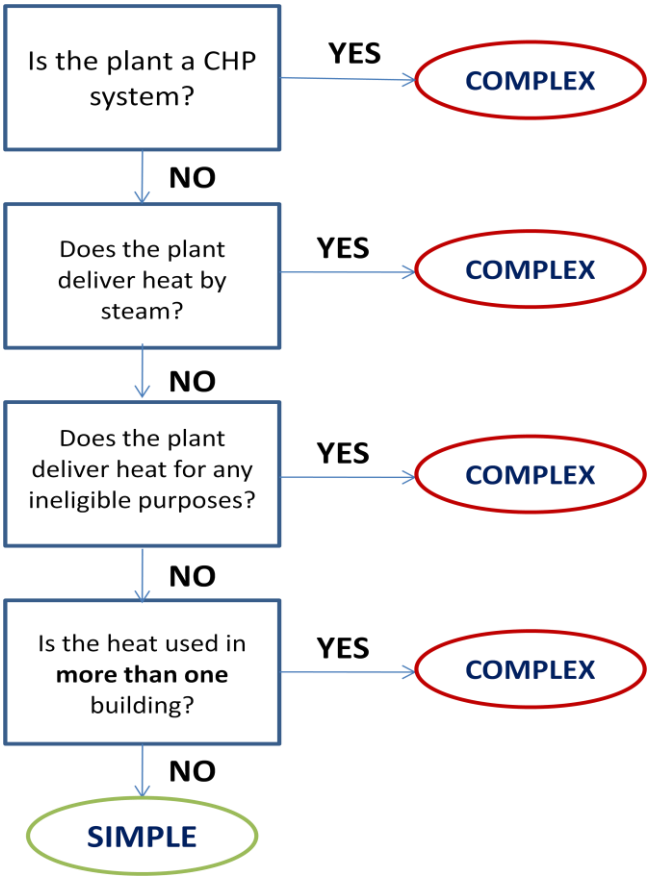


Figure 4: A flow chart illustrating whether a plant comprising all or part of an eligible installation would be classed as 'simple' or 'complex' for RHI metering purposes, in accordance with the Regulations.

Meter placement for 'simple' installations

7.40. The Regulations allow simple installations to meter only the **renewable heat generated** by the eligible installation, and to receive RHI support on this amount.[63] This means that the heat meter measuring points must be positioned correctly to meter the heat generated by the eligible installation.[64]

7.41. The temperature sensors must be installed appropriately so that they measure accurately:

- the temperature of the liquid returning to the installation, and

[63] Regulations, Part 2, Chapter 3, Regulation 16(2) and Part 5, Regulation 38
[64] As shown in Figure 4, an installation that is classed as 'simple' for RHI metering purposes cannot deliver heat by steam, and therefore steam meters would never be required.

- the temperature of the liquid as it leaves the installation, prior to entering any common pipework or vessels, such as a common header[65] or storage tank.

7.42. The pipe carrying the hot liquid flow **leaving** an installation is commonly referred to as the **flow** pipe; the pipe carrying the cool liquid flow **entering** an installation is commonly referred to as the **return** pipe. We use this terminology here. The (heat) flow meter must be located on either

- the return pipe directly entering the eligible installation **or**
- the flow pipe directly leaving the eligible installation.

7.43. The heat meter calculator/digital integrator must be correctly configured for the installed location of the flow meter and temperature sensors, as well as the properties of the heat conveying fluid.

7.44. Figure 2.1 in Appendix Two provides an example of how the principles above would apply in practice.

7.45. Where an eligible installation is classed as simple for RHI metering purposes, the participant will receive RHI payment on the kWhth as measured by the class 2 heat meter(s) that measure heat generated by the eligible installation. For further information about how RHI payments are calculated, see Chapter Two, 'Periodic Support Payments' in Volume Two of this Guidance.

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

7.46. Any installation where heat is delivered by a liquid and which does not meet the 'simple' criteria outlined above will be classed as 'complex' for RHI metering purposes. This section describes the meter placement requirements for heating systems where the heat transfer medium is a liquid. The scenario where the heat transfer medium is steam is covered separately in paragraphs 7.55-7.65 below.

7.47. For complex installations where the heat transfer medium is a liquid, heat meters will be required to directly measure three quantities for the heating system of which the installation forms part (hereafter referred to as 'the heating system'):

- The heat generated by the eligible installation, prior to any common pipework or vessels;

[65] A 'common header' is the main pipe to which plants supply heat, and from which heat uses are supplied. A heating system may have multiple common headers.

- the 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); **and**

- the heat used for eligible purposes by the heating system.[66] This must not include any heat that is used for ineligible purposes. Examples of ineligible purposes are given in Chapter Five, 'Heat uses'.

7.48. Where paragraphs 7.30-7.31 ('CHP systems currently registered on the CHPQA scheme') does not apply, meters used to measure the quantities listed above must be class 2 heat meters.

7.49. For all three quantities listed above, flow meters should be located on either:

- the return pipe directly entering the installation/heat generating plant(s)/eligible purpose **or**

- the flow pipe[67] directly leaving the installation/heat generating plant(s)/eligible purpose.

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

- the temperature of the liquid returning to the installation/heat generating plant(s)/eligible purpose, and

- the temperature of the liquid as it leaves the installation/heat generating plant(s)/eligible purpose.

7.51. Figure 2.2 in Appendix Two, 'Meter placement examples', shows an example where the installation is classed as 'complex' for RHI metering purposes and the heat transfer medium is a liquid.

7.52. Where heat is used for eligible purposes in more than one building, we will normally require the heat used for eligible purposes in each such building to be separately metered.

7.53. However, where the proportion of the heat lost in transmission between the buildings is insignificant in relation to the heat used for eligible purposes within the buildings, we may permit the heat used in these buildings to be measured using one meter. We will consider proposals to use a single meter where that meter is capable of capturing only heat used for eligible purposes within the

[66] Regulations, Part 2, Chapter 3, Regulation 17(2)
[67] The pipe carrying the hot water flow leaving an installation or heat use is commonly referred to as the flow pipe.

buildings, i.e. it must not include any heat used for ineligible purposes within the buildings.

7.54. As part of the accreditation process, prospective participants who wish to use a single meter will need to demonstrate to us that the heat lost in transmission between the buildings is insignificant in comparison to the heat used for eligible purposes within those buildings. We will consider each such request individually but will take into account the factors below, as appropriate to the application, when exercising our discretion:

- The length of the pipe(s) conveying the hot liquid/steam between the relevant buildings;
- Whether the pipe(s) conveying the hot liquid/steam between the relevant buildings has (have) been appropriately insulated;
- The dimensions and properties of the pipe(s) conveying the hot liquid/steam between the relevant buildings;
- Any other factors influencing the rate of heat loss, such as the temperature difference between the ambient temperature and the hot liquid/steam being conveyed;
- Any other actions taken to mitigate heat losses from the pipe(s) conveying the hot liquid/steam.

Meter placement for 'complex' installations where the heat transfer medium is steam

7.55. All installations where steam is the heat transfer medium are classed as complex for RHI metering purposes.[68] All steam meters used for RHI purposes must meet the technical requirements set out in the 'Steam measuring equipment (steam meters)' section above. Where heat is used for eligible purposes in more than one building, Paragraphs 7.52-7.54 above apply.

7.56. The Regulations require steam meters to be positioned to measure:

- the heat generated in the form of steam by the eligible installation;
- the total heat generated in the form of steam by all plants supplying heat to the heating system;
- the heat in the form of steam used for eligible purposes by the heating system. This will require

[68] Regulations, Part 2, Chapter 3, Regulation 17(1)

- 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[69] of condensate and steam.[70]

7.57. We assume that the energy in the hot water delivered to the eligible installation and any ineligible plant(s) does not need to be metered, as the feedwater temperature for all plants will be the same.[71]

7.58. The steam pressure and temperature must be measured in the steam header delivering heat to the eligible purpose(s).

7.59. The steam meter(s) measuring steam delivered to the eligible purpose(s) must also be positioned after any steam traps and such that they will not include:

- any steam that is supplied to any other ineligible purpose,
- any steam that is released directly to the atmosphere under normal operating conditions.

7.60. Where steam is used for internal processes, such as feed water pre-heating, de-aeration or any other such returns to the installation, the steam meter(s) measuring steam delivered to the eligible purpose must be positioned such 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, see the 'Metering by difference' section in Chapter Seven for further details. For further information about process internal heat, see Chapter Five of this volume.

7.61. Often the fluid that returns from the eligible purpose will be a two-phase mixture of hot water and steam. We expect participants 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.

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

[70] Regulations, Part 2, Chapter 3, Regulation 17(2)

[71] As the heat generated by the eligible installation (D) and the total heat generated by all plants that deliver heat to the heating system (E) only appear in the tariff calculation formula as a ratio (D/E), 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 Five of Volume Two of this Guidance.

7.62. 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.[72]

7.63. 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).

7.64. 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.

7.65. 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, as shown in Figure 2.3 in Appendix Two, 'Meter placement examples'.

Biogas-specific metering requirements[73]

7.66. 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 process of producing the biogas at the plant (for example, where hot water heats the digester), must be measured and deducted from the final RHI payment calculation. See above 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.[74]

7.67. Any other heat inputted into the production of the biogas at the biogas production plant must also be measured and deducted from the overall RHI payment calculation. For example, where water heated by a fossil fuel or renewable boiler is used to raise the temperature of an anaerobic digester, this must be measured and deducted. We will ask at the accreditation stage what these uses are and how they will be measured (they will need to comply with the standard class 2 heat meter requirements detailed above). When information is provided each quarter, this needs to be entered on to the system and will be deducted from the overall payment.

[72] See, for example, https://www.chpqa.com/guidance_notes/GUIDANCE_NOTE_23.pdf
[73] Regulations, Part 2, Chapter 3, Regulation 21
[74] Regulations, Part 4, Chapter 3, Regulation 34(h)

7.68. The exception to this 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.

Shared meters

7.69. An eligible installation comprised of multiple component plants 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, and share the same tariff start date and tariff end date, providing that in our opinion a single meter is capable of measuring the required quantity.[75]

7.70. 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 Two, Chapter Seven of this Guidance.

7.71. The shared meter approach allows plants using the same 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 such direct measurement is not possible, each plant will need to be metered individually.

7.72. Figure 2.4 in Appendix Two, 'Meter placement examples', gives an example of how this might work in practice.

7.73. 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 Appendix Three, 'Additional information to be provided at accreditation', for further information.

Installations in series

7.74. 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 and to allow measurement of the contribution made by **each** eligible installation to the total heat generated. An example is provided in Appendix Two of this volume.

[75] Regulations, Part 2, Chapter 3, Regulation 18

Metering by difference

7.75. In general, we will require direct measurement of the quantities described in the paragraphs above.[76] This is to ensure that measurements used for RHI payment purposes are accurate, as combining meter readings to obtain a quantity required for the RHI tariff calculation may affect the accuracy with which that quantity has been measured.

7.76. However, 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".

7.77. 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 by the same person to reduce any calibration errors.

7.78. Any agreement we make to measuring by difference will be in writing, together with agreement as to the means of calculation.

Installation of meters

7.79. As part of their application for RHI accreditation, participants will need to declare that all heat or steam meters (and meter components where these were purchased separately) to the best of their 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).

7.80. The participant is also required to ensure the all meters and their associated components are then 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

[76] The exception to this is the measurement of heat used in systems where heat is delivered by steam, as set out in Paragraphs 7.55-7.65.

- 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 pipework configurations.

7.81. As part of this, participants must ensure that the meters installed are appropriate for the operating conditions of the heating system.

7.82. Participants should keep records of the relevant manufacturer's instructions and relevant installer's receipts/documentation as we expect these to be available upon request.

Schematic diagram

7.83. Participants will be required to provide a schematic diagram of the installation and the heating system of which it forms part during the accreditation process. This diagram will form a key part of the application for accreditation.

7.84. This diagram will need to clearly 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), any ineligible plant(s), eligible heat use(s), any ineligible heat use(s) and heat rejection facility/facilities
- the relevant pipework connections between all plants within the eligible installation(s)
- the relevant pipework connections between all eligible installations, all ineligible plants and eligible or ineligible uses of heat, and
- the relative positions of the relevant heat and steam meters and their associated components as listed in paragraphs 7.7-7.20 and 7.55-7.65 above.

7.85. With regards 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, i.e. 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 participant's application for accreditation.

Ongoing metering requirements

7.86. Participants need to provide meter readings for all RHI-relevant meters as part of the accreditation process and periodically on an ongoing basis. They will also need to provide heat output data which will be used to calculate payments. For further information on the provision of periodic data, see Chapter Four of Volume Two of this Guidance.

7.87. The Regulations require participants to keep all RHI-relevant heat and steam meters and associated metering equipment, where relevant:

- continuously operating in the normal course of business,
- properly maintained and periodically checked for errors;
- re-calibrated at least every ten years, or within such period of time as may be specified in accordance with manufacturer's instructions where available, whichever is the sooner.[77]

7.88. The requirements apply to all metering equipment and include, where relevant, flow meters, temperature sensors and pressure sensors. For example, we would expect temperature sensors or (for steam meters) differential pressure sensors to be checked on a regular basis.

7.89. Participants will be required to declare that periodic meter readings submitted to us are correct to the best of their knowledge and belief, and we may ask for an explanation of the internal processes they have in place to ensure that meter readings are accurate.

7.90. Evidence of the calibration of meters' components in compliance with the manufacturer's requirements, such as service and maintenance invoices, receipts or certificates, should be retained as they are expected to be available for review upon request.

7.91. The RHI Policy Document indicates that calibration of meters and associated components should be carried out by the manufacturer or by organisations with relevant accreditation (applicable to Class 2 heat metering, steam metering and relevant temperature/pressure calibrations) from the United Kingdom Accreditation Service (UKAS). Further information on UKAS accreditation or the scope of accreditation held by an organisation can be obtained by contacting UKAS directly.

7.92. In addition, where calibration and testing is carried out by the manufacturer, we would expect that calibration and testing equipment used to calibrate RHI

[77] Regulations, Part 4, Chapter 3, Regulation 35(1).

metering equipment should comply with appropriate International, European or British standards.

7.93. The MID Annex I places certain requirements on heat meters with regards protection and security of the calculator/digital integrator component. Where meters are found to have been attacked, interfered with or tampered with, this will be subject to investigation leading to potential enforcement action against the relevant participant(s), as set out in Chapter 10, 'Compliance and enforcement powers', in Volume Two.

Independent Report on Metering Arrangements

7.94. In accordance with Schedule 1 of the Regulations, where an installation

- has a capacity of 1MWth or above, **or**
- is classed as **complex** for RHI metering purposes,

we will require an independent report by a competent person demonstrating that the metering and measuring requirements imposed by Chapter 3 of part 2 of the Regulations have been met[78] (the 'Report').

7.95. Where it is required, a copy of the Report must be provided as part of the application for accreditation. No installation for which a Report is required will be accredited under the RHI scheme without providing this Report. Where two or more installations requiring the Report are connected to the same heating system, a separate Report must be submitted for each installation.

7.96. A Report will also be required where additional RHI capacity[79] takes an accredited installation's capacity over 1MWth, or where a change is made to the installation/heating system that results in an RHI-accredited installation moving from a simple to complex classification for RHI metering purposes. Further information about additional RHI capacity and simple and complex classifications can be found in Chapter Seven in Volume Two and Chapter Seven, 'Metering eligibility requirements' of this volume respectively.

[78] Regulations, Schedule 1, Regulation 1(v)(v)
[79] 'Additional RHI capacity' is defined in the Regulations (Part 6, Regulation 43(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.

7.97. A draft template for the Report and instructions for the competent person completing the Report are being consulted on alongside this Guidance as Supplementary Appendices.

Who can write the Report?

7.98. In order to ensure the Report is of an appropriate standard, the Regulations require the Report to be completed by a 'competent person'. Ofgem has interpreted 'competent person' to mean a person that meets all of the following criteria :

1. An experienced and suitably qualified engineer (at least HND in an engineering discipline from a recognised academic institution);
2. Has demonstrable experience and expertise in flow measurement and heat/steam measurement systems demonstrated by training and development records;
3. Has a relevant background (involved in energy, utilities, building services, heating system design, heating system operation & maintenance);
4. Accredited to ISO 17020:2004 (General Criteria for the operation of various types of bodies performing inspection) or records demonstrating operational compliance with the standard;
5. Certified to ISO9001:2008 (Quality Management Systems) - through employer or directly) and/or records demonstrating that a quality management system is in place and is in operation;
6. Covered by Professional Indemnity Insurance of at least £1m (through employer or directly);
7. Completely independent of the owner(s) of the installation, and the end user(s) of the heat (where different to the owner).

7.99. Prospective participants may be required to demonstrate to our satisfaction that the competent person is, and is seen to be, completely independent of the owner(s) of the installation and the end user(s) of heat (where different). We will consider each case on its facts but we consider that a competent person is unlikely to be regarded as independent where, for example:

- he is related to the owner or heat user
- he is employed by, or is a director of, the owner or the heat user, another undertaking or person associated with the owner or heat user or the supplier of the system for which metering is being assessed
- he has a financial interest in the RHI installation, owner or heat user or another undertaking which is associated with the owner or heat user
- he is dependent on the owner or heat user, another undertaking or person associated with the owner or heat user or the system supplier, for a significant portion of his income, or
- he has not received payment for his services at market rate.

7.100. The competent person undertaking the Report, as defined above, is hereafter called the 'competent person' in this Section. The competent person must undertake a visit to the installation and complete the Report. Where this Report is required, participants are responsible for ensuring it is carried out by a competent person who meets the criteria set out above. Trade bodies and consumer groups should be able to provide further advice if required.

What should the Report cover?

7.101. In order to ensure that all Reports are consistent and provide the information we require to confirm metering arrangements are appropriate for the RHI, we have developed a Report template. A draft of this template is being consulted on alongside this Guidance as a Supplementary Appendix. 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.

7.102. The Report will cover the installation's metering arrangements for RHI purposes, including:

- checking meters and sensors are correctly positioned
- checking that 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
- checking that meters and sensors meet the technical requirements set out elsewhere in this Chapter
- the competent person certifying that the schematic diagram is an accurate representation of the installation and the heating system of which it forms part.

7.103. The competent person must sign a declaration, confirming that they meet the competency criteria and that the information provided in the Report is accurate to the best of his or her knowledge.

What happens if Ofgem is not satisfied with the Report?

7.104. In order for the installation to be accredited to the RHI, those installations requiring a Report must have it satisfactorily completed and provided to Ofgem. If we are not satisfied with all or a portion of a Report, we will explain our query to the participant directly. For example, the Report should be completed on the template provided. If it is not, we will notify the participant that the Report will

not be reviewed until it is provided on the template. It is the participant's responsibility to resolve any problems with the Report and resubmit a new or amended Report as appropriate. This may require the participant to obtain further verification and sign off from the competent person who completed the initial Report.

8. Registration for biomethane producers

Chapter Summary

This Chapter sets out the registration requirements for producers of biomethane.

Question box

Question 1: Do you agree with our interpretation of the meaning of biomethane 'producer'?

Question 2: Does this interpretation present any issues for the biomethane industry?

Biomethane as a developing technology

8.1. As few biomethane facilities currently operate within the UK, the technology and regulatory framework around biomethane production is still developing. We will therefore seek to introduce more detailed guidance in this area as the sector develops.

8.2. Here we outline how biomethane producers could demonstrate that they meet the eligibility criteria in the Regulations. We will review all applications against the legislative requirements.

8.3. Due to the developing nature of this technology, we advise developers to contact us early in the process for informal guidance on how legislative requirements can be met.

Existing regulatory framework

8.4. There is an existing regulatory framework relating to the injection of gas onto the gas network. For example, the Health and Safety Executive regulate the health and safety aspects of the entry of gas on to the network. Ofgem also has 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 compliance with any other piece of legislation.

8.5. DECC has produced a guidance document[80] for those interested in producing biomethane for entry on to the network. The document outlines the main legal, technical and regulatory requirements specific to the gas market in Great Britain. This will help producers of biogas, who may not have considered injecting it into the gas grid, to make an informed choice between the various marketing options.

Biomethane registration eligibility

8.6. 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 were sufficient to ensure that the RHI requirements are met, so no further RHI-specific accreditation standards are necessary. As a result, the Regulations describe the process for biomethane producers as 'registration' rather than accreditation.

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

8.8. As biogas is derived from biomass, we therefore need assurance at the registration stage that the biogas is indeed from a 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.

8.9. For the gas to be considered 'suitable for conveyance' (or transported in accordance with a gas transporter's licence), 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).

8.10. We will therefore 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'.

8.11. 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

[80] http://www.decc.gov.uk/en/content/cms/meeting_energy/markets/gas_markets/nonconvention/nonconvention.aspx

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 entity which carries out the final production process(es) necessary to bring the biogas within the definition of biomethane under the Regulations is to be regarded as the 'producer' of that biomethane for RHI purposes.

8.12. The Regulations[81] state that biomethane producers will need to provide 'details of the process by which the applicant proposes to produce biomethane and arrange for its injection'. This is to determine that the party is the producer of the biomethane, and has arranged access for its conveyance through pipes.

8.13. Further documentation we will therefore ask for at the registration stage to accompany the application for registration is:

- a schematic diagram showing the process of biomethane production from the biogas plant(s), and the point of entry on to the network, and
- extracts of contracts and the Network Entry Agreement with relevant third parties relating to the agreement to convey the gas on to the pipeline network.[82]

Access to off-site equipment

8.14. In order to encourage compliance with the scheme, we (or agents authorised on our behalf), will carry out, on an ongoing basis, a programme of site inspections of equipment used by registered biomethane producers in the production and injection of biomethane.

8.15. As a condition of registration, producers of biomethane must ensure access (by contractual or other means) for Ofgem (or our authorised agents) to any off-site equipment including the equipment used to produce the biogas for biomethane production.

8.16. Further information regarding our approach to the audit and inspection of equipment used to produce and inject biomethane can be found at Chapter Eleven.

[81] Regulations, Part 3, Regulation 25(2)(c)
[82] Regulations, Part 4, Chapter 2, Regulation 33(7)

How to register

8.17. As for all other prospective RHI participants, biomethane producers should apply to register as a participant under the RHI either through the Ofgem RHI website or via a paper application for registration. We do not encourage you to apply using a paper application, as this may take longer for us to process.

8.18. Please note that you are only able to apply for registration once the scheme is open for applications, currently expected to be 30 September 2011, subject to Parliamentary and State Aids approval.

8.19. Please note that we cannot register an applicant unless the applicant has advised that no public grant has been paid or will be paid for any of the equipment used to produce the biomethane for which the applicant wants to claim RHI support. Such equipment includes the equipment used to process the biogas into biomethane, such as that required to remove hydrogen sulphide, water, carbon dioxide and any contaminants, add propane, add odorant and measure the energy flow and gas quality before injection into the gas grid.

8.20. We also cannot register an applicant if it would mean RHI support being paid to more than one participant for the same biomethane.

8.21. If you need to make changes to the information you submitted as part of your application for registration, you must tell us within 28 days of any change in circumstances. 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 eligibility to receive RHI payments we shall notify you and advise you as to what we intend to do in the circumstances. If we need more time to investigate the changes you have advised us of, we may temporarily suspend your payments until we are satisfied of your continuing eligibility.

8.22. The date of registration for a producer of biomethane means the first day falling on or after the date of receipt by Ofgem of the application on which Ofgem is satisfied that the application has been completed with all required information included. Assuming that you meet the eligibility criteria of the RHI for biomethane producers, then the registration date for a written submission would be the date that we received your completed, signed application.

8.23. 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
- 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.

Fuel measurement and sampling questionnaire

8.24. Participants will be asked to complete a fuel measurement and sampling (FMS) questionnaire to inform Ofgem of how it will calculate the renewable proportion of the gas that is injected, what meters are to be used at the facility and how the GCV and volume are to be measured accurately for the relevant quarterly period. For further information on the FMS questionnaire, please see the relevant section in Chapter Four, 'Ongoing fuel eligibility requirements', in Volume Two of this Guidance.

8.25. The propane measurement approach is also outlined in Chapter Nine, Volume Two of this Guidance.

Metering volume

8.26. In your fuel measurement and sampling 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.

8.27. 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.[83]

Measuring GCV

8.28. 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.

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

8.29. 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.

8.30. 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 Two of this guidance.

8.31. We may audit the biomethane facilities to ensure that the equipment used at the plant follows these agreed procedures. It will be a condition of registration that the participant should provide (or procure from any relevant third parties) access to the facilities for Ofgem's inspection agents for this purpose.

Appendices

Index

Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of some chapter headings and which are replicated below.

1.3. Responses should be received by **Friday 5 August 2011** and should be sent to:

- RHI Development team
- Ofgem E-Serve 9 Millbank, London SW1P 3GE
- RHIguidanceconsultation@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. **Next steps**: Having considered the responses to this consultation, Ofgem intends to make any required amendments before publishing the final Guidance document, prior to the opening of the scheme for applications, currently expected to be 30 September 2011.

1.7. Any questions on this document should, in the first instance, be directed to:

- RHI development team
- Ofgem E-Serve 9 Millbank, London SW1P 3GE
- RHIguidanceconsultation@ofgem.gov.uk

Chapter One

Question 1: Are there any areas where you disagree with our interpretation of the Regulations?

Chapter Three

Question 1: Are there sections on the eligibility requirements of the scheme which require greater clarity? If so, how can these sections be improved?

Chapter Four

Question 1: Do stakeholders agree with our approach to approving the eligibility of MCS solid biomass products? If not, what would be a better alternative?

Question 2: Are there any products which stakeholders believe meet the solid biomass as 'primary fuel source' definition which would be excluded by our interpretation?

Question 3: Are the CEN/TS 14961:2005 group of standards widely used in biomass boiler warranties or boiler specification?

Question 4: Is the documentation required for solid biomass plants over 45kW widely available?

Question 5: Do stakeholders know of other standards or recognised procedures that could be used to determine the coefficient of performance for heat pumps with a capacity above 45kWth?

Question 6: We seek stakeholders' views on our approach to accrediting heat pumps with fully integrated electrical heaters, in particular whether there are any additional eligibility requirements that we should specify or if there is a capacity above which it is not common practice to install such heat pumps

Chapter Five

Question 1: Do stakeholders agree with our interpretation of 'building', in particular what constitutes 'permanent or long-lasting' and a 'wholly enclosed structure'? If not, what alternative tests would be appropriate?

Chapter Seven

Question 1: Do stakeholders know of other documentary evidence that could demonstrate that a heat meter meets the Class 2 requirements as set out in the Regulations?

Question 2: Do stakeholders agree with our approach to meter placement for complex installations where heat is used for eligible purposes in more than one building?

Question 3: Do stakeholders agree that it is reasonable to require an independent report on metering arrangements for all installations classed as complex for RHI metering purposes?

Question 4: Do stakeholders agree with the competency criteria proposed for the person permitted to undertake the independent report on metering arrangements?

Question 5: Do stakeholders have any comments on the draft independent report on metering arrangements which is being consulted on alongside this Guidance as a supplementary appendix?

Question 6: Do stakeholders have any comments on the proposed approach for measuring energy returned in the form of condensate outlined in paragraphs 7.61-7.64? We would be interested to hear of any alternative approaches that could measure the energy in the condensate return in accordance with Regulation 17.

Chapter Eight

Question 1: Do you agree with our interpretation of the meaning of biomethane 'producer'?

Question 2: Does this interpretation present any issues for the biomethane industry?

Chapter Two (Volume Two)

Question 1: Are there sections on the ongoing obligations of the scheme which require greater clarity? If so, how can these sections be improved?

Appendix 2 – Meter placement examples

This appendix provides examples of how the meter placement requirements outlined in Chapter Seven of this volume could apply in practice, and it should be read in conjunction with that chapter.

2.1. This Appendix provides examples of how the meter placement requirements outlined in Chapter Seven of this volume could apply in practice. These are illustrative examples only. Meter configurations which divert from the arrangements described below may be permissible, but participants could need to provide technical justification of how the requirements in Chapter Seven are met by their alternative approach.

2.2. The information in this Appendix is **additional** information to that provided in Chapter Seven; the eligibility and other metering requirements set out in that chapter still apply. When we refer to 'heat' and 'steam' meters below, we assume that they are meters that comply with all the relevant technical requirements set out in Chapter Seven.

2.3. Further information about when and how to provide periodic data, i.e. meter readings and heat output figures, to us can be found in Chapter Three of Volume Two of this Guidance. Information about how periodic data is used to calculate payments is in Chapter Five of Volume Two of this Guidance.

2.4. The examples provided here show possible meter arrangements where:

1. An installation is classed as 'simple' for RHI metering purposes

2. An installation is classed as 'complex' for RHI metering purposes and the heat transfer medium is water

3. An installation is classed as 'complex' for RHI metering purposes and the heat transfer medium is steam

4. Multiple plants comprise one installation and share a single meter

5. Two eligible installations are connected in series (in this case, where one installation pre-heats the water that enters a second installation)

6. Hot water in a common storage tank is heated by both an ineligible plant (in this example, an electrical immersion heater) and an eligible installation

7. Reversible heat pumps generate both heating and cooling.

Example 1: Possible meter arrangement for an installation that is classed as 'simple' for RHI metering purposes

2.5. Figure 2.1 shows an example where a biomass boiler (eligible installation) and a back-up gas-fired boiler (ineligible plant) supply hot water to a single office building, which is then used for space heating purposes within that building only.

2.6. This installation is classed as 'simple' for RHI metering purposes because it is not a CHP system, does not deliver heat by steam and the heating system delivers heat only to eligible purposes within one building.

2.7. In this case, one heat meter, H_{RHI}, is required to measure the heat generated by the eligible installation, as shown below. This takes information from the temperature sensors $T_{RHI\ out}$ and $T_{RHI\ in}$ and the flow meter F_{RHI}.

2.8. The placement of the temperature sensors ensures that heat generated by the backup gas-fired boiler (ineligible plant) is not included in the meter reading used for RHI payment purposes.

2.9. The participant would need to supply the cumulative meter reading in kWhth as shown by the calculator/digital integrator to us in accordance with the timings and process set out in Chapter Three, 'Provision of periodic data – heat output data and supporting meter readings', of Volume Two of this Guidance. The participant would also need to use the cumulative meter readings to calculate the amount of renewable heat generated by the installation in the relevant period.

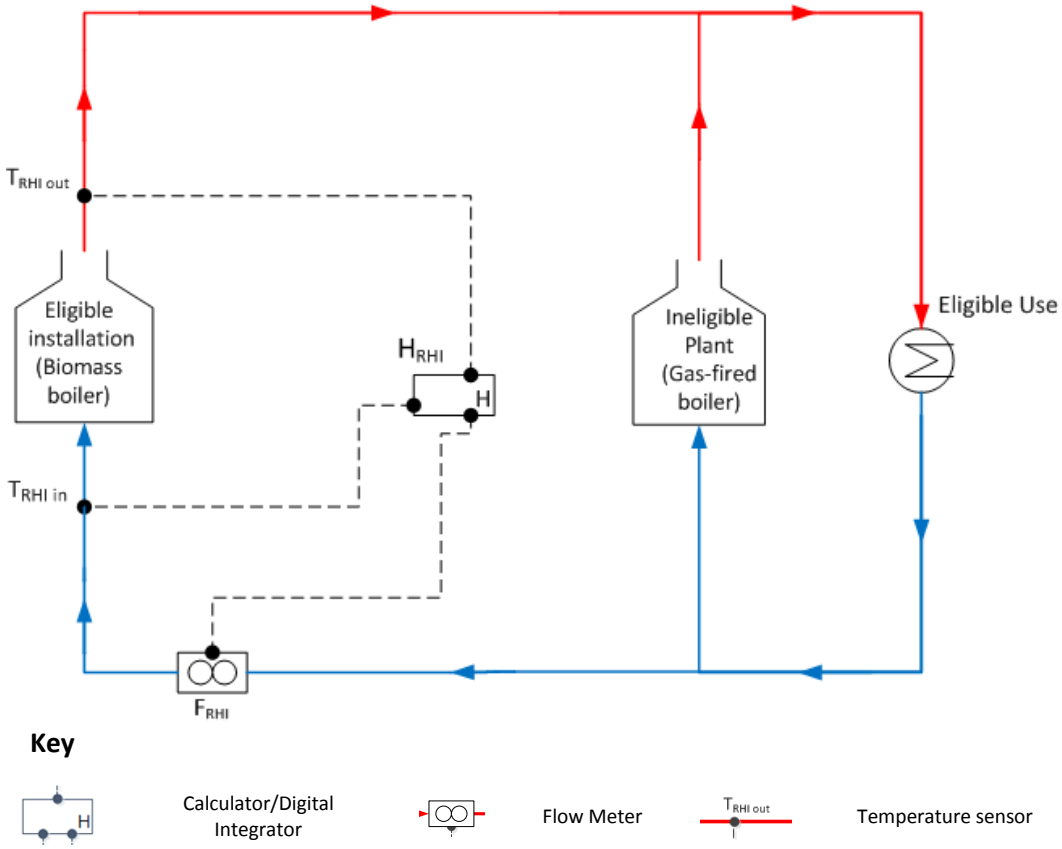


Figure 2.1: Illustration of eligible metering arrangement for a simple installation. The flow meter can be placed in either the flow or return pipe (red lines denote the hot 'flow' pipes, and blue lines indicate the cool 'return' pipes).

Example 2: Possible meter arrangement for an installation that is classed as 'complex' for RHI metering purposes and the heat transfer medium is water

2.10. Figure 2.2 shows a heating system where a biomass boiler (eligible installation) and a gas-fired boiler (ineligible plant) supply heat to a common heating system. The heating system supplies heat that is used for both an eligible purpose and an ineligible purpose. Further information about what constitutes an eligible/ineligible purpose can be found in Chapter Five, 'Heat uses', of this volume.

2.11. In this case, although the installation is not a CHP system and does not deliver heat by steam, heat is used for an ineligible purpose as well as an eligible purpose. This means that the installation is classed as 'complex' for RHI metering purposes.

2.12. Following the approach outlined in Chapter Seven, paragraphs 7.46-7.54, three heat meters are required for RHI purposes. These need to be located to measure:

- the heat generated by the biomass boiler (eligible installation) – Meter H_{RHI}

- the total heat generated by both the biomass boiler and the gas-fired boiler – Meter H_{total}

- the heat used for eligible purposes – Meter $H_{eligible}$

2.13. Figure 2.2 shows a possible meter arrangement. In this case, a participant would need to supply the cumulative meter reading in kWhth as shown by the calculator/digital integrator for each meter to us in accordance with the timings and process set out in Chapter Three of Volume Two of this Guidance.

2.14. Denoting the cumulative meter reading at the start of a period by (1) and that at the end of the relevant period by (2), the participant would also need to use the cumulative meter readings to calculate (and provide us with):

- the total amount of renewable heat in kWhth generated by the installation during the relevant period = $H_{RHI}(2) - H_{RHI}(1)$.

- the total amount of heat from the heating system that was used for eligible purposes during the relevant period in kWhth = $H_{eligible}(2) – H_{eligible}(1)$, and

- the total amount of heat supplied to the heating system by both the eligible installation and the ineligible plant during the relevant period in kWhth = $H_{total}(2) – H_{total}(1)$.

2.15. Further information about how these figures are used to determine the payment amount for the relevant period can be found in Chapter Five of Volume Two of this Guidance.

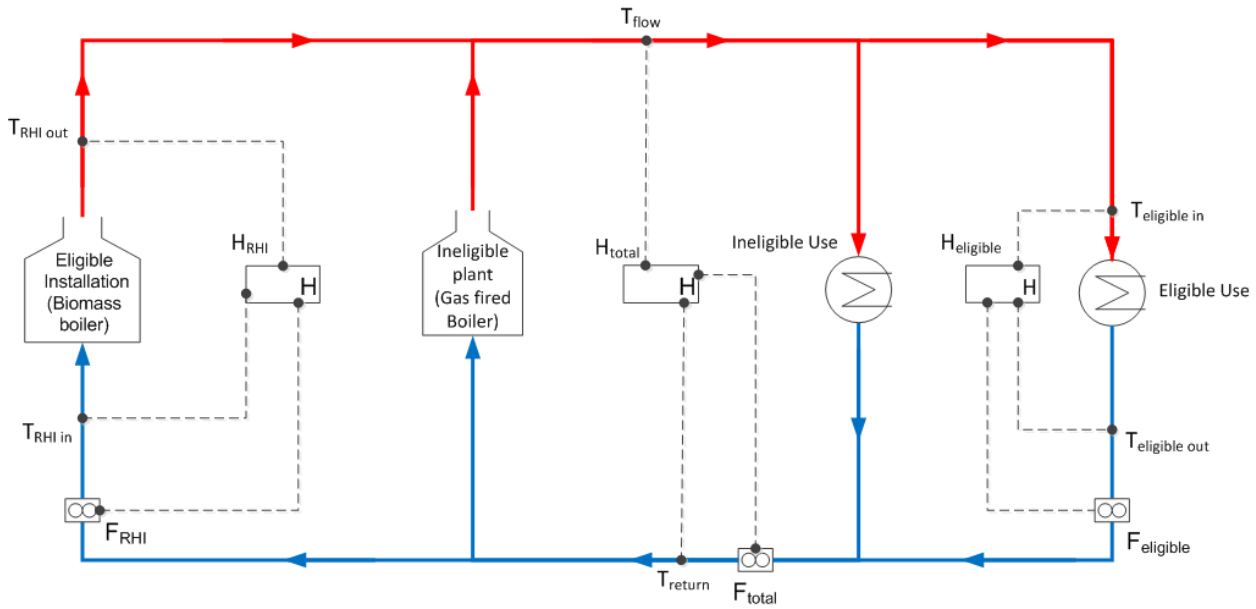


Figure 2.2: Illustration of possible metering arrangement for a complex installation where the heat transfer medium is a liquid. Note that the flow meter can be placed in either the flow or return pipe. Red lines denote the hot flow pipes, and blue lines indicate the cool return pipes.

Example 3: Possible meter arrangement for an installation that is classed as 'complex' for RHI metering purposes and the heat transfer medium is steam

2.16. Figure 2.3 shows an example where a biomass boiler and a back-up gas-fired boiler deliver steam to both an eligible purpose (carrying out a process) and an ineligible purpose (generating electricity). We assume here that condensate is returned from the eligible purpose in the form of hot water. The installation is classed as 'complex' for RHI metering purposes because the heat transfer medium is steam (and, in addition, heat is used for an ineligible purpose).

2.17. Steam generated by the installation is directed for feedwater treatment prior to the eligible use. This is classed as process internal heat, and is therefore not eligible for RHI support. For further information about process internal heat, please see Chapter Five of this volume.

2.18. In this example, the following meters would be required:

1. Steam meter located to measure the heat generated in the form of steam by the biomass boiler. The flow meter **must** be placed in the flow pipe, along with the pressure and temperature sensors. This is meter S_{RHI} in the figure; this meter references the flow meter F_{RHI}, the pressure sensor P_{steam} and the temperature sensor T_{total} (as well as the datum temperature T_{datum}).

2. Steam meter located to measure the heat generated in the form of steam by **both** the biomass boiler and the gas-fired boiler. This is meter S_{total} in the figure, which references the flow meter F_{total}, the pressure sensor P_{steam} and the temperature sensor T_{total} (as well as the datum temperature T_{datum}).

3. Steam meter located to measure the heat in the form of steam delivered to the process (i.e. eligible purpose); this should not include any steam returned to the installation. This is meter $S_{eligible}$ in the figure, which references the flow meter $F_{eligible}$, the pressure sensor P_{steam} and the temperature sensor T_{total} (as well as the datum temperature T_{datum}).

4. Heat meter located after the process (i.e. eligible purpose) to measure the energy in the condensate returned from the process. In this case, a temperature sensor must be located in the return pipe from the process, and the other temperature used in the calculation made by the calculator/digital integrator should be the datum temperature used by the steam meters, which will typically be 0 degrees. The flow meter must be positioned prior to the condensate entering any common pipework or vessels. This is meter $H_{condensate}$ in the figure, which references the flow meter $F_{eligible\ condensate}$, and the temperature sensor $T_{condensate}$ (as well as the datum temperature T_{datum}).

2.19. In this case, if lower grade steam had been returned from the eligible purpose (rather than hot water) the heat meter at point 4 above would be replaced by another steam meter. This would require a separate pressure and temperature sensor to be added in the return pipe leaving the eligible purpose.

2.20. The three steam meters S_{RHI}, S_{total} and $S_{eligible}$ share a pressure and temperature sensor. We also assume that the feedwater temperature is the same for both the eligible installation and the ineligible plant, so that measurement of the energy contained in the feedwater is not required.

2.21. The participant would need to provide cumulative meter readings in kWhth as shown by the calculator/digital integrator for each meter to us in accordance with the timings and process set out in Chapter Three of Volume Two of this Guidance. Denoting the cumulative meter reading at the start of a period by (1) and that at the end of the relevant period by (2), the participant would also need to use the cumulative meter readings to calculate:

- the total amount of renewable heat generated by the installation during the relevant period in kWhth = SRHI(2) – SRHI(1);

- the total amount of heat from the heating system that was used for eligible purposes during the relevant period in kWhth = $S_{eligible}(2) – H_{condensate}(2) – [S_{eligible}(1) – H_{condensate}(1)]$;

- the total amount of heat supplied to the heating system by both the eligible installation and the ineligible plant during the relevant period in kWhth = $S_{total}(2) – S_{total}(1)$.

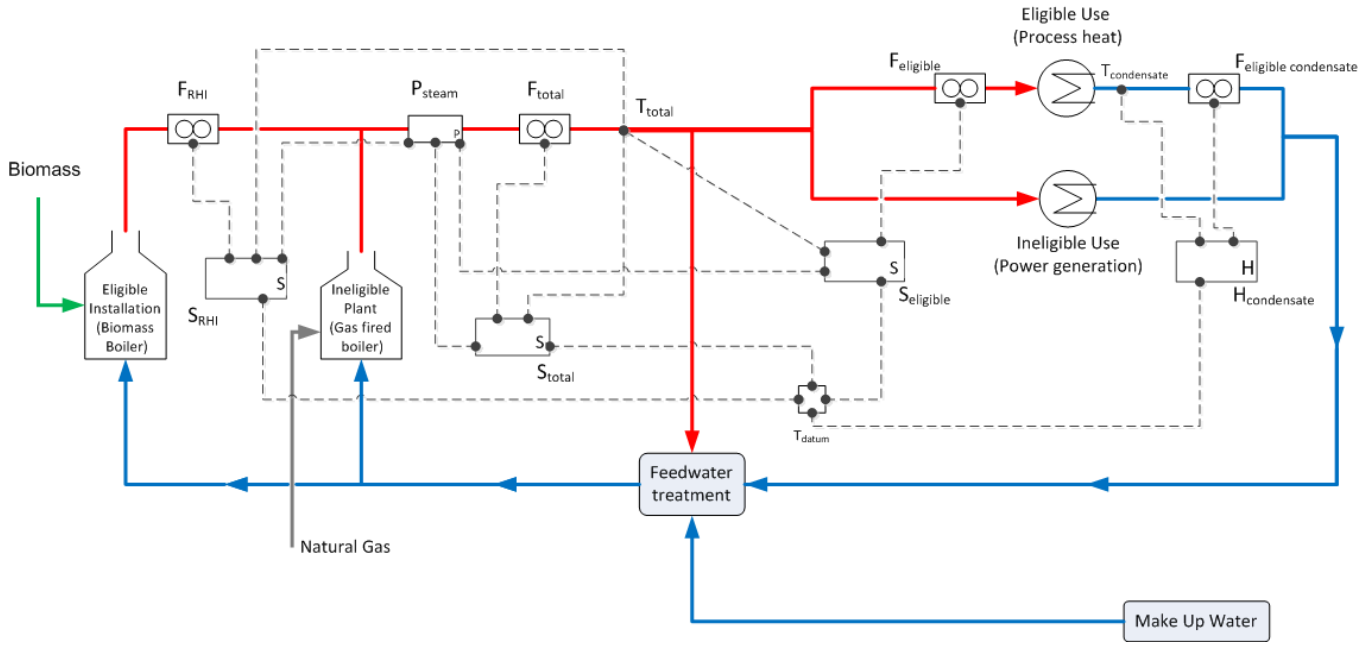


Figure 2.3: Illustration of possible steam meter (and component) placement for a heating system where an eligible biomass boiler and a gas-fired boiler deliver steam that is used for both an eligible and ineligible purpose. Condensate in the form of hot water is returned from the eligible purpose.

Example 4: Multiple plants comprising a single installation share a meter

2.22. Figure 2.4 shows an eligible installation comprised of three RHI-eligible biomass boilers supplying heat to a single heating system. In this example, the biomass boilers are considered as component plants which together make up one installation whose capacity is the sum of each individual boiler's capacity for RHI tariff purposes. They share the same tariff start and end dates.

2.23. The boilers are not CHP systems, and supply heat in the form of hot water for space heating in one office block. This is therefore a **simple** installation for RHI metering purposes, and so only the heat generated by the eligible installation needs to be measured. In this case, it is possible for all three boilers to be metered using one meter, H_{RHI}, providing that meter is placed:

- before the heat from the gas boiler enters the system, and
- before any heat is supplied from the system to the eligible use (space heating in this case).

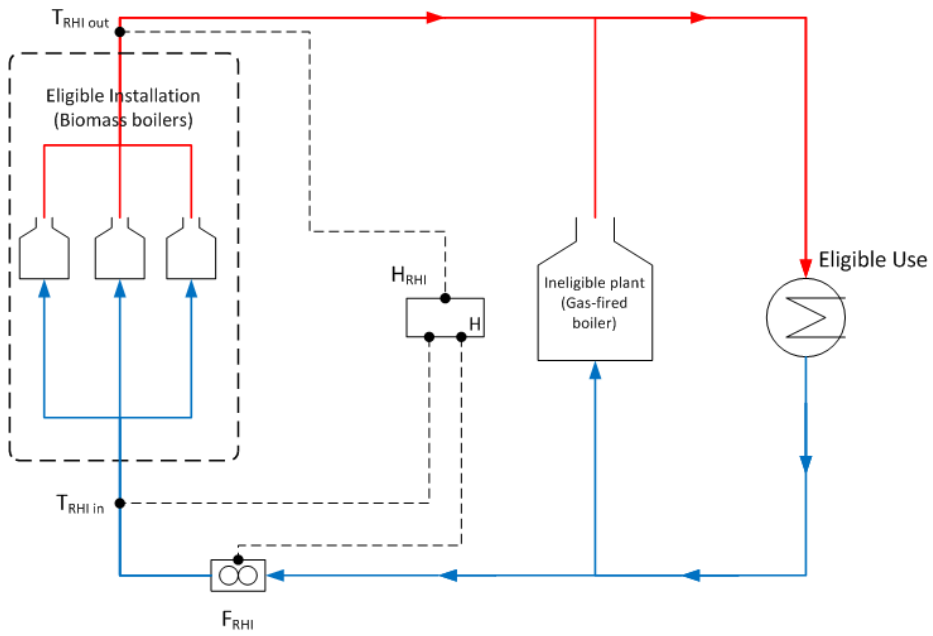


Figure 2.4: Illustrative example of a situation where a shared meter would be permitted. This installation would be classed as 'simple' for RHI metering purposes.

2.24. As in Example 1, the participant would need to supply the cumulative meter reading in kWhth as shown by the calculator/digital integrator to us in accordance with the timings and process set out in Chapter Three of Volume Two of this Guidance. The participant would also need to use the cumulative meter readings to calculate the amount of renewable heat in kWhth generated by the installation in the relevant period.

Example 5: Two eligible installations in series

2.25. In this example, a heat pump (eligible installation 1) pre-heats water delivered to a biomass boiler (eligible installation 2). Apart from this, this is the same system configuration as the heating system shown in Figure 2.2.

2.26. Both the heat pump and the biomass boiler are **complex** installations for RHI metering purposes, as the heating system of which they form part delivers heat to both an eligible purpose and an ineligible purpose. In this case, the following meters are required:

1. A heat meter to measure the heat generated by **each** eligible installation. In this example, a shared meter is not allowed because the installations use different energy sources and will therefore have different tariff rates. However, heat meters may reference common components to provide them with the required information for their heat calculations. In this example, the heat meters determining the heat generated by the biomass boiler and the heat pump both reference the temperature sensor '$T_{RHI\ interim}$' and the flow meter 'F_{RHI}'.

   The hot water generated by the heat pump is measured by a heat meter (H_{HP}), which uses the flow meter F_{RHI} and temperature sensors $T_{RHI\ in}$ and $T_{RHI\ interim}$ located in the heat pump's input pipe and in the output pipe **prior** to the hot water entering the biomass boiler respectively.

   The hot water generated by the biomass boiler is also measured by a heat meter (H_{BB}), which uses the flow meter F_{RHI} and the temperature sensors $T_{RHI\ interim}$ and $T_{RHI\ out}$ located in the biomass boiler's input pipe **after** the heat pump, and in the biomass boiler's output pipe **prior** to the hot water generated by the gas-fired boiler entering the heating system respectively.

2. A heat meter to measure the total heat generated by **both** the biomass boiler and the gas-fired boiler, H_{total}.

3. A heat meter to measure the heat used for eligible purposes, $H_{eligible}$.

2.27. The participant would need to supply the cumulative meter reading in kWhth as shown by the calculator/digital integrator for each meter to us **separately** for each eligible installation (i.e. one set of periodic data would be submitted for the heat pump, and a separate set for the biomass boiler). For each installation, this information must be submitted in accordance with the timings and process set out in Chapter Four of Volume Two of this Guidance.

2.28. Denoting the cumulative meter reading at the start of a period by (1) and that at the end of the relevant period by (2), and assuming that the periods over which data is submitted are the same for both installations, the participant would need to use the cumulative meter readings to calculate:

- the total amount of renewable heat generated by that installation during the relevant period = $H_{HP}(2) - H_{HP}(1)$ for the heat pump or $H_{HP}(2) - H_{HP}(1)$ for the biomass boiler;
- the total amount of heat from the heating system that was used for eligible purposes during the relevant period = $H_{eligible}(2)-H_{eligible}(1)$, and
- the total amount of heat supplied to the heating system by **both** the eligible installations **and** the ineligible plant during the relevant period = $H_{total}(2) - H_{total}(1)$.

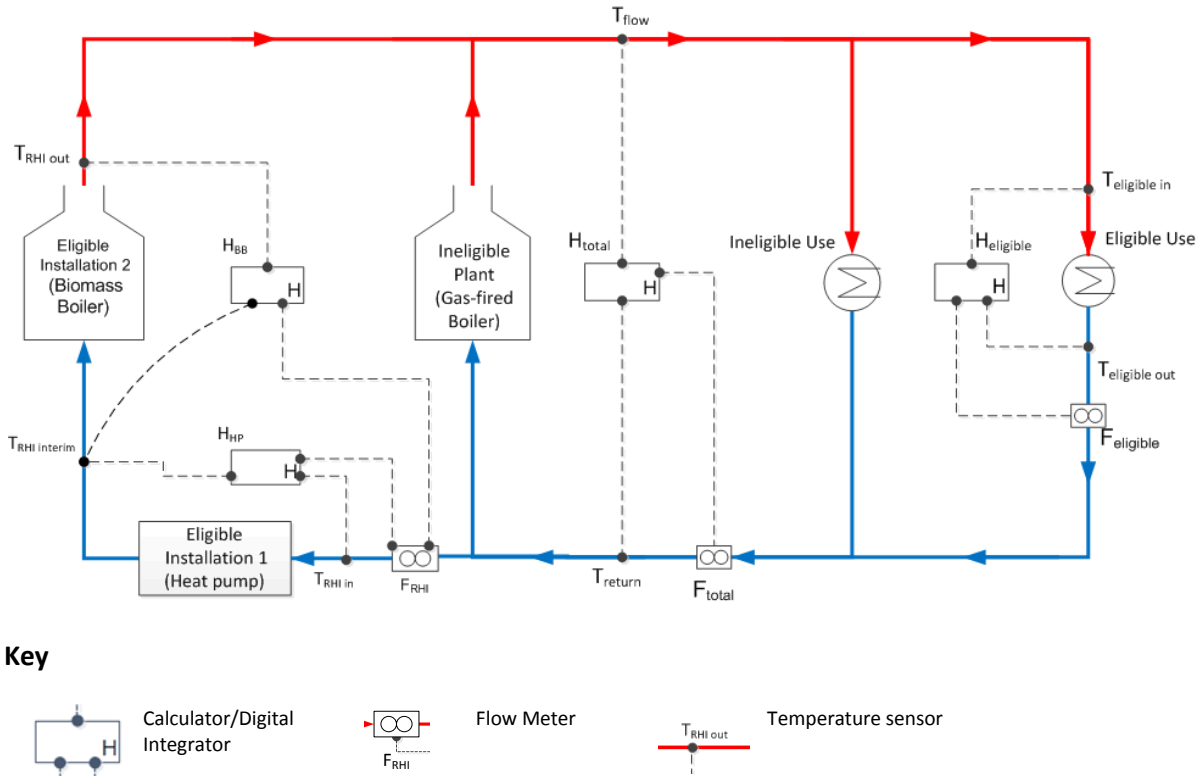


Figure 2.5: illustration of permissible heat meter locations for a system where a heat pump (eligible installation 1) pre-heats water delivered to a biomass boiler (eligible installation 2).

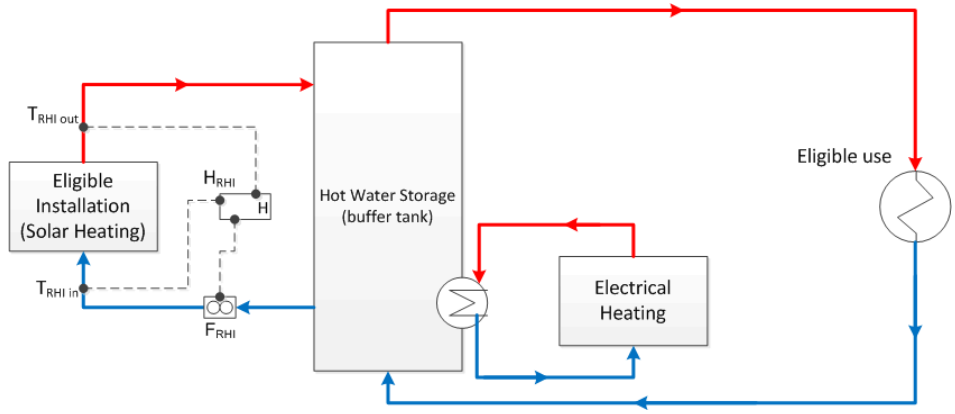
Example 6: Hot water in a common storage tank is heated by both an ineligible plant and an eligible installation

2.29. It is common, particularly in systems where hot water is generated by solar thermal installations and heat pumps, for hot water storage tanks to have the facility for direct heating from an electrical immersion heater.

2.30. This is permissible for the RHI, providing no heat generated by the immersion heater is included in meter readings provided to Ofgem for RHI purposes. This means that temperature sensors must be placed to measure hot water generated **prior** to entering the storage tank where the hot water is mixed with water heated by the immersion heater. This may mean that temperature sensors $T_{RHI\ in}$ and $T_{RHI\ out}$ must be placed on the flow and return pipes from the eligible installation.

2.31. A permissible configuration is shown in Figure 2.6 below. This installation is classed as simple for RHI metering purposes, as heat is supplied by hot water to two eligible uses (hot water and space heating) in a single school building (and the installation is not a CHP system and does not deliver heat by steam). Therefore, one heat meter, H_{RHI}, is required to measure the hot water generated by the solar thermal installation.

2.32. If the flow and return pipes from the solar thermal installation contain an ethylene glycol/water mixture or any other liquid, the Regulations require that the meter is appropriately calibrated for the properties of that liquid.



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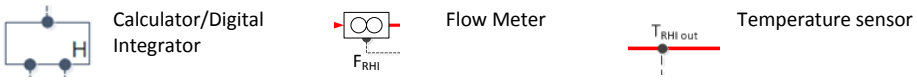


Figure 2.6: Illustration of permissible meter placements for a simple solar installation that feeds a hot water tank which is also supplied with heat by an electrical immersion heater.

Example 7: A reversible heat pump that generates both heating and cooling

2.33. Many heat pumps can operate in reverse to generate cooling in the warmer months. Such heat pumps are eligible for the RHI, but must be metered such that it is possible to calculate the cooling and heating generated separately. Only the heat generated by the heat pumps can be included in the meter readings submitted to Ofgem for RHI payment purposes.

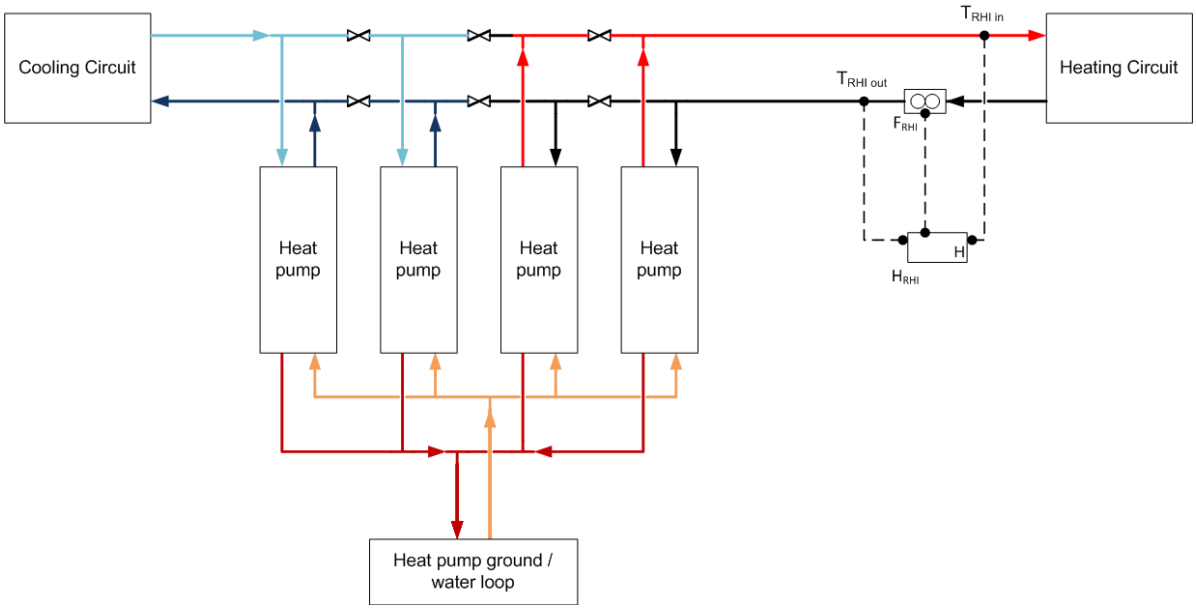
2.34. Some heat pump installations will operate on a 'sliding header'[84], as shown in Figure 2.7 below.

2.35. In this example, all heat is provided for hot water and space heating in one building, and so the installation is classed as simple for RHI metering purposes. The installation is comprised of four reversible ground source heat pumps which all have the same tariff start and end dates. Therefore, they may use a shared meter to measure the total heat generated by the installation, and so only one heat meter is required.

2.36. The flow meter can be placed in either the flow or return pipe. However, in this case the temperature sensors must be located in the flow and return pipes for the heating header to ensure that only heat that is eligible for the RHI is included in the meter readings provided for Ofgem for RHI payment purposes. If all the heat pumps in the installation are generating cooling, there should be no flow in the heating circuit as no eligible renewable heat is being generated.

2.37. Only heat recovered from the ground loops is eligible for RHI support. Any heat recovered from the cooling system and supplied to the heating system is ineligible for RHI purposes. This is because extracting heat from the cooling system is an efficiency measure; it is not heat from a renewable source. Any such heat must therefore be excluded from meter readings provided for RHI purposes, and meters must be positioned accordingly.

[84] In a system with both cold and hot headers (i.e. pipes into which the heat pumps can feed either cold or hot water), the sliding header is what determines which header the heat from the heat pump is feeding in to. The location of the header will change depending on the amount of heating vs. cooling that is required.



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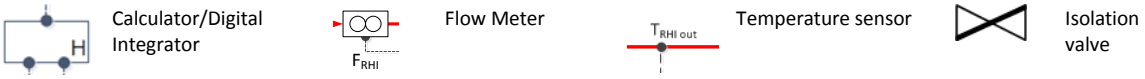
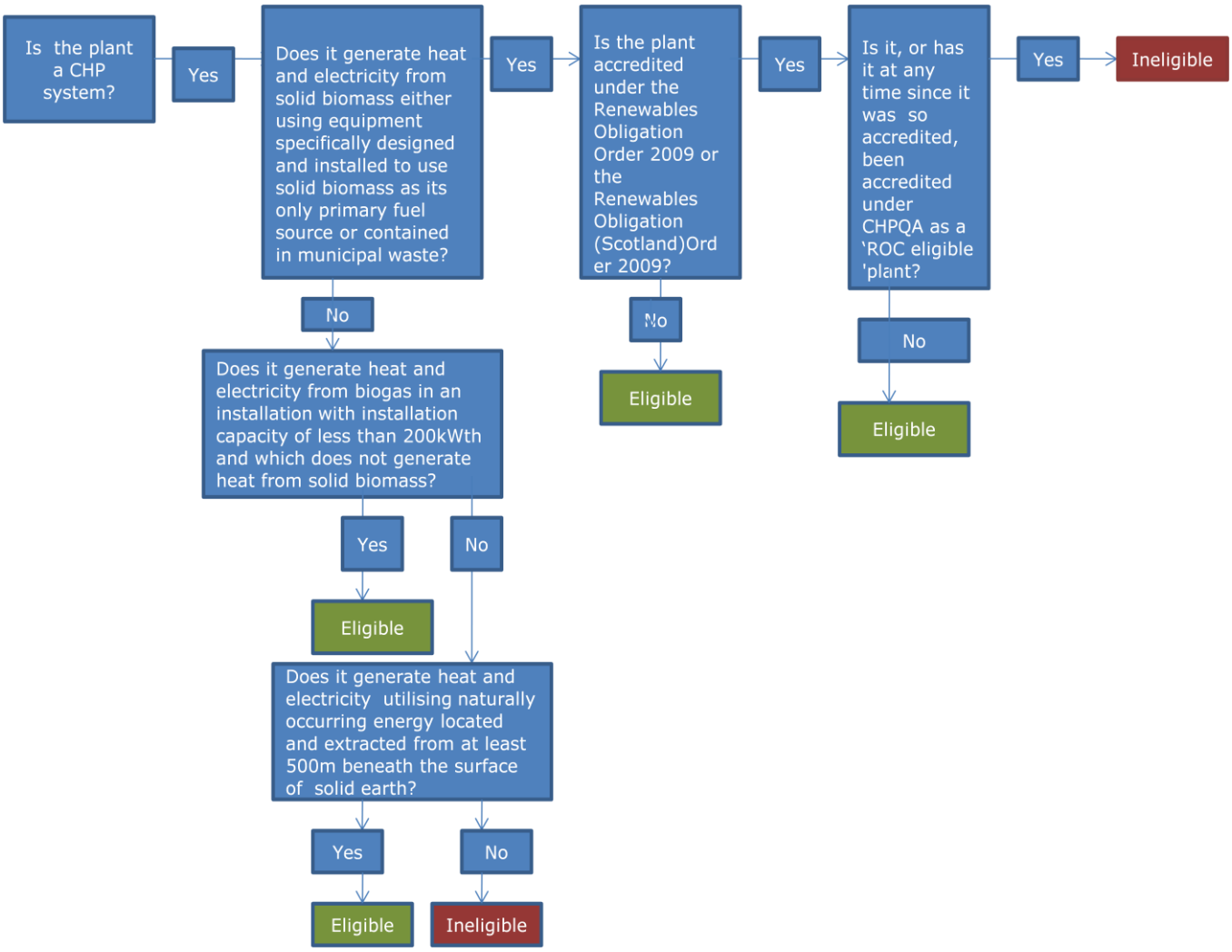


Figure 2.7: Illustration of permissible meter placement for a simple installation where four heat pumps deliver both heating and cooling on a sliding header. In this case, two heat pumps are supplying the heating circuit, and the other two are supplying the cooling circuit.

Appendix 3 – How to determine whether your CHP system is RHI eligible

The figure below demonstrates how you can determine the eligibility of your CHP system.



Appendix 4 – Technologies under consideration for inclusion in 2012

As noted in Chapter Three, the table below discusses the technologies DECC have stated that they are considering for inclusion in 2012 but are not currently eligible for the RHI.

Technologies under consideration for inclusion in the scheme in 2012

Air source heat pumps	Air source heat pumps will not be supported from the outset. The Government has decided that more work is required to better understand the costs associated with the technology. Also, for air to air heat pumps, as described below (Direct air heating), the Government has not yet developed a means of measuring direct air heating, as they have for water and steam. The Government is investigating whether to extend eligibility for air to water source heat pumps from 2012.
Direct air heating	The Government has decided that technologies delivering renewable heat directly through hot/warm air will not be supported in the RHI from the outset. This means technologies such as ground or water source to air heat pumps; biomass kilns; furnaces; ovens and air heaters will not be able to claim the RHI. The Government is considering how these technologies could be included in the RHI from 2012.
Bioliquids	Bioliquids will not be eligible for support from the outset of the RHI. The Government has stated that before they can support bioliquids in the RHI, it will be necessary to put in place a co-ordinated approach so that the supply of liquid feedstocks into the heat market does not unduly impact on other important uses, including energy and non-energy uses. Sustainability criteria, as required under the Renewable Energy Directive, will also need to be developed before bioliquids can be supported under the RHI. An evaluation of the costs and benefits of the use of bioliquids in heat, electricity and transport is underway and this will inform the development of a co-ordinated approach to bioliquids. The Government is therefore considering supporting bioliquids in 2012.
Landfill gas	The Government is still working to consider the costs of biogas or biomethane injection from landfill gas. In many cases this regards landfill gas sites which are already producing electricity, and would likely have lower costs of switching to heat or biomethane than other biogas options. The Government has decided it would therefore not be appropriate to include landfill gas within the general tariff for biomethane pending the outcome of their work on landfill gas.

Appendix 5 – Glossary of RHI terms

A

ACCREDITATION

In order to receive support under the RHI, an eligible installation will have to be accredited by Ofgem. Accreditation is the process by which we determine whether an installation meets the eligibility criteria of the scheme and the owner agrees to the conditions of participation.

ADDITIONAL CAPACITY

Additional capacity means a plant which is first commissioned after the date on which the original RHI installation was commissioned. The plant must use the same source of energy and technology and must supply heat to the same heating system as the original RHI installation.

ADDITIONAL PLANT

Additional plant means a heat generating plant which uses a different technology or source of energy than an existing RHI accredited installation and is connected to the same heating system as the RHI accredited 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.

C

CHP

CHP refers to a Combined Heat and Power plant.

COMMISSIONED

This means, in relation to an eligible installation, the completion of all tests required by industry standards for the installation to be able to deliver heat for the purpose for which it was installed. 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.

F

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.

I

INSTALLATION CAPACITY

The installation capacity is defined as the 'total installed peak heat output capacity of a plant' (which may include the 'total installed peak heat output capacity' of a single plant (installation) made up of two or more component plants).

K

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.

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.

N

NOMINATED INDIVIDUAL

An individual within an organisation nominated to act on the organisation's behalf in relation to the RHI.

O

ONGOING OBLIGATIONS

Ongoing obligations refer to the obligations that need to be met to remain accredited or registered to the scheme.

P

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 PAYMENT

RHI support will be delivered to participants in the form of quarterly periodic support payments.

PERIODIC DATA

Periodic data is the information participants will need to submit on a regular basis as an ongoing obligation, and in order for Ofgem to calculate the appropriate payment.

R

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.

RENEWABLE HEAT PREMIUM PAYMENT

The Renewable Heat Premium Payment is a separate, complementary grant scheme to the RHI. It will provide a one-off payment to domestic generators of renewable heat for the interim period before domestic generators will be able to apply for the RHI (expected October 2012).

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.

S

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 which is not a CHP system, does not deliver heat by steam, does not supply heat to an ineligible purpose, and uses the heat generated in one building.

T

THERMOCOUPLE

Electronic sensor for measuring the temperature of pipe work at a given position.

Appendix 6 – Feedback questionnaire

Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

Please send your comments to:

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