

Non-Domestic Renewable Heat Incentive (RHI)

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22 May 2018

Easy guide to metering requirements

An overview for applicants and installers for installations classified as 'standard' or 'multiple'

Introduction

This document is designed to give an overview of the metering requirements for the Non-Domestic RHI for applicants applying to the scheme on or after 24 September 2013. You should also read [RHI Guidance Volumes 1 and 2](#) for detailed information, particularly the sections on Metering Eligibility Requirements. Because we make payments to scheme participants based on metered information it's essential that metering arrangements are correct. Installers wishing to update their knowledge should also refer to trade bodies. A number of industry associations are taking steps to develop RHI-specific training and assessment programmes for those who wish to provide Independent Reports on Metering Arrangements (IRMAs).

In addition, the Building and Engineering Services Association has published a [Guide to Good Practice for Heat Metering in the RHI](#), which is available on their website.



Meter basics

Meters provide the data we need to calculate correct payments to participants of the Non-Domestic RHI scheme. A heat meter is made up of three independent parts:

- a flow sensor (also known as a flow meter) which measures the flow rate of the liquid
- a temperature sensor pair which measures the temperature difference between the flow and return pipes. (See Chapter 13 of Volume 1 for information regarding externally mounted (strap-on) temperature sensors).
- a calculator (also known as an integrator or digital integrator) which is the brain of the heat meter. It uses the quantities provided by the other two components to calculate and display the amount of heat generated or used. This is typically given in kilowatt hours (kWh).

Heat or steam meters are required for the Non-Domestic RHI. Heat meters must conform to MID

(Measuring Instruments Directive) Class 2 accuracy requirements within EN1434.

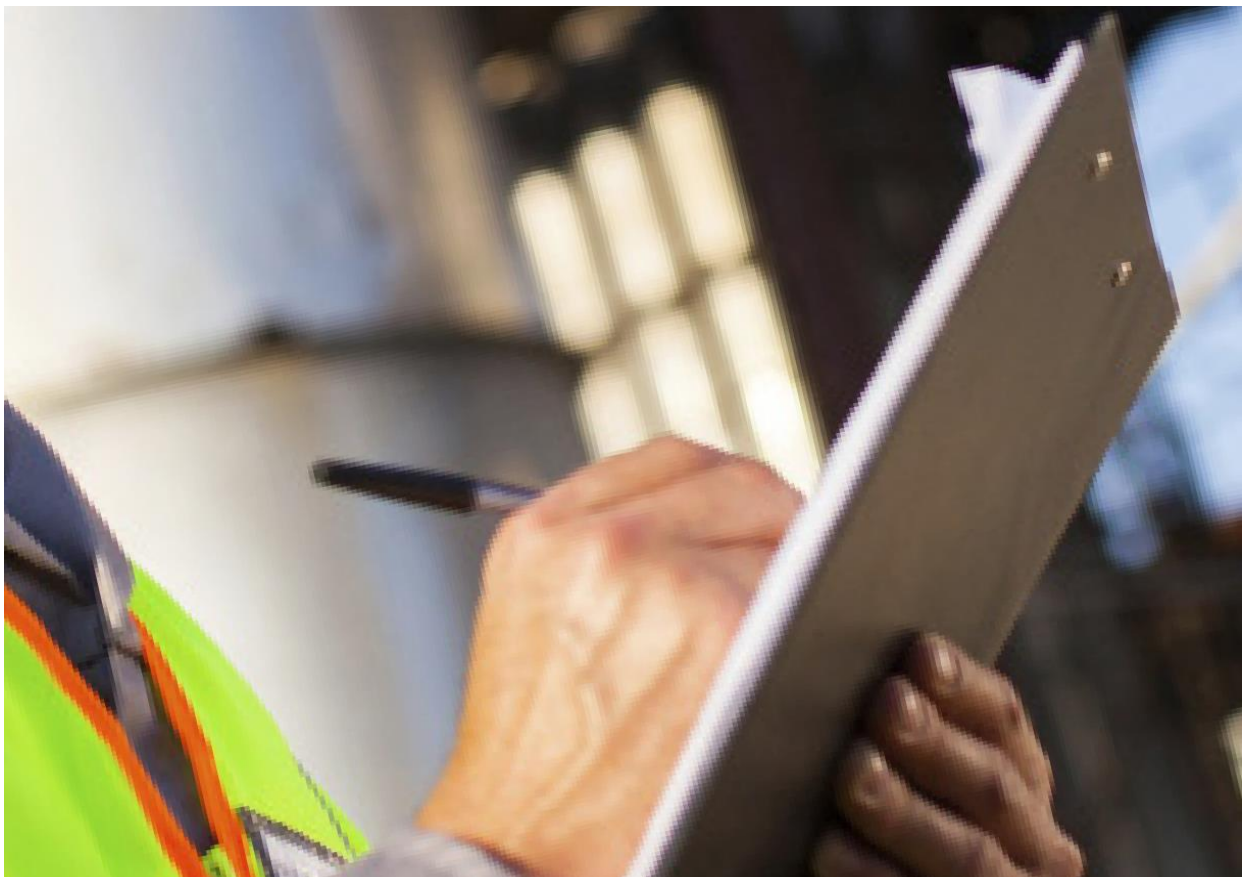
For more information, see [RHI Guidance Volume 1](#).

The design stage

The number of meters needed depends entirely on the design of the heating system and it's imperative to allow for them at the design stage. The correct specification, selection and installation of meters are crucial. There are many factors that influence the accuracy of a heat meter which must be taken into account, not least of which are:

- optimum flow characteristics, e.g. straight pipes
- access for maintenance, meter reading, RHI inspection
- only heat generated for eligible purposes is measured.

For heat pump specific metering requirements, please see our [Easy Guide to Heat Pumps](#).



Examples of incorrectly installed meters



1. The sensor is installed incorrectly. Also a security tag should be attached



2. The meter is in the flow pipe rather than the return pipe. The flow pipe is clearly identified as seen by the green label and the witness mark arrow.



3. The probes on the meter have not been connected and so there is a zero meter reading.



4. The pipework was wrongly declared as internal. It is external pipework as it is in an open corridor.



5. 'Before' photo shows incorrect meter orientation



6. 'After' photo shows correct meter orientation

On the 'Before' photo, the flow meter is orientated facing upwards (90°) on a horizontal pipe when manufacturer's guidelines state it should be installed at +/- 45° as shown in the 'After' photo.

Standard or multiple metering arrangements

Installations will be classified as using either a 'standard' or 'multiple' metering arrangement for Non-Domestic RHI payment purposes during the application process depending on how many 'quantities' must be measured to calculate the associated eligible heat output (EHO). A 'quantity' relates to the measurement, using one or more meters, of the heat generated (eligible or ineligible) or heat used (eligible or ineligible) on the heating system to calculate the EHO.

Your installation will be defined as using a 'standard' metering arrangement if only one 'quantity' is required to be measured or metered to calculate the EHO. This 'quantity' could be either the eligible heat generated where there are no ineligible heat uses or the eligible heat used where there is no ineligible heat generation plant.

Your installation will be defined as using a 'multiple' metering arrangement if two or more 'quantities' are required to be measured or metered and then combined to calculate the EHO. These would be the eligible heat generated, the eligible heat used and either the total heat generated (including ineligible heat generation) or the total heat used (including ineligible heat used).

Refer to [RHI Guidance Volume 1](#) to determine which category your installation falls under. Associated examples are shown in [RHI Guidance – Metering Placement Examples](#).

Please note you may not need to meter your system if you have domestic properties on a shared ground loop. See the [Easy Guide to Shared Ground Loops](#) for more information.

Heat loss assessment

Some applicants may need to complete a heat loss assessment questionnaire as part of the application process to provide evidence in the following circumstances:

- The installation uses external piping and you want to declare it as being 'properly insulated' to BS5422 and EN ISO 12241 to allow you to disregard heat loss in some circumstances
- The installation uses one or more individual lengths of 'properly insulated' external piping that are more than 10m in length
- To perform a heat loss calculation where it is physically over burdensome and financially less accurate to install meters
- To perform a heat loss calculation where one or more individual lengths of external 'properly insulated' piping are more than 10m and the associated annual average heat loss from all such piping is >3% of the

projected heat output from the plant. See [RHI Guidance Volume 1](#) chapter 14 for more information.

Schematic diagram

Applicants will be required to provide a schematic diagram of the installation and its heating system as part of their application for accreditation.

- The schematic will need to clearly show:
- the relative positions of all plants (eligible or ineligible)
- heat uses (eligible and ineligible)
- all piping connections
- the positions of the heat and steam meters.
- the relevant measurement (in meters) of any/all individual external pipe lengths must also be included for any installations using external piping. See [Metering Placement Examples](#) for detailed examples of schematic diagrams.

What evidence for metering do we need?

As part of an application you must provide us with the following:

- For each model of meter in the RHI application, a photo clearly showing the serial number and that it is Class 2 accuracy and conforms to the MID or equivalent.
- Where an installation uses external piping, a [Heat Loss Assessment Questionnaire](#) should be completed and submitted.
- A comprehensive schematic diagram of the heating system that will be used to verify the number and positioning of meters to make sure the installation meets RHI Regulations. (Please see above.)
- An [Independent Report on Metering Arrangements \(IRMA\)](#) if your installation has a capacity of 1MW or above, is classed as using a 'multiple' metering arrangement for RHI payment purposes. The IRMA pack provides information, a template and instructions on how to complete the report. For more information see [RHI Guidance Volume 1](#), Chapter 14.

Additional metering requirements for biogas installations

Biogas installations have additional metering requirements to all other heating technologies. For full biogas metering requirements, please see [Volume 1](#), Chapter 10, 'Metering requirements'.

Successful applicants

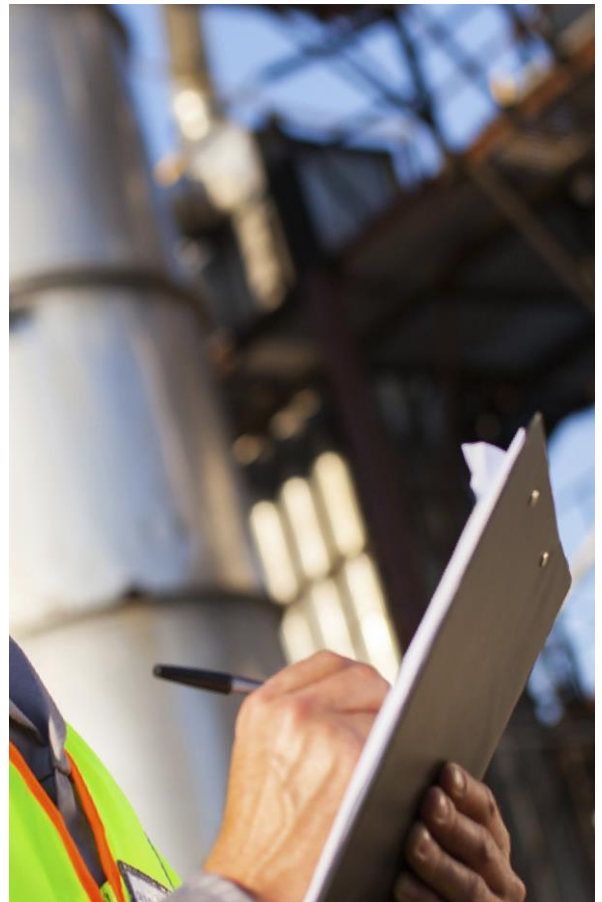
Installation owners must make sure they know how the heat meter works and what data to supply us with. See our [Easy Guide to Periodic Data Submissions](#) and also [RHI Guidance Volume 2](#), particularly Chapter 3.

You must set up a routine of inspection, monitoring and maintenance to ensure heat meters are working as required. As part of your ongoing obligations as a scheme participant you're required to carry out regular maintenance of the equipment and heat meters in line with manufacturer instructions and to keep a record of the maintenance schedule. See [RHI Guidance Volume 2](#).

You have to make an annual declaration confirming that your RHI installation meets the eligibility criteria and you have met your ongoing obligations of the scheme. See [RHI Guidance Volume 2](#), Chapter 2.

Audit and site inspections

We operate a programme of site inspection audits and desktop audits for which any installation may be selected. During an audit our team of experts will carry out spot-checks on equipment, check meter readings and verify general eligibility in terms of both upfront and ongoing requirements for the scheme.



Easy Guide series

- [Easy Guide to the Non-Domestic RHI](#)
- [Easy Guide to Eligibility](#)
- [Easy Guide to Applying](#)
- [Easy Guide to Metering Requirements](#)
- [Easy Guide to Compliance](#)
- [Easy Guide to Periodic Data Submissions](#)
- [Easy Guide to Sustainability](#)
- [Easy Guide to Heat Pumps](#)
- [Easy Guide to Shared Ground Loops](#)
- [Guide to Tariff Guarantees](#)

This Easy Guide is applicable to applicants and participants on the GB Non-Domestic scheme. If you're an applicant or participant on the Northern Ireland Non-Domestic scheme then please refer to the [Northern Ireland Renewable Heat Incentive](#).

Contact us

If you have a query or need help please contact us:

By telephone: 0300 003 2289 By email: rhi.enquiry@ofgem.gov.uk

The Non-Domestic RHI enquiry line is open Monday to Thursday 9am-5pm and 9am to 4.30pm on Fridays.

Note: calls may be recorded. Please have your RHI application reference number to hand if you are calling or put it in the subject line of your email.