Renewable Heat Incentive (RHI) for Biomass Heating: A Summary

OFGEM: Full guidance on www.ofgem.gov.uk/rhi; Enquiry Line: **0845 200 2122**, email RHI.Enquiry@Ofgem.gov.uk

Warning: RHI applicants are strongly advised to read the detailed OFGEM guidance. No warranty is given as to the accuracy or completeness of this summary note.

The RHI is being introduced towards the end of 2011 as an incentive to use biomass (wood fuelled) boilers and other renewable heat technologies for non-domestic biomass installations. The first phase of the RHI is targeted at commercial, industrial and domestic community heating projects. Tariffs will be paid *to the owner of eligible non-domestic biomass installations* at the following rates. Heat must be metered.

Tariff name	Eligible Technology	Eligible size kW nominal output thermal	Tariff rate* (pence/kWh)	Tariff duration (years)	Support calculation
Small biomass	Solid biomass (includes: wood chip, wood pellet, wood logs)	Up to 199 kW	Tier 1: 7.9 Tier 2: 2.0	20	Metered: Tier 1 applies annually up to tier break, tier 2 above the tier break. The tier break is 1,314hr x installed capacity (kW)
Medium Biomass		200 kW to 999 kW	Tier 1: 4.9 Tier 2: 2.0		
Large Biomass		1000 kW and above	1.0		Metered

* Once an installation is accredited, the level of support will increase each year by RPI 1st April each year.

How is the Non-Domestic annual RHI Payment calculated ?

Example: ***a 150kW biomass boiler at a load factor of 30% will receive £19,513 per annum*:**

Actual peak load hours = **30%** x 8,760 hrs per year = 2,628 hours
Total annual kWh of heat = 2,628hrs x **150 kW** = 394,200 kWhs
Total Tier 1 kWhs = ***1314hr*** x 150kW = 197,100 kWhs
Tier 1 annual RHI cash = 197,100 kWh x ***7.9p/kWh*** / 100 = £15,571
Tier 2 annual RHI cash = (394,200 - 197,100) kWhs x ***2.0p/kWh*** / 100 = £3,942
Total annual RHI cash payment = £15,571 + £3,942 = £19,513
Average RHI payment = £19,513 x 100 / 394,200kWhs = 4.95 pence / kWh

Is my biomass heating scheme going to be eligible ?

A biomass heating plant needs to meet an economically justifiable heating requirement (one that would otherwise be met by an alternative form of heating). It must serve one or more of the following ***eligible uses***:

- Heating an enclosed space or ***"building"*** through radiators, underfloor heating or similar, which is permanent and long lasting. Eligible uses include:
  - Single non-domestic (eg hairdresser or office/ business rate-able)
  - Multiple domestic dwellings (eg district heating supplying blocks of flats - 2 or more council tax bills required)
  - Multiple non-domestic (shopping centre)
  - Mix of domestic and non-domestic (flats and offices)
- Heating hot water
- Heating a process enclosed within a building [incl. industrial cooking, drying of wood fuel, pasteurisation, chemicals manufacture, heat into absorption chillers, distillation columns etc.]

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A ***building*** is "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 ". Moveable buildings such as porta-cabins, static caravans, greenhouses and shipping containers could be permanent or long lasting provided that they remain in the same space.

Ineligible uses include:

- The provision of heat from a single installation to an individual domestic dwelling [ie one with a single council tax rate]. A single home with an office is also ineligible
- Heating of external surfaces to prevent frost or cold temperatures
- Underground heating of open spaces (eg football fields or recreational spaces)
- Heating of open air or partially enclosed swimming pools
- Tents, polytunnels which are erected on a temporary basis are not eligible
- Heat used to generate electricity or process internal heat (eg parasitic loads)
- Any heat which is rejected from a system and not subsequently used for eligible purposes (eg heat loss in an underground distribution pipe)

Eligibility Requirements: to be eligible the installation must be:

- used for an *eligible use* or purpose (see above)
- new at time of installation (<u>for the whole of the plant</u>)
- used in one location during its lifetime (it may not be relocated)
- using liquid or steam as heat delivery medium (not hot air)
- have been installed <u>and</u> commissioned after 15th July 2009
- for boilers up to 45kW, the boiler and installer must be MCS certified
- financed without grants or public funding for purchasing or installing the installation [a grant received prior to 30th Sept 2011 must be paid back]
- for all biomass boilers >=1MW, they will need to include quarterly reporting on the fuel usage to verify sustainable fuel sources.

All biomass wood fuelled heating systems which are designed to burn clean fuel will be eligible. Other biomass fuels such as biomass waste, straw, grain, contaminated wood etc will also be eligible subject to certain additional criteria. Heat from biomass CHP is eligible.

<u>From October 2012</u> all installations accredited must meet demanding emissions limits of 30 g/GJ for particulates and 150 g/GJ NOX. [All Econergy boilers are compliant]

Metering Requirements for Eligibility

Heat meters will be required to measure the eligible heat produced. These must be:

- an *approved heat meter* as defined by Class 2 requirements listed in Annex MI-004 of the EU measuring Instruments Directive (MID) 2004.
- installed and calibrated / recalibrated according to manufacturers instructions.

The requirements for metering will depend on whether a plant is ***simple*** or ***complex.*** An installation is ***"complex"*** if:

- the heat generated by the plant is used in more than one building
- the heat is supplied to a mix of eligible and non-eligible uses

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- if heat is distributed using steam or comes from a CHP plant

Otherwise the installation is ***simple***. **For a simple installation** the payment is calculated as:

Payment = A x B where:
A = tariff for the installation (tier 1 and tier 2 in p/kWh)
B = the heat in kWh generated by the installation during the relevant quarterly period (or month if >1MW).

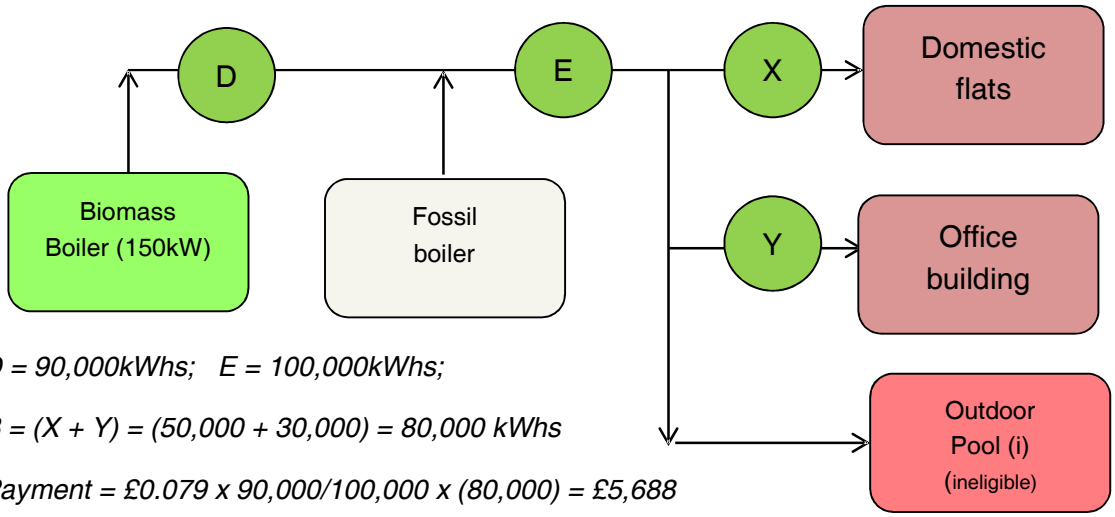
For a complex installation, heat meters will be required to measure three quantities of the heating system supplied by the installation:

B = total heat used by all eligible purposes (ie must not include ineligible purposes)
D = is the heat in KWh generated by the installation (which may be one or more biomass boilers) during the relevant quarterly period
E = total heat generated by all plants supplying hot liquid into the heating system (ie includes RHI eligible and non-eligible such as fossil boilers)
A = tariff for the installation

Payment = A x B x D/E

It is OFGEMs firm expectation that heat should be metered into each eligible building, unless it would be unduely burdensome (eg legacy systems), where there may be some discretion (further details to be published on this).

Example: For a small installation (150kW) in the first quarter of the year (ie tier 1 rates):



D = 90,000kWhs; E = 100,000kWhs;

B = (X + Y) = (50,000 + 30,000) = 80,000 kWhs

Payment = £0.079 x 90,000/100,000 x (80,000) = £5,688

i) RHI is not paid for the outdoor pool and also for any losses in the heat mains
ii) *It will be necessary to meter the heat going into each building and add them*

Requirement for an Independent Metering Report prior to Accreditation

OFGEM require that all "complex" schemes will need to have an independent report carried out by a competent person, which may be the scheme designer [See OFGEM website "Independent Report on Metering Arrangements"]. It is planned for this report to be at commissioning (or up to 1 months prior if over 1MW) and be included with the application.

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Application for Accreditation

For installations under 1MW, the *owner of the plant* will be able to make an application on-line for the RHI as soon as the installation is commissioned (including all required information). The accreditation date will start from when the application is first made on-line (or by post) as long as all necessary information is received. If the application is incomplete, the date will commence from the date on which all necessary information is received.

Preliminary Application: A preliminary accreditation may be made for all biomass heating schemes >200kW once planning permission has been gained or if such planning permission is not required and appropriate evidence provided. This will give reassurance that a scheme meets all current eligibility criteria prior to start the project. This does not however guarantee that RHI rates will be fixed or that there will be no OFGEM rule changes between preliminary and actual accreditation.

Payments & Ongoing Obligations

The owner will report all meter readings via the OFGEM website on a quarterly basis (monthly if >1MW) to receive their payments by direct bank transfer. Meters need to be calibrated according to manufacturer's instruction or at least every 10 years. An owner needs to have an internal process to confirm meters are periodically checked and are reading correctly (eg annual check with service). A participant must notify OFGEM within 28 days of any change in the installation or heat network compared to its original application. Annual declarations must be made to confirm that the scheme is still eligible.

OFGEM Powers

OFGEM have the power to inspect an installation at any time. Enforcement will be through compliance notices, payment withholding or reduction, scheme exclusion or in the most severe cases civil or criminal prosecution for willful fraudulent activities.

RHI Non-Domestic: Further Example Calculations

The following table gives example RHI calculations at different boiler sizes and load factors:

RHI Non-Domestic Calculation Examples (based on DECC RHI detail, published 10/11/2011)					
Band	**0- 199 kW**		**200-999 kW**		**1000 kW +**
Boiler rating (kW)	**150**	**150**	**500**	**500**	**1,200**
Tier 1 rate	**7.9**	**7.9**	**4.9**	**4.9**	**1.0**
Tier 2 rate	**2.0**	**2.0**	**2.0**	**2.0**	**NA**
Load factor actual	**15%**	**30%**	**15%**	**30%**	**40%**
Actual peak load hours	1,314	2,628	1,314	2,628	3,504
Total annual kWh of heat	197,100	394,200	657,000	1,314,000	4,204,800
Tier 1 break (peak load hours)	1,314	1,314	1,314	1,314	N/A
Max kWhs at tier 1 rate	197,100	197,100	657,000	657,000	N/A
Tier 1 annual RHI cash	£15,571	£15,571	£32,193	£32,193	N/A
Tier 2 annual RHI cash	£0	£3,942	£0	£13,140	N/A
Total annual RHI payment	**£15,571**	**£19,513**	**£32,193**	**£45,333**	**£42,048**
Average RHI rate (p/kWh)	**7.9**	**5.0**	**4.9**	**3.5**	**1.0**

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Attachment 1: Quick Reference for Detailed Questions

References made to OFGEM Guidance volume 1 or 2 (V1/V2) and section x.y ($x.y)

V1, $2	**How to Apply**
V1, $3	**Eligibility Summary:** General Eligibility Checklist ($3.6)
V1, $4	**General Eligibility Requirements**
$4.2 - 4.7	The Owner must be the applicant, See $4.3 for lease arrangements where the owner if the person in possession.
$4.8	Installation capacity is the total peak heat output capacity (eg boiler data plate).
$4.16	What is an eligible installation ? Table 3: Clearly defines what needs to be new and must not have been paid for by a grant [important when replacing existing wood boiler]
$4.17- 4.26	RHI interaction with publically funded grants. [NB CESP funding is not deemed to be a publically funded grant]
$4.40- 4.49	Single domestic; multiple domestic; commercial premises definition. If there is one council tax bill then it is deemed to be one dwelling (even if there are multiple buildings): $4.43 & 4.44 provides detail on domestic, $4.45 for agricultural buildings, $4.47 for other
V1, $5	**Technology Specific Criteria**
$5.48	Documents to keep, but not required for application (eg planning, air quality…)
$5.50- 5.54	Requirements for biomass boilers <45kW: MCS + 100% biomass in fuel. EN303-5 (wood boilers<300kW) and EN14785 (pellet stove heaters)or EN12809 (if tested on biomass)
$5.55 - 5.62	>45kV1 $5.55- 5.62 Need to demonstrate that the installation will use solid biomass as a primary fuel source only. Lists permissible information required: manufacturers warranty
V1, $6	**Heat Uses**
$6.3- 6.18	Eligible heat uses – examples & definitions: “permanent”, “building”, “wholly enclosed”
V1, $7	**Metering Eligibility Requirements**: Needs to be read in detail by all designers
$7.7- 7.22	Heat Meters: Information required for accreditation
$7.37- 7.89	Heat Meter Placement: Simple & Complex $ 7.44-7.48 Simple: After boiler, before buffer tank, on the flow or return line. $7.72 Heat meter - ideally after backend valve, but may accept before $7.55 – 7.58; Multiple buildings $7.59 - 7.60: Remote fossil fuel back-up boilers $7.76 – 7.80: Shared meters $7.81: Installation in series (eg solar + biomass) $7.82 – 7.75 Metering by difference (if direct measurement not possible) $7.86 – 7.89 Installation according to manufacturers guidance $7.90 – 7.92 Requirement for Schematic $7.93 – 7.108 Independent Metering Report (Required for all complex systems)
V1 App 1	8 Example process schematics (very useful): 1: Biomass + back-up fossil: simple to single building 2: Biomass + back-up gas: complex to mix of eligible & no-eligible loads 4: Multiple plants comprising a single installation shared meter 5: 2 eligible installations of different technology in series 8: Central biomass boiler + decentralised ineligible plant
V2 $2	**Ongoing reporting:** Required for all installations
V2 $3	**Heat output data & meter readings required**: Required for all installations
V2 $4	**Ongoing fuel requirements**: $4.4 Where 100% biomass used, only need to keep evidence of fuel purchases (invoices etc). Self supply: need to record the loads
V2 $5	**Periodic Support Payments**: All installations – detail & calculation examples. Appendix 1 Initial Table of Tariffs to 31 March 2012.
V2 $6	**Biomass Sustainability Reporting**: Required if 1MW or larger
V2 $7	**Treatment of Additional Capacity**: If plant sized is increased
V2 $8	**Change in Ownership** of and RHI Installation
V2 $10	**Compliance and Enforcement Powers**: designed to prevent fraud
V2 $11	**Inspection & Audit Powers**
V2 $12	**Dispute Resolution**

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