DEPARTMENT OF ENERGY & CLIMATE CHANGE

Renewable Heat Incentive
Consultation on the proposed RHI financial support scheme

February 2010

Building Britain's Future

ACT ON CO2

Contents

Foreword

Tackling climate change is the key challenge facing our generation. Maintaining security of energy supply is a closely related imperative. The Department of Energy and Climate Change was set up to integrate and lead the Government's efforts on both fronts.

Our UK Low Carbon Transition Plan sets out our overall strategy for reducing the level of carbon dioxide emissions, while at the same time exploiting the opportunities that the green economy presents. The Renewable Energy Strategy is our action plan for delivering on renewable energy. A key challenge within this is to increase significantly the amount of renewable heat generation.

Heating accounts for approximately half of the UK's carbon dioxide emissions and more than half of average domestic energy bills. Saving energy continues to be a crucial challenge and we will be publishing our Strategy on this shortly. However, we also need to green our supply of heat. Currently, 1% of our heating comes from renewable sources and it is crucial that we take action now, to encourage the switch to greener, alternative sources of heat.

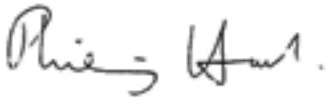
In order to make this change, we need to provide the right financial framework to enable individuals, communities and public sector organisations, businesses and industry to take up renewable heating and make it tomorrow's mainstream heating choice. Climate change and energy security represent long-term challenges that need long-term solutions: we are putting in place policies that will deliver for the next decade and beyond.

Financial incentives have already proved successful in increasing significantly the level of renewable electricity generated in the UK. The Renewables Obligation has succeeded in tripling eligible renewable electricity generation, from 1.8% in 2002 to 5.4% in 2008. To help bolster this, we are also introducing Feed-in Tariffs in April 2010, to encourage smaller renewable electricity generation at the local level.

We are now proposing to introduce a Renewable Heat Incentive, a ground-breaking initiative which will provide the necessary financial support to increase significantly the level of renewable heat generation.

It will be the first of its kind and will demonstrate to the world the UK's commitment to tackling climate change head on. The scheme will enable us all to play our part in reducing our emissions and ensure our energy supply is secure. This investment will help stimulate the renewables industry, encourage further innovation and bring down the cost of renewable heating technology.

Climate change is a threat. Tackling it brings the opportunity of creating a new, greener, sustainable future for all and the chance to strengthen the green economy. These proposals provide the financial framework for ensuring that opportunity is realised.



The Rt Hon Lord Hunt of Kings Heath OBE
Minister of State for the Department of Energy and Climate Change

Executive Summary

Renewable energy, as part of our wider switch to a low carbon economy, plays a vital part in our work to tackle climate change and maintain secure energy supplies. Our Renewable Energy Strategy (RES), published on 15 July 2009, sets out the path towards achieving our target of 15% of our overall energy consumption to come from renewable sources by 2020.

In order to enable individuals, communities and others who are not professionals in the energy business to play their part in bringing forward renewable energy, we committed to introducing **clean energy cash-back** for renewable electricity and heat. We will deliver clean energy cash-back for renewable heat through the **Renewable Heat Incentive** (RHI).

This consultation sets out the Government's proposals on the design and operation of the Renewable Heat Incentive, with the aim of providing financial support that encourages individuals, communities and businesses to switch from using fossil fuel for heating, to renewable technologies and sources.

We propose the following key aspects of the RHI:

- The scheme should support a range of technologies, including air, water and ground-source heat pumps (and other geothermal energy), solar thermal, biomass boilers, renewable combined heat and power, use of biogas and bioliquids and the injection of biomethane into the natural gas grid.
- RHI payments to be claimed by, and paid to, the owner of the equipment.
- In small and medium-sized installations, both installers and equipment to be certified under the Microgeneration Certification Scheme (MCS) or equivalent standard, helping to ensure quality assurance and consumer protection.
- We propose payments will be paid over a number of years; annually for installations below 45 kW and quarterly for those above this level; and always subject to conditions such as continuing to operate and maintain the equipment.
- Tariff levels have been calculated to bridge the financial gap between the cost of conventional and renewable heat systems at all scales, with additional compensation for certain technologies for an element of the non-financial cost (e.g. the inconvenience of digging up a garden to install a ground-source heat pump). Tariff levels are proposed to provide a rate of return of 12% on the additional capital cost of renewables, with a lower rate of return of 6% given to solar thermal.

- Payments to be calculated on the annual amount of heat output, expressed in kilowatt hours (kWh). At the small and medium scale, the amount of heat generated by the equipment is proposed to be estimated (or "deemed") when installed in most cases. This will allow the beneficiary of the incentive to receive a set amount based on the deemed output, to encourage low energy consumption and discourage wasting heat.
- For large installations and process-heating, heat output to be metered, and the total annual support calculated from the actual energy generated, multiplied by the tariff level.
- We have already committed that the RHI will remain open to new projects until at least 2020. Its design and tariff levels will be reviewed from time to time for new projects, so as to adapt to changes in technology costs and other circumstances.
- As announced in the RES, we will also allow eligible installations completed after 15 July 2009, but before the start of the RHI, to benefit from the scheme as if they had been installed on the date of its introduction.
- Ofgem will administer the RHI, making incentive payments to recipients and taking responsibility for auditing and enforcing the scheme. We will work with Ofgem to devise a simple process for accrediting smaller installations. This is to ensure that standards are met and payments can be made.
- The Energy Act 2008 provides the statutory powers for a renewable heat incentive scheme to be introduced across England, Wales and Scotland. The detailed legal framework will be set out in secondary legislation.

How the scheme will be funded

- Following informal consultation with stakeholders and appraisal of the issues associated with raising funds for RHI payments, the Government is considering what would be the most effective way to fund the RHI, including reviewing the levy provisions in the Energy Act 2008. **The Government plans to make a further announcement at Budget 2010. Work to assess options for funding the RHI scheme will not impact on our intention to launch the scheme in April 2011.**

How to respond

Comments on all aspects of the proposals contained in this document are invited. The closing date for responses is **26 April 2010**. E-mail responses are preferred. Please submit replies to: **rfi@decc.gsi.gov.uk**.

Alternatively, for those without access to email, we would be happy to supply a template. Hard copy replies should be sent to:

RHI team
Department of Energy and Climate Change
Area 4A
3 Whitehall Place
London, SW1A 2AW

Additional copies

You may make copies of this document without seeking permission. Further printed copies of the consultation document can be obtained from the above address. An electronic version can be found at www.decc.gov.uk/en/content/CMS/consultations/rhi/rhi.aspx

Confidentiality and data protection

In line with the Government's Code of Practice on consultations and the Department of Energy and Climate Change policy of openness, at the end of the consultation period we will summarise all responses and place this summary on our website at www.decc.gov.uk. This summary will include a list of names of organisations that responded but not people's personal names, addresses or other contact details. If you do not want all or part of your response or name to be made public, please state this clearly in the response. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

You should also be aware that information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004).

If you want information that you have provided to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, among other things, with obligations of confidence.

In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances.

The Department will process your personal data in accordance with the DPA and in the majority of circumstances this will that your personal data will not be disclosed to third parties.

Help with queries

Please direct any queries about this consultation to our dedicated e-mail address: rfi@decc.gsi.gov.uk, or in writing to the above address.

This consultation has been produced in line with the Government's Code of Practice on Consultation, which can be found at www.berr.gov.uk/files/file47158.pdf. If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to the DECC Consultation Co-ordinator:

DECC Consultation Co-ordinator
3 Whitehall Place
London SW1A 2AW
Email: consultation.coordinator@decc.gsi.gov.uk

Introduction

The Renewable Energy Strategy[1] (RES) and the UK Low Carbon Transition Plan[2] set out the UK Government's 2020 vision for the switch towards a low-carbon economy and society. By 2020 our aim is to be firmly on track towards achieving an 80% reduction in carbon emissions by 2050. Renewable energy from wind, water, sun and sustainable bio-energy will play a crucial role in making this vision a reality.

The desire to increase renewable energy consumption is shared across the European Union (EU), with the 2009 Renewable Energy Directive setting a binding target of having 20% of the EU's energy consumption coming from renewable sources by 2020. The UK share of this target commits us to sourcing 15% of our energy from renewable sources by 2020.

The RES, published in July 2009, sets out the comprehensive policy framework within which we will achieve our goals, and describes a possible scenario of where this renewable energy will come from. In the strategy we envisage that:

- over 30% of our electricity could come from renewable sources, compared with 5.4% in 2008. This could be made up of 29% large-scale electricity generation, and 2% small-scale electricity generation;
- 12% of our heat could come from renewable sources; and
- 10% of energy used in transport to come from renewable sources.

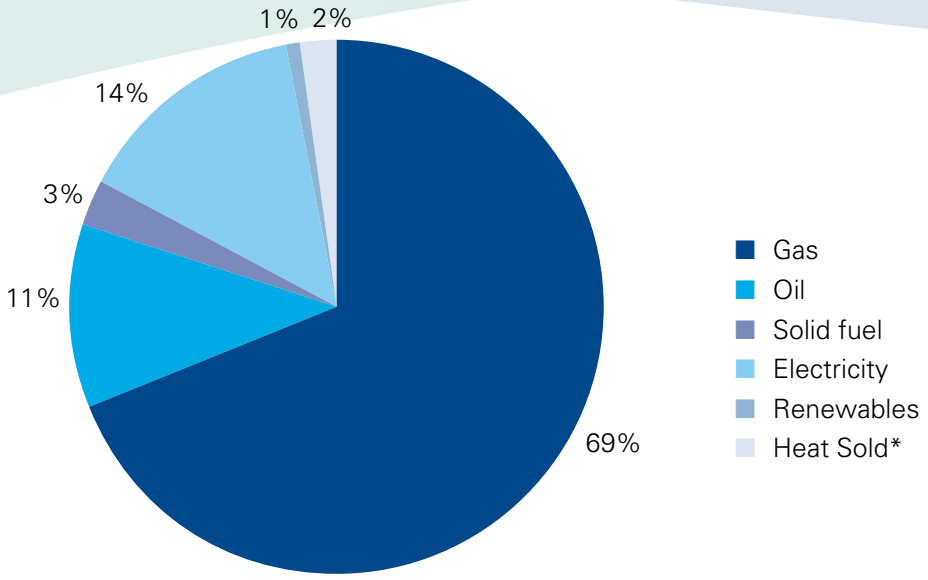
Heat

Heating accounts for 47% of the UK's carbon dioxide emissions and 60% of average domestic energy bills.[3] In homes we use this heat to keep warm, for hot water and cooking. In other buildings it can also be used for industrial processes.

The most recent data (2007) show that approximately 69% of heat is produced from gas. Oil and electricity account for 11% and 14% respectively, solid fuel 3% and renewables just 1%. Heat sold i.e. heat that is produced and sold under the provision of a contract (including CHP plants and community heating schemes) accounted for 2% (see chart overleaf).

1 www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx
2 www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx
3 *Heat and Energy Saving Strategy*, DECC (2009), p12 – http://hes.decc.gov.uk/consultation/consultation_summary

Global energy demand is forecast to increase by around 40% between 2007 and 2030, with more than three quarters of the rise from fossil fuels.[4] Without action the UK would be more reliant on imported fossil fuels, and further exposed to global energy price fluctuations, especially when demand recovers as the world emerges from the economic downturn. In 2008 the UK imported around 25% of its natural gas. Projections suggest that by 2020 this could rise to around 60%.[5]



Source: Analysis of Energy Consumption UK Data (table 1.14) and the Digest of UK Energy Statistics (table 1.2 and 7.6).

**Heat sold: heat that is produced and sold under the provision of a contract, including CHP plants and community heating schemes.*

Conserving heat (e.g. insulation) will be the first and often most cost-effective step in the control of energy demand. But if we are to meet our targets to reduce carbon emissions and ensure continued energy security, we must find new ways of generating and supplying heat for our homes, businesses and industries.

At present, we cannot expand heat generation from renewable sources without some form of financial assistance, as other forms of heat are currently cheaper. Financial support will allow more people to afford renewable heat, and, by expanding the market, help bring costs down more quickly.

The Renewable Heat Incentive

We have already acted to increase the use of renewable sources in electricity generation and transport fuel. The Renewables Obligation (RO) provides financial incentives for larger-scale renewable electricity and, from April 2010, the Feed-in Tariffs (FITs) scheme will provide support for small-scale generation. We have also introduced

4 *International Energy Agency World Energy Outlook (2009)* – www.worldenergyoutlook.org/docs/weo2009/WEO2009_es_english.pdf

5 www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

the Renewable Transport Fuel Obligation, which requires suppliers of fossil fuels to ensure that a specified percentage of the road fuels they supply comes from renewable sources.

To encourage a radical change in the way we generate heat, and following the consultation on the RES in 2008, the Department of Energy and Climate Change (DECC) announced during the parliamentary passage of the 2008 Energy Act its intention to introduce the Renewable Heat Incentive (RHI).

We are working to have the RHI up and running from April 2011.

The RHI will lead to a significant increase in the level of renewable heat at the domestic, commercial and industrial scale and we estimate it could save up to 60 million tonnes of carbon ($MtCO_2$) by 2020. The RHI will operate across England, Scotland and Wales, bridging the financial gap between the cost of conventional and renewable heat systems at all scales. Northern Ireland has the power to introduce its own primary legislation in respect of renewable heat, and is beyond the remit of the RHI.

This consultation sets out the Government's approach to providing financial support that encourages individuals, communities and businesses to switch from using fossil fuel for heating to renewable technologies and sources. It provides an opportunity for stakeholders to comment on our proposals.

Following the passage of the scheme's enabling powers in the Energy Act 2008, DECC has moved quickly to develop the proposed RHI design and faces a challenging timetable until the proposed start of the programme in April 2011. In addition, the UK is developing a ground-breaking initiative so there is very limited experience in the UK or elsewhere of policies similar to the RHI from which we could learn. There may therefore be aspects of the design and operation of the RHI which may not be covered in this consultation. We welcome feedback on all aspects of the scheme, including issues not specifically referred to here.

Q1: Are there any issues relevant to the design or operation of the RHI that are not addressed in this consultation document? If so, how should we deal with them?

Renewable heat technologies

The primary legislation to establish the RHI allows for the scheme to support a number of different renewable technologies and sources.

Air source heat pumps

Air source heat pumps (ASHPs) are electrically driven heat exchanger systems that warm cold air inside a building as it passes through an exchanger which extracts heat

from the air outside.[6] The reverse situation, in which heat is removed from a building and deposited externally, is in essence an "air conditioning" system,[7] or refrigerator. All heat pumps have a "coefficient of performance" (CoP),[8] defined as the ratio of the amount of heat produced per unit of electricity consumed.

ASHPs in the UK are normally coupled with heating systems that require relatively low operating temperatures, such as under-floor heating. But there are also systems available that can integrate with conventional radiator systems.

Ground source heat pumps

Ground source heat pumps (GSHPs) operate in a similar way to ASHPs, but take their heat from the ground. They tend to be installed in one of two ways. One method, which requires large amounts of space, is to install a "slinky", or network of horizontal piping, under the surface layer of soil outside the building. Where space is at a premium, GSHPs can be installed in vertically bored holes. However, this can be an expensive process. In both cases the piping contains a liquid which, after being warmed by the earth, enters the heat exchanger and transfers heat from the ground to a second medium, usually water, which is then used to heat the building.

The above-surface part of a ground source heat pump

6 Ground and water source heat pumps work in a similar way, although the heat source in each case is different.
7 Conversely, air conditioning systems can operate in reverse as air source heat pumps.
8 This issue applies to all forms of heat pump, whether they be of the air, ground or water source type.

Solar thermal

Solar thermal technologies collect heat from the sun onto a collector which transfers the heat energy to a working liquid. This liquid can then be used directly to provide hot water within a building, or an exchanger can transfer the heat from the working liquid to the water.

All solar heating systems contain a storage element, in the form of a hot water tank or similar. This is to ensure that the heat can be provided at the desired time, and not just during daylight hours. The amount of heating a system can provide is dependent on the surface area of the collector. Solar thermal systems are normally roof-mounted.

Biomass boilers

Biomass boilers generate heat through burning organic matter. The heat can either be used directly for heating, or to produce hot water or steam, the latter being more suitable for commercial applications. The most common fuel used in biomass boilers is wood, which can be derived directly from forestry, or as a forestry by-product. High-yielding energy crops such as willow and poplar, together with straw and other plant residues, are suitable for use as fuel in larger biomass boilers.

The technologies used to generate heat in this manner vary from basic hand-fed fires that incorporate water heating, to complex and fully automated industrial boilers.

Biogas

Anaerobic digestion occurs when organic matter is broken down by bacteria in a four-stage process, the main output of which is biogas. For the purpose of heat generation, biogas can be burned and used to create heat directly or to boil water and produce steam. The feedstock for anaerobic digestion tends to be wet biomass material such as manures and slurries from agriculture, food waste and sewage sludge.

The process of gasification or pyrolysis (high temperature treatment in the presence of little or no oxygen) produces a range of products including a gas that can be converted and used in a similar way to biogas. It is often referred to as syngas and, where the feedstock is biomass, this gas is renewable.

Biomethane in the gas grid

An alternative to burning biogas involves removing the carbon dioxide and other impurities from biogas in a process known as scrubbing, and ensuring that the calorific value, or energy content, closely matches that of the natural gas in the network. The resulting methane gas can then be odourised and compressed, and the processed "biomethane" injected into the gas grid. A proportion of the gas in the network would then be of renewable origin.

Bioliquids

Biomass can be processed to produce a fluid known as a "bioliquid", when used for heat and electricity, and a "biofuel" when employed in transport. Bioliquids typically have a very high energy density and, when blended with a mineral fuel component, the resulting fuel blend can be burned to produce heat.

Renewable combined heat and power

Combined heat and power (CHP) is a term used to describe the simultaneous production of electricity and heat from a fuel. It uses fuel more efficiently than plant which generates electricity only. For example, an electricity-only power station produces significant waste heat. A CHP plant will make use of the heat produced when generating electricity. A more efficient use of energy under CHP means that it also produces carbon savings over conventional electricity generation. While the total amount of energy generated by the plant (both heat and power) for the same quantity of fuel is much greater than a power-only plant, the electrical efficiency of the plant drops. Renewable CHP is a subcategory in which the fuel is renewable – normally biomass, but bioliquids can be used.

Renewable district or community heating

District heating, whether in the form of a central boiler for an apartment building, or as a network of pipes delivering heat from a central installation to a number of local

households or businesses, can be a useful and cost-effective alternative to installing individual heating systems in individual properties.

Costs and benefits to consumers

The provisional costs and benefits are set out in the accompanying consultation-stage impact assessment.[9]

Funding the RHI

Chapter 3 on tariffs describes the proposed levels of support for the generation of renewable heat. To fund this support, the Government will look to ensure an approach which is consistent with tax guidelines, other related levies and taxes and legal constraints such as EU State Aid rules.[10]

The RHI powers in the Energy Act 2008 enable the introduction of a new levy on fossil fuel suppliers who supply fossil fuel to consumers for the purpose of generating heat. Prior to this consultation, we met a variety of stakeholders including key representatives of organisations who could be liable to meet the cost of funding the RHI to discuss the RHI funding mechanism. The Government has listened to the concerns of stakeholders about some of the potential practical problems of implementing a new levy equitably, transparently and efficiently. It also recognises that there are concerns that the current primary legislative powers for such a levy, contained in the Energy Act, could make its enforcement and administration complex and, as a result, potentially costly to business and Government.

Therefore, following our informal consultation with stakeholders and appraisal of the issues associated with raising funds for RHI payments, the Government is considering what would be the most effective way to fund the RHI, including reviewing the relevant Energy Act provisions. It plans to make a further announcement at Budget 2010.

Work to assess options for funding the RHI scheme will not impact on our intention to launch the scheme in April 2011.

Next steps

The Government intends to hold stakeholder outreach events over the course of the consultation period. We will publish details on our website at www.decc.gov.uk/en/content/cms/consultations/rhi/rhi.aspx. Following the consultation close, having considered the consultation responses, the Government will draft a set of regulations outlining the policy in detail. The regulations will then be laid before Parliament and

9 www.decc.gov.uk/en/content/cms/consultations/open/open.aspx

10 See HM Treasury, *Tax and the environment: using economic instruments*, November 2002; www.hm-treasury.gov.uk/prebud_pbr02_adtaxenvir.htm

must be approved by a resolution of each House of Parliament before coming into force. The aim is for the scheme to start in April 2011.

All the proposals contained in this consultation document are subject to State Aid clearance and approval by the Houses of Parliament.

Chapter 1

Accessing the RHI

Who can benefit from the RHI?

The RHI will be open to individuals, community groups, and businesses. As set out in our Low Carbon Transition Plan,[11] it is important that all sections of society play a part in the switch to a low carbon economy. Our intention is to design the RHI, especially with regard to the tariffs and registration procedures, to work well for different types of investors, ranging from small domestic households to large industrial organisations.

Households

We foresee households playing a large role in the success of the RHI, leading the way with their own actions and influencing the actions of others. At the domestic level, the RHI offers financial support for a range of technologies, including ground and air source heat pumps, biomass boilers and solar thermal. Households who currently use conventional fossil fuel to heat their homes, such as gas, heating oil or coal, will be able to claim the RHI if they switch to renewable technologies.

We would like to see all households have access to the RHI. Private landlords who own the renewable heating equipment in the properties they let will be able to receive a return on their investment by claiming the RHI, making renewable heating a logical financial decision as well as an environmentally positive one.

For some residential properties, access to a renewable district heating scheme may be the most appropriate and cost-effective way of reducing carbon emissions and energy bills and the RHI will provide support for such heating solutions.

Social Housing

We believe the RHI presents a big opportunity for social landlords to invest in low carbon technologies to provide real benefits for their tenants, who could see lower heating bills as a result, and reduced costs for landlords in the long-term when they update the heating systems in their housing stock.

Social landlords are already leading in the retrofit and low carbon agenda and we believe the RHI will enable social landlords to further benefit tenants. While there is no requirement for landlords to adopt renewable technologies, the incentive and its potential to pay back on investment will offer a strong business case for landlords to plan for the deployment of renewable heat and to offer this choice to their tenants.

To help landlords plan their individual approaches, Government will work with the sector to develop new guidance to enable them to achieve higher levels of energy performance for their housing stock, including the provision of cheaper and more sustainable energy. This guidance will supplement the current Decent Homes standard, which will continue to operate as a minimum threshold, so that any home that falls below the standard will be improved. But this new guidance will not set new requirements regulated by the Tenants Services Authority.

11 www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

Case study

In April 2009, the Government launched a £21 million fund to support the development of low carbon community heating infrastructure and tackle fuel poverty within the housing growth programme, which covers the Growth Areas and Growth Points.

The overall aim was to bring forward green technologies that would exemplify low carbon development and act as demonstrators for the whole country.

The funding will support the refurbishment of a dated heating system contained within the 13-storey Manton and Reynolds tower blocks located in Newtown in Birmingham and link this to a biomass boiler/combined heat & power plant to be installed in the new Holte School being constructed under the Building Schools for the Future (BSF) programme.

The key project outcomes will be the reduction of total carbon emissions from the two tower blocks by 296 tonnes per annum as well as the scheme having the potential for future expansion to benefit the wider Newtown housing-led redevelopment (an HCA priority within the emerging Local Investment Plan). The scheme will help to support some of the most vulnerable groups and provide them with a low-cost, secured and sustainable energy supply for the future.

Source: *Homes and Communities Agency (HCA), December 2009*

As the RHI will subsidise costs associated with fitting renewable heating technologies, it could enable local authority landlords, Arms Length Management Organisations (ALMOs) or other Registered Social Landlords (e.g. housing associations) to use revenues from the scheme within a wider programme of refurbishment. Financing the upfront capital costs of renewable heat will be the responsibility of the landlord, as will recouping payments. We expect a number of options to be available to recoup payments, some of which are covered below in the section on financing.

The Government is also concerned that those in society who are less able to pay for these technologies should be amongst the first to benefit. Because many social tenants are in vulnerable groups or are on low-incomes (around three-quarters of tenants in social housing are in receipt of income or disability related benefits, or aged over seventy), social landlords therefore have a big opportunity to make a real contribution to ensure social justice in the transition to a low carbon economy.

The scale, professionalism and long-term approach of asset management programmes in social housing enable landlords to plan for renewable heat. We are keen to work with the sector to realise the potential enabled by the RHI. In turn, realising this potential for large volumes of renewable heat installations in social housing means that the sector could be the catalyst for developing industry capacity and robust supply chains.

In the short term, we will engage positively with the sector to encourage landlords to consider renewable heat alternatives, instead of upgrading or installing new traditional heating systems, for example amongst the group of authorities who will not have completed their Decent Homes programmes by the end of 2010, or where authorities or other social landlords are planning major refurbishment programmes.

Around 1.6 million homes in social housing are in apartment buildings or flats of various types which could be heated through community or district heating schemes, while small estates could be supplied by a network of pipes delivering heat from a central installation. The RHI could make this approach a useful and cost-effective alternative to installing individual heating systems in individual properties, whilst still allowing residents control over the heating in their own homes.

Rural communities

The potential benefits of the RHI to rural communities are considerable, especially those not connected to the gas grid and currently using more expensive fuels to heat their homes. The RHI would allow the households concerned to switch permanently from higher cost, off-grid fossil fuel sources to renewable technologies, and thus significantly reduce heating bills. This could be of particular benefit for those households who are in or are facing the risk of being in fuel poverty. The most recent data in DUKES[12] indicates that in 2007 around one in four of all fuel poor households lived in areas off the gas grid (figures only available for England), which are predominantly in rural areas. Rural households make up over 20% of the fuel poor in England.

12 Digest of United Kingdom energy statistics (DUKES): 2009

Case study

Ulrome and Skipsea are small rural communities without a gas supply, in which private and social residents have been spending more than the national average on oil, coal, storage heaters and LPG to heat their homes. Many households were choosing to just heat one room using portable appliances, resulting in cold, damp homes, and poor health conditions.

Community Energy Solutions (CES),[13] a non-profit distributing organisation, worked with East Riding of Yorkshire Council to roll-out ASHP installations in both private and social dwellings in a number of villages. By November 2009 a total of 83 private and social dwellings had switched to these systems, reducing carbon dioxide emissions by an estimated 328 tonnes per year. ASHPs have been installed in properties of all ages, including over 100 years old, and some have been combined with solar thermal hot water heating.

Funding came from a mix of Government grants, including the Low Carbon Buildings Programme. When it is launched in April 2011 the RHI will help turn community projects such as this from trailblazers to mainstream practice.

Air Source Heat Pump in situ, Ulrome

13 www.cesgroup.com

The RHI could reduce the dependence of remote rural communities and businesses on more expensive fossil fuels with a limited choice of supplier. In addition, we have been working closely with OFTEC[14] to enable anyone who switches from using 100% heating oil to a blended fuel which includes renewable content to benefit from an RHI subsidy. The cost of converting an existing oil boiler to use a blended fuel is relatively small (around £250-£300) and may, in particular, be of benefit to those in rural communities where there is a high reliance on heating oil or to those on low incomes who may choose not to switch or not be able to access the necessary capital for a more expensive renewable system. The relatively large number of off-grid rural communities means we must also consider the potential impact of the RHI funding mechanism.

DECC will work closely with the Commission for Rural Communities in England and other Government departments including the Devolved Administrations in Scotland and Wales, to ensure that rural issues are considered as an integral part of this policy, and the benefits can be realised across these communities.

Fuel poverty

There is a high propensity for fuel poverty off the gas grid, and there is therefore a significant potential for individuals in fuel poverty to benefit from the RHI. Switching to renewable technologies for heating can help to significantly reduce bills and shield vulnerable consumers from large increases in fossil fuel prices.

The Government wants all households to play a part in generating renewable energy. Although Feed-in Tariffs and the Renewable Heat Incentive will make payments over the life of installations, low-income households may still find it difficult to meet upfront costs. Building on the experience of pilot projects for Pay as You Save financing and Warm Front, the Government will consult later this year on measures to help low-income households take advantage of the RHI.

We must bear in mind, however, that anticipated fossil fuel price increases will affect all consumers, including the most vulnerable. DECC is exploring options to ensure that the potential benefits and support available through the RHI are available to fuel poor and other low income, vulnerable households. The Government has various measures in place to tackle fuel poverty, such as the Warm Front scheme and Community Energy Savings Programme, plus new measures such as social price support.

Public sector

The Government intends that public sector bodies act as pioneers in building to zero carbon standards and in the procurement of heat under long-term contracts. In the 2008 Budget, the Government therefore announced its ambition for all new non-domestic buildings to be zero carbon from 2019, with the public sector leading the way

14 www.oftec.org/

from 2018. Public sector projects can provide a market for new technologies, and the reliable, long term demand necessary to make a community project economic and viable.

As announced at the Pre-Budget Report in December 2009, the Government will also examine the scope for local authorities to borrow against Renewable Heat Incentive and Feed-in Tariffs revenue streams, to support further investment in low-carbon technologies.

Role of local authorities

Local authorities can play a vital role in tackling climate change through their role on planning, building control, through action on their own estates and operations including social housing, and procurement. We want local authorities to develop their leadership role on this agenda and we are piloting the concept of local carbon frameworks. Local authorities will be able to access the RHI to support investments in renewable heat measures, for example on their own buildings, and we announced in the Pre Budget Report that we will consider the scope for local authorities to borrow against the income streams from the RHI (and Feed-in Tariffs). We are also keen for local authorities to work with other partners on community-scale renewable heat schemes which can be supported by the RHI.

Industrial and commercial sector

To meet our UK 2020 renewable energy target, we will need a large proportion of renewable heat to be delivered by the industrial and commercial sectors. Certain industries, such as the pulp and paper, agricultural and food and drink industries, are ideally suited to switch from fossil fuels to a renewable heat source like solid recovered fuel where the calorific value and renewable content can be varied to meet user requirements.

Non-domestic buildings often have greater potential than dwellings for on-site renewables (e.g. more roof space), and their size and location could lead them to play a critical role in the viability of community heat and energy networks. Non-domestic buildings have great potential for generating substantial levels of heat and can be used to stimulate and contribute to the overall viability of community energy network development, particularly for heat networks.

Financing

Chapter 3 explains that we intend to deliver RHI support in the form of payments made over a number of years rather than as an upfront payment. Ways in which the upfront costs of installing renewable heat will be financed will therefore be an important issue for those considering a switch to renewable heat who may not have the necessary funds (e.g. savings) readily available for investment. Although forecast to fall, the current cost of renewable heating technologies may dissuade many consumers from

installing them. However, it is expected that the RHI will stimulate the market to provide a number of different financing options. These could cover the upfront costs (e.g. cost of installing the equipment) and ongoing operational costs (e.g. fuel costs) for the lifetime of the technology.

Possible models include:

- **energy service companies** – a combination of local authority, community and energy company expertise in a body that provides a finance package to deliver renewable heat technologies using RHI payments;
- **public sector financing** – local authorities are potentially able to take advantage of economies of scale and a lower cost of capital;
- Government policies such as **Pay As You Save** – we launched the Home Energy Pay As You Save pilots in December 2009. These give households the opportunity to invest in energy efficiency and microgeneration technologies in their homes with no upfront cost.[15] Householders will make repayments spread over a long enough period so that repayments are lower than their predicted energy bill savings, meaning financial and carbon savings are made from day one;
- **fossil fuel suppliers** – providing renewable heating as an option alongside their current package of services;
- **developers** – arrangements to be agreed between the builder and buyer of new homes or non-domestic buildings where the builder would finance the installation of renewable heat equipment as part of the overall building cost, and in turn would receive RHI payments from the buyer;
- **banks and other lenders** – lenders to finance upfront capital costs for an assigned proportion of the RHI.

Q2: Do you see any barriers to such financing schemes coming forward? In particular, are there any limitations in leasing and finance legislation that you feel inappropriately restrict the development of RHI financing models?

The initial registration process

Under the proposals in this consultation, the Office of Gas and Electricity Markets (Ofgem) will play a leading role in ensuring the RHI runs efficiently and effectively. In addition to making payments to owners, their day-to-day functions will include registering all owners and monitoring and enforcing the scheme. Further details of Ofgem's role are covered in Chapter 6 (Administration).

We propose that, irrespective of size, the details of all owners will be held in a central database administered by Ofgem. However, the accreditation and registration process

15 www.decc.gov.uk/en/content/cms/news/pn140/pn140.aspx

for owners of small and medium or large-scale generation equipment will differ. This will include information on the site, technology and its ownership, in order to unambiguously identify owners, assign the correct tariffs and prevent double counting.

Small and medium generators

For the registration of technologies at the small and medium scale, including households, small businesses and public sector buildings such as schools, we propose requiring an installer who is certified under the Microgeneration Certification Scheme (or equivalent) to install the appropriate technology for the site (see also Chapter 2 on use of certified installers and equipment as a condition for RHI eligibility). "MCS or equivalent" means the Microgeneration Certification Scheme or equivalent schemes accredited under EN 45011, which certify microgeneration products and installers in accordance with consistent European standards. The installer will forward basic details to Ofgem for registration in its database. Separate arrangements may apply to technologies currently not covered by the MCS, such as biogas and bioliquids.

What is the MCS?

The Microgeneration Certification Scheme (MCS) is an independent, industry-led certification body accredited by the United Kingdom Accreditation Service (UKAS).[16] The MCS assesses installation companies and products against robust standards. It provides assurances as to the quality, durability and energy generation performance of microgeneration products, and guarantees to consumers on the quality of installations. In addition, the MCS provides a level of consumer protection that meets the requirements of the Office of Fair Trading.

Owner-occupiers

For an owner-occupier, the proposed process is illustrated below:[17]

- The **first step** for a homeowner is likely to ensure they have access to information about renewable heating options and the RHI, particularly at key points such as when an existing boiler breaks down. There will be a role for both the market and delivery partners such as the Energy Saving Trust to communicate

16 www.microgenerationcertification.org/

17 These basic steps do not include options for capitalising the upfront costs of technologies and their installation. This is covered in the section on financing earlier in this chapter.

to homeowners the potential benefits of renewable heat. Installers of heating equipment will also have a crucial role to ensure householders, whose boiler may be beyond repair, are informed at the time of the renewable heating options.

- The **second step** will be for the homeowner to make contact with a certified installer who can assess the needs of their home, provide a quote and information on RHI (or other) support, and, if acceptable, fit the appropriate technology for the property. The homeowner could then be issued with a certificate completed by the installer.
- Proof of installation will be sent to Ofgem (the **third step**), so that the applicant can be formally registered in the scheme.
- Once the **fourth step** of registration and accreditation is complete, Ofgem will begin paying the incentive. This is likely to be in the form of an annual lump sum, probably credited to the owner's bank account.

Large-scale installations

Renewable heat systems greater than the maximum output capacity certified by the MCS will be required to register and seek accreditation directly from Ofgem, in a manner similar to the Renewables Obligation (RO) process. This will reduce the administrative burden for generators currently using the system, but looking to switch to the RHI, or who are familiar with the RO through other generating plants. The registration and accreditation process will require that RHI applicants answer a number of questions related to the site, technology and its proposed use. Once accredited, generators will be eligible for RHI support, and subject to enforcement and auditing practices, as discussed below.

Getting paid; ongoing obligations

Payments

The Energy Act 2008 specifies that RHI payments can only be made to the "owner" of the plant used or intended to be used for the renewable generation of heat, to a producer of biogas or biomethane or to a producer of biofuel for generating heat. The word "owner" has its standard meaning, so the owner of a plant will be the person with exclusive rights and liabilities in respect of that plant. The owner will therefore usually be the person who purchased and paid for the installation of the equipment.

However, where a hire purchase agreement, conditional sale agreement or other similar arrangement has been entered into to cover the cost of purchasing and installation, the legislation provides that the individual in possession of the plant under that agreement is the "owner" and the payment would therefore be made to the recipient of the loan, despite the fact that the terms of the loan agreement may provide that they are not legal owner.

There may be situations where the owner is not the person operating the equipment – if, for example, a local authority funded the installation of renewable heat technologies for social housing and retained all rights and liabilities – the RHI would be paid to the authority.

We propose payments to be made annually for installations below 45 kW and quarterly for those above this level.

Self-certification

To continue to qualify for RHI payments over the lifetime of the scheme, the recipient will need to comply with the rules of the RHI. When the technology is installed, in order to receive RHI payments, the owner of the equipment may be asked to sign a declaration that they agree to meet their obligations under the scheme (e.g. keeping the equipment working and well-maintained). Ofgem may then require further declarations (e.g. annually) from the owner confirming that they continue to meet their obligations and still qualify for incentive payments.

Maintenance

Questions of maintenance and breakdown are particularly relevant if tariffs are deemed over the lifetime of the equipment (see section on metering and deeming in Chapter 3). To ensure that the incentive is paid only to installations that function correctly, regular evidence of ongoing maintenance and repair may be required within a fixed time period, or payment of the incentive would be at risk. We propose that an approved/ qualified person should be required to carry out any maintenance or repairs to smaller technologies.

Q3: Do you agree with our proposed RHI registration and payment approach? If not, can you suggest how this approach can be improved?

Chapter 2

Eligibility and standards

Introduction

We will provide support for a wide range of technologies, as already announced in our 2009 Renewable Energy Strategy. We propose to include those that are consistent with the EU's Renewable Energy Directive[18] (and which therefore contribute to meeting the EU's 2020 targets) and the UK Energy Act 2008.[19]

Of the sources of energy listed in Section 100 of the Energy Act, we propose to support those that are listed below:

- bio-energy
  - solid biomass – as defined in the Renewable Energy Directive,[20] but proposing to exclude its use in stoves and similar applications;
  - biogas – heat produced from on-site combustion of biogas (including from landfill and sewage plants, and syngas), and injection of biomethane into the gas grid;
- energy from the ground – ground source heat pumps or geothermal sources;
- energy from the air – air source heat pumps;
- energy from water – water source heat pumps; and
- energy from the sun – solar thermal panels, but not passive solar heating.

In addition, we intend to amend the definitions in the Energy Act to enable RHI support for bioliquids and gasification.

We refer to these throughout this document interchangeably as "energy sources" or "technologies".

Consumer protection standards

Only equipment and fuels of suitable quality and energy efficiency should qualify for RHI support. This is to ensure that we build and maintain consumer confidence in the renewable heat market. The market is in its infancy and many of the technologies are unfamiliar to consumers who will expect long-term use from their equipment and may view many renewable technologies as unproven.

Article 14 of the Renewable Energy Directive places requirements on Member States to ensure that certification schemes are available for installers of renewable technologies. At the domestic and other microgeneration scale, currently up to 45kW, the Microgeneration Certification Scheme (MCS, see Chapter 1) and equivalent

18 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF

19 www.opsi.gov.uk/acts/acts2008/ukpga_20080032_en_11#pt5-pb9

20 The biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries, including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste.

European standards, provide a suitable set of standards for certifying installers and equipment. Eligibility for currently available central Government grant support (e.g. the Low Carbon Buildings Programme) already requires compliance with these standards. Separate arrangements may apply to technologies currently not covered by the MCS, such as biogas and bioliquids.

Work is now underway to extend the upper limit of MCS by the end of 2010. For biomass the limit has already been extended to 300kW, and other technologies are similarly under consideration. We anticipate that for all renewable heat technologies up to the upper limit, the RHI will require that beneficiaries use only MCS-certified (or equivalent) installers and equipment.

Above this upper limit, we do not intend to impose similar standards. We would instead expect those involved with larger projects to have or obtain the necessary expertise to make appropriate choices and ensure they get value for money.

Q4: Do you agree with our approach of requiring products and installers for installations up to 45kW within RHI to be accredited under MCS or equivalent?

Q5: Where MCS is extended beyond the current limit, do you agree that we should require the use of MCS certified installers and equipment for eligibility for the RHI?

Q6: Can you provide details of any UK or European standards that should count as equivalent to MCS? How should we recognise these standards for the RHI?

Eligibility

We need to ensure that we only support useful renewable heat generation under the RHI. We consider useful heat as heat that is used for: space heating, water heating, cooking, low to high temperature industrial processes, drying and separating. Our approach on metering and deeming of heat, set out in Chapter 3, aims to ensure that the scheme avoids funding heat that serves no useful purpose. This chapter also describes our proposed approach to installations that use both renewable and non-renewable fuels.

Innovation

Although our aim is to include a wide range of technologies in the RHI, the initial focus will be on more established technologies. See Chapter 4 for our proposed approach on **innovative technologies**.

New, repaired, refurbished and converted equipment

We propose that, in general, only the installation of **new equipment** will be eligible for the incentive, i.e. equipment installed after 15 July 2009. See Chapter 5 for more details on transitional arrangements applying to the period until the RHI is up and running in 2011. Any **increase in capacity** would be eligible for RHI support as if it were a new installation. New installations would also be eligible where they **replace** existing installations, but **refurbishment, repair or conversion** of equipment would not create any RHI entitlement beyond that which was in place before such works were carried out (with the exception of conversion of domestic heating oil boilers to use bioliquids, see below). We are open to views as to the types of situations that should be defined as new or replacement installations on the one hand or refurbishment, repair or conversion on the other hand. See also Chapter 5 on transitional arrangements applicable to certain installations completed before the start of the RHI.

Electricity; process-internal heat

We propose that heat used for **generating electricity**, i.e. where heat is used to combust fuel to drive an electricity generator, will not be eligible for RHI support. The Renewables Obligation (and, from April 2010, the Feed-in Tariffs) already support electricity generation. Therefore, we propose that any installation that generates renewable heat which is then used to generate electricity (either on-site or externally) will only be eligible for RHI support if its RHI entitlement is metered rather than deemed (see Chapter 3), and the meter used for RHI purposes is set up to only record any useful heat that is not used for electricity generation. Similarly, we do not propose to support any heat that is produced from **anaerobic digestion** purely for the purpose of keeping the plant in operation.

District heating; CHP

We propose that eligible energy sources will be supported whether they are standalone installations or part of a wider **district heating** network, and that **combined heat and power** (CHP) will be eligible for the same tariffs for its useful renewable heat output as dedicated heat installations. We do not propose to require the Combined Heat and Power Quality Assurance (CHPQA) standard (used for the Renewables Obligation) under the RHI. See Chapters 3 and 5 for further details on our proposed approach to district heating and CHP.

Cooling

The RHI is designed to support the generation of renewable heat, but there is also the important question of renewable **cooling** technologies. As the purpose of the scheme is to support the generation of renewable heat, the RHI will not support renewable cooling. However, trigeneration systems, where cooling is produced alongside heat and

electricity, will be supported for their heat output. We propose that other forms of cooling, including passive cooling from building design or cooling provided by air conditioning units or the reverse operation of heat pumps (even where the heat sink is ground or water rather than air, as in conventional air conditioning) will not be eligible for RHI support.

Heat pump efficiency

In order to count towards our binding 2020 renewable energy target, the Renewable Energy Directive requires the heat output of **heat pumps** to significantly exceed the electricity needed to drive the pump, and provides a formula for calculating this. This ensures that only efficient heat pumps are supported.[21] All heat pumps within the Microgeneration Certification Scheme (MCS, see Chapter 1) product list[22] exceed these minimum performance standards[23] and will be eligible for support under the RHI. The European Commission will establish guidelines on the implications of the Directive formula for the use of heat pumps in different climates, particularly very cold conditions, by January 2013. Taking this into account, we will need to work with MCS to consider whether to raise the standards for heat pumps at later reviews of the RHI.

Wood burning stoves, open fires

We propose excluding **wood burning stoves, air heaters, open fires and similar applications** from the RHI. These present practical difficulties as it is extremely difficult to monitor how much they are used (they are usually a secondary source of heat the use of which will be optional), and to what extent they are used with renewable fuel rather than, for instance, coal. The administrative cost of including these appliances in the RHI in a fair way would likely be very high.

Bioliquids

In order to generate renewable heat from bio-matter, it is normally better – in terms of cost-effectiveness – to use solid biomass feedstocks such as wood chip or Miscanthus pellets, rather than **bioliquids** made from arable crops such as rapeseed. We are currently considering the best use of available bioliquids given their limited supply so, in the initial stage of the RHI, we do not propose making bioliquids generally eligible for support.

That said, there are certain situations in which it may be more appropriate to use bioliquids rather than solid biomass for heat. A key example is heating supply to homes

21 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF

22 www.microgenerationcertification.org/Home+and+Business+Owners/Microgeneration+Products/Heat+Pumps

23 The MCS product certification standard for heat pumps is available at: www.microgenerationcertification.org/docs/standards/MCS%20007%20-%20Issue%201.5%20Product%20Certification%20Scheme%20Requirements%20-%20Heat%20Pumps%2025%20Feb%2009.pdf

that are not connected to the National Grid gas network. Up to 8% of British homes are currently heated by oil-based systems. Such installations use oil, stored in a large outdoor tank, to supply a boiler which produces hot water for the central heating and domestic hot water supply. Replacing such systems with new renewable heat installations may be more expensive than converting the existing boiler to use a fuel blended from part renewable oil/part heating oil. This would allow a proportion of the heat to be generated via renewable means, without having to replace the boiler. We are therefore minded to support the use of bioliquids where they replace the use of domestic heating oil, subject to any further developments to the contrary during the first half of 2010 in the evidence base on the sustainability and wider impacts of bioliquids.

We are likely to require certification of the blended fuel to ascertain its renewable content. FAME (Fatty Acid Methyl Ester) is a renewable liquid fuel with similar properties to diesel. It is produced from virgin or waste vegetable oil by reacting the oil with methanol in the presence of a potassium or sodium hydroxide catalyst. We are minded to initially consider only FAME blended with heating oil for RHI eligibility since this blend is at an advanced stage of development and certification. We are open to considering including the use of bioliquids other than FAME in converted domestic heating oil boilers provided:

- they are suitable for use in converted domestic heating oil boilers; and
- there is a way of reliably establishing and certifying the renewable content of such fuels.

We also intend to implement a process for consideration of blends and bioliquids for future RHI eligibility on a rolling basis.

We do not propose to provide RHI support to bioliquids where support for a specific batch of fuel has already been claimed under the Renewable Transport Fuel Obligation (RTFO).

Q7: Do you agree with our proposed approach to eligibility of energy sources, technologies and sites?

Q8: Do you agree with our proposed approach on bioliquids? Are you aware of bioliquids other than FAME that could be used in converted domestic heating oil boilers? If so, should we make them eligible for RHI support, and how could we assess the renewable proportion of such fuels to ensure RHI is only paid for the renewable content of fuels?

Bio-energy Strategy

Going forward, we will need to continue to review our evidence as part of determining support for bio-energy across all Government support mechanisms (RHI, RTFO, RO and FITs) and ensure our biomass strategy remains fit for purpose.

Bio-energy standards

Bio-energy sustainability

In the Renewable Energy Strategy we set out the features that we would like to see included in sustainability criteria to ensure that bio-energy used in heat generation, electricity and transport is sustainably produced. Until there is a common standard, our approach is to follow, where appropriate, the existing arrangements for reporting on biomass sustainability as set out in the Renewables Obligation and implement sustainability requirements under the RED for bioliquids.

- As regards **bioliquids**, the Renewable Energy Directive introduced a mandatory minimum greenhouse gas emissions savings requirement of 35% and lists a number of criteria regarding good agricultural practices and controls to protect land of high biodiversity or high carbon stocks. By the time the RHI becomes operational, bioliquids suppliers will need to demonstrate that they comply with these standards in order to have the fuel classified as renewable for the RHI.[24] We will work closely with both the Department for Transport and the Renewable Fuels Agency (RFA) to utilise the expertise on monitoring and verifying the sustainability of liquid fuels derived from biomass that the RFA have developed during their administration of the RTFO.
- The European Commission is currently looking at sustainability criteria for **solid biomass** and we expect them to report on appropriate criteria and to bring forward proposals. In view of this, we introduced sustainability reporting questions into Article 54 of the Renewables Obligation Order 2009 requiring biomass-based generators above microgeneration level to provide certain information to Ofgem including on their fuel source, sustainability and usage, in order to monitor and promote the use of sustainable biomass.[25] We propose that, above microgeneration level, users of biomass under the RHI should be required to address these sustainability reporting provisions until a harmonised standard for the use of solid biomass in new installations is introduced. When such a standard is introduced, we would allow for a transitional period before the rules

24 The Environment Agency has also produced a quality protocol for the production of biodiesel. This will help biodiesel producers by clarifying the point at which biodiesel has been fully recovered, and can be used without having to comply with waste management controls (see: www.environment-agency.gov.uk/business/topics/waste/39019.aspx).

25 See Article 54 of the Renewables Obligation Order 2009, SI No. 785 www.opsi.gov.uk/si/si2009/pdf/uksi_20090785_en.pdf.

are applied to existing RHI-registered biomass installations. This would give such installations sufficient time to obtain their fuel supplies from sources that comply with the sustainability standard. If we believe that the sustainability standards set by the EU are insufficient, we will consider setting our own standards within EU and International law.

- **Biogas** and biomethane are derived from either solid or liquid bio-matter. Given that the source biomass is subject to sustainability requirements as detailed above, we do not propose to introduce any RHI-specific standards for biogas or biomethane.

Biomethane guidance

Guidance for potential producers of biomethane, considering injection into the gas grid, is available on the DECC website.[26] There are a number of technical and regulatory requirements that must be met. An early step should be to contact the appropriate Gas Distribution Network Operator; contact details are provided in the Guidance Document.

Air quality standards

We recognise that rolling out large numbers of biomass installations may, cumulatively, have a detrimental impact on air quality in urban areas. The burning of waste, including oils, is regulated by the Waste Incineration Directive.[27] However, these provisions do not apply to most biomass boilers as they are largely used to burn processed wood pellets or wood chips.

In the case of large-scale installations (over 50 MW aggregated rated thermal input), biomass applications fall under the Integrated Pollution Prevention Control (IPPC) legislation, regulated by the Environment Agency in England and Wales or the Scottish Environment Protection Agency. At levels of between 20 and 50 MW, individual units are regulated by the Scottish Environment Protection Agency or local authorities in England and Wales. Stringent emissions standards are already applied at both these scales, so there is no need for the RHI to impose any additional eligibility requirements.

For biomass boilers below 20 MW, there are currently no regulations that apply across the UK. In the Renewable Energy Strategy we said that we would work with industry and other key stakeholders to introduce emissions performance standards for biomass boilers which are not adequately covered by other legislation. At the time we considered possible maximum emissions levels of 20g/GJ for particulate matter (PM), and 50g/GJ for nitrogen oxides (NO_X). We have now reviewed these limits in consultation with stakeholders and on the basis of research commissioned by Defra, which suggests that they would rule out most currently produced biomass boilers.

26 www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/markets/gas_markets/nonconvention/nonconvention.aspx

27 www.environment-agency.gov.uk/netregs/62983.aspx

We are now minded to consider maximum emissions standards for biomass boilers of 30g/GJ for PM and 150g/GJ for NO_X, at least in the initial implementation of the RHI. Defra is undertaking further consideration of the potential impact of these revised emissions standards on air quality, and in terms of health costs.

Q9: Do you agree with the proposed emissions standards for biomass boilers below 20MW? If not, why, and do you have any evidence supporting different ones, in particular on how they safeguard air quality?

Building standards and energy efficiency

There are strong synergies between heat and broader objectives of encouraging better energy efficiency and reducing carbon emissions from domestic buildings through lower energy consumption. We want to encourage renewable energy systems to be installed in buildings alongside (or in addition to) adopting a basic level of energy efficiency measures in a "whole-house approach". A basic minimum level of energy efficiency required for existing homes would be:

- at least 125mm of loft insulation; and
- cavity wall filled where appropriate.

To incentivise households to implement to these standards, we are proposing to introduce so-called "deemed" (rather than metered) compensation under the RHI. This would be done through an assessment using the Standard Assessment Procedure (SAP)[28] (or similar) used for energy rating of buildings to identify the appropriate deemed heat demand of the building based on the assumption that the minimum energy efficiency measures will have been taken up alongside the renewable heat installation. This will encourage prospective generators to insulate their homes to the minimum standard as their potential RHI compensation would not otherwise be enough to cover the cost of the additional heat demand. Anyone who had already installed or exceeded the minimum standard of insulation would not lose out under our proposed approach as, unlike under metering, they would not see their level of compensation under the RHI fall where they reduced their energy consumption. See Chapter 3 for further details on our proposed deeming approach.

We also recognise that the installation of renewable heat equipment could be used as a route to better information provision (e.g. applicants would be provided with wider energy efficiency information when installing renewable heat equipment).

Potentially, we could go even further by requiring householders to provide proof that the minimum level of energy efficiency had been achieved through the installation of loft and cavity wall insulation before being able to access the RHI. However, we do not propose to make eligibility for RHI contingent upon a particular building standard, or

28 www.bre.co.uk/sap2009/page.jsp?id=1642

take-up of more demanding energy efficiency measures (for example, solid wall insulation).

A similar set of issues arises in relation to new build homes and buildings. We want to avoid the situation where builders pursue lower standards of energy efficiency than would have been the case in the absence of the RHI – particularly in advance of the more demanding energy efficiency standards that will come into effect in 2013 and 2016.[29] Further work will be undertaken during the consultation period to devise a suitably robust approach.

Q10: Do you think the RHI should be structured to encourage energy efficiency through the tariff structure (in particular the use of deeming), or, additionally, require householders to install minimum energy efficiency standards as a condition for benefiting from RHI support?

Q11: Can you provide suggestions for how to ensure that developers do not build to lower energy efficiency standards as a result of the RHI in advance of 2013 and 2016 building regulations taking effect?

Planning permission or environmental consents

Planning permission may not always be necessary for small-scale renewable equipment. Changes to permitted development rights removing the need for a planning application in certain cases have been made, or are proposed.[30] Where any planning, environmental or other permits are required for projects such as the installation of renewable heat systems, the appropriate approvals will need to be obtained by the owner outside of the RHI. We do not propose to verify this or to make eligibility for RHI conditional upon obtaining any necessary planning permission or environmental consents.

29 See part B of www.communities.gov.uk/publications/planningandbuilding/futureofcodeconsultation for Government's proposals for the energy efficiency standards that will apply to new homes from 2013 and 2016.

30 On 17 November 2009, the Government launched a consultation on proposals to introduce permitted development rights for small-scale renewable and low-carbon technologies in domestic and non-domestic settings. www.communities.gov.uk/publications/planningandbuilding/microgenelectriccars

Chapter 3

Tariffs

Overview

In most cases the market value of energy does not yet make generating renewable energy attractive from a financial perspective. This is the case for both renewable electricity and renewable heat. In the case of renewable electricity, the support provided under the Renewables Obligation (RO) for large-scale installations, and for small-scale installations under the new Feed-in Tariffs (FITs) from April 2010, aims to fill this gap. The RHI as proposed pursues the same objective for renewable heat at all scales.

As set out in the Renewable Energy Strategy (RES), our approach to providing support in both renewable electricity schemes and the RHI follows two broad objectives:

- The support levels aim to provide a reasonable level of compensation. They aim to make investing in renewables financially attractive, but at the same time avoid unnecessarily high levels of compensation, in order to keep costs under control.
- Support should be available for a wide range of technologies and investor types. Reaching our ambitious target of 15% renewable energy by 2020 will require a portfolio of technologies and a spectrum of investors, both from within and outside the energy sector.

There are significant uncertainties when setting renewable heat support levels. In the UK there is little on-the-ground experience, and therefore little data on which to base our assessment of technology costs. Over the past year and a half we have made considerable efforts to obtain all the available information through research projects and consultations, most recently in a study of technology costs that was published for consultation last summer.[31]

The tariff-setting approach proposed in this consultation aims to provide several benefits to those joining the scheme.

- Firstly, **compensation is to be provided for the financial costs** associated with renewable heat, and the tariffs aim to do so by covering the difference in upfront capital and ongoing costs between renewable and conventional heat.
- **Compensation is also to be provided for some non-financial barriers,** such as the disruption of digging up gardens to install ground source heat pumps.
- Finally, the tariffs should also **pay an investment return**, proposed at 12% across all technologies, with 6% for solar thermal. We do not believe that it would be enough to merely pay the cost difference with conventional heat. When we ask people to install renewable heat technologies, we expect them to make a considerable upfront investment in terms of equipment and installation costs. As with any other investment, many people – and even more so businesses – will be

31 The supply curve for Renewable Heat: overview of research – www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/renewable_heat/incentive/supply_curve/supply_curve.aspx

looking for a return on this investment that reflects the opportunity cost of capital and the level of risk and effort involved.

The proposed tariff structure also allows generators to retain the benefit of any future rises in fossil fuel prices. If fossil fuel prices rise, renewable energy generators will save more money compared with a situation in which they had stayed with fossil fuel heating. Conversely, if fuel prices fall, they will save less.

Tariff-setting methodology

Rate of return

We have calculated tariffs on the basis of a rate of return of 12% across the tariff bands, with 6% applying to solar thermal.[32] The tariffs have been calculated on the basis of a "reference"[33] installation in each tariff band; installations with lower or higher costs than the average installation would therefore likely see higher or lower rates of return.

The rates of return have been determined on the basis of our understanding of the return that commercial and domestic investors will expect; advice from our consultants; and by considering the differences between renewable heat and electricity (where we have already proposed Feed-in Tariffs last summer).

In order to keep costs under control, we clearly want to keep the rate of return at a reasonable level. Nevertheless, we concluded that higher rates of return would be required than the rates proposed for the Feed-in Tariffs. The rates of return for renewable heat need to reflect that we will need high growth on renewable heat. The Renewable Energy Strategy considers that renewable heat is likely to have to grow from currently around 1% to around 12% by 2020 to help meet our overall binding renewable energy target of 15% by 2020. Encouraging such high growth will be particularly challenging against a background where the renewable heat sector is still less mature than the renewable electricity sector.

We propose a lower rate of return for **solar thermal** panels than for the other technologies. Solar energy technologies are comparatively well-known, and they represent relatively low installation challenges. This is why, in our consultation last year on renewable electricity Feed-in Tariffs, we proposed a rate of return for solar photovoltaics electricity which was somewhat lower than that for other technologies. The proposed rate of return of 6% (including barrier compensation) reflects the same approach for solar thermal under the RHI. Since current solar thermal costs are

32 This is in addition to compensation for non-financial barriers, except for solar thermal where the rate of return includes any compensation for non-financial barriers.

33 For further details on the use of reference installations and other aspects of our tariff-setting methodology, see the accompanying consultation stage Impact Assessment and the report by our external consultants (published together with this consultation document): NERA (2010), *Design of the Renewable Heat Incentive*.

significantly higher than those of other renewable technologies, we believe that this approach is also a proportionate means of keeping the overall costs of the scheme manageable.

We have calculated the proposed tariff for **biomethane injection** on the basis of parity with the Feed-in Tariffs rather than on the basis of a rate-of-return approach. Generators will have the option of generating electricity from biogas through on-site combustion, or turn the biogas into biomethane and inject it into the grid. In the former case they could receive support for renewable electricity (most likely Feed-in Tariff support, given the typical sizes of such installations). We want to avoid a comparison between support levels rather than appropriate use determining generators' choices between electricity generation and biomethane injection.[34]

For **large biomass** installations (either in the form of dedicated heat plants or the heat output of combined heat and power plants) we are providing a range of support levels in this consultation within which we propose to set the tariff. The range reflects the variation between a tariff calculated on the basis of the costs of dedicated large biomass installations, and a tariff set at a similar level to the support for CHP heat currently provided under the Renewables Obligation.

At the first RHI review, we intend to revisit the wider issue of the support levels that should be available for bio-energy across the financial incentives. We shall only do this when we are in a position to consider the matter in a coordinated approach across all sectors and incentives.

Number of tariffs

We propose separate tariffs for each type of eligible renewable heat technology or source. Within each supported technology we intend to differentiate the tariffs by size. In setting the boundaries between tariffs, we have aimed to group together installation sizes with similar cost levels. This helps to ensure that each tariff level is appropriate to the costs of the installation size it covers. At the same time we have tried to keep the total number of tariffs to a minimum in order to make the RHI as simple as possible. We believe that the size boundaries chosen should in most cases align well with the size requirements of different types of generators. This should reduce the risk of generators being able to adjust the installation size to fall within a more attractive tariff.

Tariff lifetime

We propose that RHI beneficiaries receive support over a number of years rather than in the form of a single upfront payment. This will encourage owners to keep their equipment operating and well maintained. The proposed tariffs are on the basis of payments made over the same period of time as the expected useful life of the equipment (10 to 23 years, depending on the technology).

34 For further details see the accompanying Impact Assessment.

An alternative approach would be to pay the tariffs over a shorter lifetime. This could be attractive as it would reduce the payback period. It could also reduce the total cost of the RHI, calculated over the total lifetime of the scheme. It would, however, increase the annual costs in the short to medium term.

All payments will be subject to continued operation of the equipment (see Chapter 1 on self-certification and Chapter 6 on administration).

Compensation for cost difference

Tariffs have been calculated to cover the expected cost difference (both as regards upfront capital costs and fuel/other ongoing costs) between renewable and conventional heat. It is reasonable that the RHI should in most cases pay only the additional cost of renewable heat above the fossil fuel alternative, rather than the full cost. The cost of the non-renewable option would have to be paid in any case, so the RHI should not need to bear this part of the total cost. This does not apply to the upfront capital costs of solar thermal installations, where the renewable heat system would in most cases be a complementary rather than replacement system.

With most of the proposed tariffs we have used the assumed costs of gas-fired generation for the purpose of calculating the difference with the cost of conventional heating, with the exception of bioliquids and small-scale biomass, where we have assumed non-net-bound fossil fuels such as heating oil or coal as the alternative. Instead of this approach we could try to differentiate the tariffs depending on what the fossil fuel alternative in a specific situation would be, but we do not think it would be practical to implement this. The proposed RHI tariffs may therefore in many cases provide somewhat higher rates of return to those currently using heating options which are more expensive than gas. These will often be particularly carbon-intensive installations, such as coal or oil, or households in fuel poverty, so we believe that this is a worthwhile additional incentive to encourage the switch to renewable heat.

Metering and deeming

We want RHI support to encourage people to only generate heat that they themselves need. Additional heat should only be encouraged where it can be exported for others to use (as in district and community heating networks). Paying the tariffs on a **metered basis** could have the undesirable effect of encouraging the generation of surplus heat in order to obtain more RHI support. As mentioned above, the RHI tariff is intended to provide compensation for both upfront capital cost and ongoing fuel and other operating costs, and the resulting total tariff per unit of heat produced could be higher than the cost of only the input fuel (such as biomass) per unit of heat. In this case there would be a net profit for every additional unit of heat generated, regardless of whether it is needed. This could result in excess heat being generated and dumped, and would conflict with our broader goals of encouraging and rewarding energy conservation.

We expect this is more likely to be a risk with space heating installations, where the decision to keep the heat on and open the window could be based purely on the effect of the RHI. In process heating (i.e. large-scale industrial heat), this may be less of an issue, because the RHI compensation will likely be only one of many factors in deciding whether or not to run a factory.

Another potential drawback of metering may be the availability, cost and standards of verifying heat meters. Since heat metering is not as well established or as straightforward as electricity or gas metering, the associated costs will often be high. Again, this is likely to be more of an issue at the smaller-scale, where the cost of a heat meter would constitute a higher proportion of the total cost.

A solution to the kind of perverse incentives outlined above could be to pay a fixed annual compensation rather than one based on the number of heat units generated. This would be implemented by paying the tariff not on the basis of a metered number of kWh generated, but instead on a **"deemed" number of kWh**, namely the *reasonable heat requirement* (or heat load) that the installation is intended to serve. However, such deeming can only work in situations where a robust process for establishing the deemed heat requirement is available.

We believe that existing methodologies could be used and adapted to provide such a deeming assessment, in particular the Standard Assessment Procedure (SAP, for domestic situations) and the Simplified Building Energy Model (SBEM, for non-domestic situations), as well as the assessments carried out to create Energy Performance Certificates (EPCs) for new buildings in particular.[35] SAP is currently used to evaluate the energy performance of dwellings and thereby helps deliver many existing Government policies on energy efficiency. For new dwellings, SAP is also used to demonstrate compliance with relevant building regulations in England and the devolved nations. Both SAP and SBEM can be used to estimate the heat requirement for space and hot water heating, but neither is meant to assess the amount of heat used in large-scale industrial processes. EPCs are used to assess and record energy efficiency of buildings to allow comparison between buildings by means of an A-G rating.

We therefore propose to use **deeming of heat demand** for all installations at the small and medium-scales where SAP, SBEM or EPCs can provide us with a deeming methodology or the basis for developing one.[36]

An alternative, particularly for medium-scale installations, would be to use metering up to a capped maximum number of kWh. This would use the advantage of metering to provide accurate rather than estimated heat amounts, whilst still – by means of the cap

35 SAP: www.bre.co.uk/sap2009/page.jsp?id=1642; SBEM: www.bre.co.uk/page.jsp?id=706; EPCs: www.communities.gov.uk/planningandbuilding/theenvironment/energyperformance/homes/energyperformancecertificates/ and www.communities.gov.uk/planningandbuilding/theenvironment/energyperformance/publiccommercialbuildings/

36 See the tariffs table on page 46 for details on the small and medium size ranges.

– reducing the risk of heat wasting or dumping. On balance, we do not see this as a preferable option: in order to be able to establish and apply such caps, we would still need to set up the same deeming process as in our proposed approach; the additional use of metering would mostly add the costs of meters as well as an incentive on the generator to maximise heat use up to the cap. We do, however, propose to give medium-scale biomass installations the option of using a heat meter in addition to deeming. If those using such installations believe that from time to time their actual heat use may exceed the deemed heat load, they could receive an additional lower RHI payment only for fuel costs (in addition to the base compensation calculated through deeming). We have calculated this additional metered tariff to cover the difference between the cost of biomass fuel and the cost of the counterfactual fossil fuel (the **"fuel tariff"**). The fuel tariff would be paid for metered heat above the deemed heat load.

For large installations as well as process heating at any scale, we expect that it would be more difficult to establish an appropriate deeming methodology. We propose to rely on **metering of heat generated and used** (similar to renewable electricity). We expect that the risks and costs of metering, as outlined above, apply to a lesser extent in these large-scale situations. This suggests that straightforward metering at the larger scale (including for process heating at any scale) is the right approach.

For biomethane injection and district heating, we propose metering at all scales. Both for biomethane injection and district heating, the main driver will be demand from third party customers, removing the risk of generation driven by perverse incentives. To ensure that it is the customer who drives the heat amount generated, we expect to require, as a condition for receiving RHI support, that district heat metering takes place in a way that allows the customers to pay for, and control, the amount of actual heat they use.

Our approach can be summarised as follows:

- **Small-scale (covered by SAP/SBEM/EPC)** – each installation's tariff entitlement is established by multiplying the proposed tariff per kWh with a deemed heat requirement (number of kWh per year). This is established through an assessment process based on SAP (or variant) at the beginning of the project.
- **Medium-scale (where covered by SAP/SBEM/EPC)** – in principle the same approach applies as for small-scale installations. However, in this group we propose to allow for the option of metering for solid biomass installations. Installations choosing this approach would still receive the same tariff for the same deemed number of kWh, but where the metered number of kWh used exceeds the deemed number, an additional lower tariff per kWh would be paid for the metered excess.
- **Large-scale and process-heating (and medium-scale, where not covered by SAP/SBEM/EPC)** – support would be calculated as the metered number of kWh multiplied by the tariff per kWh.
- **Biomethane injection and district heating** to be metered at all scales.

Practicalities of deeming

The methodology for the deeming assessment will need to be straightforward and user-friendly. For small-scale space heating, MCS-certified installers are already carrying out assessments of the heat requirements of buildings as part of their normal work. We propose to use or adapt SAP and SBEM (or variants) so that they can be used by installers to determine deemed heat loads for the range of domestic and non-domestic space heating installations covered by the small and medium-scale tariffs.

SAP is currently under review with a view to producing a revised version of the methodology (SAP 2009), which is anticipated to come into operation later this year. We anticipate that the new additions will help in our assessment of the deemed heat requirement for the dwelling.

We envisage that for householders the deeming process will establish the deemed heat load for a property based on the average heat load of a property of the same type with reasonable energy efficiency measures installed (for instance cavity wall and basic loft insulation). Annex 2 contains examples of useful energy for heat based on BRE standard house sets developed for CERT.[37]

Energy Performance Certificates

New buildings will have an Energy Performance Certificate (EPC) already setting out the actual heat requirement and we propose using this as the starting point for the deeming process for the heat load.

In many cases, using the heat load from the EPC rather than a deemed average from SAP/SBEM will be more appropriate for new buildings where these will have been constructed to more stringent energy efficiency requirements than older properties, and will have a smaller heat requirement than the average. Using the lower heat load from the EPC and lower resulting total RHI compensation would therefore be appropriate.

We will need to consider whether it would be appropriate to take the heat load appearing in EPCs – without any modifications – as the heat load to be used for calculating RHI payments in all situations of deeming for new buildings; it may be necessary for the deeming procedure to calculate the appropriate RHI payment according to an adjusted heat load rather than purely on the EPC data. In particular, in situations where there may be a risk of builders using renewable heat installations as a way of avoiding installing far-reaching energy efficiency measures for new builds ahead of stricter Building Regulations coming into force in 2013 and 2016 (see the section on energy efficiency in Chapter 2).

37 We will also consider whether it would be feasible and appropriate to take climatic differences across the UK into account in establishing the deemed heat load.

Transitional arrangements for deeming

We will develop the deeming methodology over the course of 2010. As set out in our Renewable Energy Strategy, installations completed after 15 July 2009 would be eligible for RHI support from April 2011 as if they had been installed then. It will be important to indicate how installations will be treated that have been completed before the deeming procedure has been finalised. See Chapter 5 on transitional arrangements, setting out how small-scale installations completed during the interim period can use a simplified procedure for establishing the deemed heatload.

Practicalities of heat metering

Accurate metering of electricity is more common, easier and cheaper than heat metering. Given that heat meters are not regulated in the UK, there is currently no legal requirement for them to be approved or verified prior to being put into use. However, a set of standards for the design and installation of heat meters exists under British Standard EN 1434.[38] Where metering is required under the RHI, we propose that the meters should meet the requirements to provide a good degree of confidence to consumers that the devices are reliable. We propose to look further into the question of appropriate regulation of heat meters for the RHI together with the National Measurement Office to consider how fair and accurate measurement can be realised.

Where metering is used, we propose a requirement that the installation does not have any outlet valves that could be used for heat dumping after the point where the heat meter is installed. This would help ensure that only useful heat is compensated.

Multiple technologies on the same site

At sites where multiple technologies are in use (for instance a heat pump and solar heating panels) each will be eligible for the relevant RHI tariffs, provided that the technologies meet the individual eligibility criteria. At the smaller scale, we propose to ensure that the deeming assessment will assess the contribution of each technology towards the overall heat load and allocate the resulting appropriate fraction of the total deemed heat load to each technology for the purpose of calculating RHI entitlement.

Q12: Do you agree with our proposals on where we should meter and where we should deem to determine an installation's entitlement to RHI compensation?

Q13: Do you agree that a process based on SAP or SBEM for existing buildings or the Energy Performance Certificate for new buildings is the best way of implementing deeming? Do you have any suggestions on the details of how this assessment process should work?

Q14: Do you agree that at the large scale/in process heating, where we propose metering, the risk of metering resulting in a perverse incentive to overgenerate is low? How could we reduce it further within the constraints of using metering, to ensure only useful heat is compensated? Do you see any practical difficulties concerning use of heat meters (such as on availability, reliability or cost of heat meters) and, if so, how should we address them?

Table of tariffs

The following table sets out the proposed tariff levels to apply from the start of the RHI in April 2011. These tariffs will also be available to eligible projects where installation was completed before April 2011 (see Chapter 5 on transitional arrangements).

The tariffs are proposed to be available equally to dedicated heat installations and for the heat output of CHP installations, and to on-site installations and installations serving district or community heating networks. In addition, we are minded to provide a tariff uplift for district heating, see the section on district heating below.

Small installations (1)

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered (3)	Tariff lifetime (years)
Solid biomass	Up to 45 kW	9	Deemed	15
Bioliquids (7)	Up to 45 kW	6.5	Deemed	15
Biogas on-site combustion (5)	Up to 45 kW	5.5	Deemed	10
Ground source heat pumps (8) (9)	Up to 45 kW	7	Deemed	23
Air source heat pumps (9)	Up to 45 kW	7.5	Deemed	18
Solar thermal	Up to 20 kW	18	Deemed	20

Medium installations

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered (3)	Tariff lifetime (years)
Solid biomass	45-500 kW	6.5	Deemed	15
		2 (fuel tariff)	Optional: for metered kWh above deemed number of kWh	15
Biogas on-site combustion (5)	45-200 kW	5.5	Deemed	10
Ground source heat pumps (8)(9)	45-350 kW	5.5	Deemed	20
Air source heat pumps (6)(9)	45-350 kW	2	Deemed	20
Solar thermal (6)	20-100 kW	17	Deemed	20

Large installations

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered	Tariff lifetime (years)
Solid biomass (4)	500 kW and above	1.6 – 2.5	Metered	15
Ground source heat pumps (8)(9)	350 kW and above	1.5	Metered	20

Biomethane injection

Technology	Scale	Proposed tariff (pence/kWh) (2)	Deemed or metered	Tariff lifetime (years)
Biomethane injection	All scales	4	Metered	15

Notes:

1. HM Treasury/HM Revenue will clarify the treatment of RHI payments for income tax purposes in due course.
2. Proposed tariff levels have been rounded to the nearest half pence and are in 2009 prices and would be recalculated to 2011 prices for the start of the RHI in 2011, taking into account inflation. We also intend to adjust tariff levels for inflation going forward for both new and existing projects.
3. The information in this table on where we propose to meter and where to deem is simplified. In particular process heating and district heating are proposed to be metered regardless of technology and size. See the section on metering and deeming above for more detail.
4. **Large biomass.** We propose to provide the same tariffs for biomass CHP and biomass used for heat-only. RHI compensation for large-scale CHP under the large-scale biomass tariff would compare to support currently available under the Renewables Obligation for the heat part of CHP in the form of a half-ROC uplift.[39] Analysis undertaken on the cost of large-scale heat-dedicated biomass boilers suggests that their required support level may be lower than the equivalent of the half-ROC uplift for biomass CHP under the RO. Our current proposal for the large-scale biomass tariff as set out in the tariffs table reflects this variation by indicating a range of tariff levels. Over the coming year more analysis will be conducted to define the right compensation level for these technologies, and we welcome views from stakeholders on this issue.

Q15: What is the right incentive level required to bring forward renewable heat from large-scale biomass including in the form of CHP while minimising costs to consumers?

5. **Biogas combustion.** The biogas tariffs are proposed to apply to all forms of biogas including syngas. Injection of biomethane into the gas grid is subject to a separate tariff. We will need to consider the approach on RHI tariff(s) for biogas combustion above the ones proposed up to 200 kW. We have calculated the proposed tariffs up to 200 kW on the basis of the costs of dedicated heat installations. Above 200 kW, biogas combustion installations may more likely come forward in the form of CHP, in which case it could be more appropriate to calculate the RHI tariff for biogas combustion at such sizes on the basis of the additional cost for CHP to be compensated in addition to the compensation available through the Feed-in Tariffs. We welcome views from stakeholders on this issue.

39 This refers to half of the full current ROC price.

Q16: What is the right incentive level required to bring forward renewable heat from biogas combustion above 200 kW including in the form of CHP while minimising costs to consumers? Do you have any data or evidence supporting your view?

6. **Air source heat pumps and solar thermal.** We currently have do not have sufficient data on air source heat pumps above approximately 350 kW, and solar thermal heat above approximately 100 kW to inform decisions on tariffs above these scales (in addition to the data gap on biogas combustion above 200 kW as mentioned in note 5 above). We would welcome any available evidence which indicates whether tariffs above these sizes are needed, and at what level they should be set.

Q17: Do you have any data or evidence on the costs of air source heat pumps above 350 kW or solar thermal above 100 kW?

Although we would endeavour to introduce any appropriate tariffs for larger-scale air source heat pumps, solar thermal and biogas combustion in time for the 2011 start of the RHI, this would depend on obtaining sufficiently robust cost data in time.

7. **Bioliquids.** All tariffs are given for 100% renewable use. The bioliquids tariff will only be available for the renewable fraction of the blend used. See the section on mixed fuels further below in this chapter for the proposed treatment of installations with part-renewable operation, or part-renewable input fuels.

8. **Heat from the ground.** The tariffs for ground source heat pumps are also intended to cover other eligible heat from ground energy such as geothermal. See also Chapter 4 (section on innovation).

9. **Water source heat pumps.** We intend to include water source heat pumps as eligible either for the tariffs of ground or air source heat pumps. We invite views as to which of these are more appropriate for water source heat pumps given their cost levels.

Example of calculating RHI entitlement

A household's useful energy demand for heat averages 15,000 kWh per year. The property is a three bed semi-detached house with cavity wall type construction.

A switch from current gas use to a combination of biomass and solar thermal is being considered. Under the proposed deeming approach based on an on-site assessment by an accredited installer, the process for determining the level of RHI compensation could be as follows.

The installer determines that a reasonable space heating requirement for this property is 10,000 kWh, taking into account some straightforward energy efficiency measures the household could implement, for instance installing loft and cavity wall insulation. Hot water will require approximately 3,700 kWh/year.[40] The total deemed heat load in this situation would therefore be 13,700 kWh/ year.

He might conclude that solar thermal panels would provide 60% of the hot water requirement (2,200 kWh), with the biomass boiler providing the rest (1,500 kWh) as well as the space heating requirement (10,000 kWh).

In this case the RHI entitlement would be:

2,200 kWh x 18p = about £400 per year for 20 years

11,500 kWh x 9p = £1,035 per year for 15 years

Total RHI payments would be over £1,400 per year for the first 15 years (and around £400 per year for the following 5 years). This amount would be paid as a fixed (deemed) annual amount regardless of actual energy use (subject to the terms set out by the RHI such as continuing to use the equipment).

Q18: Do you agree with the proposed approach to setting the RHI tariffs, including tariff structure and rates of return? Do you agree with the resulting tariff levels and lifetimes? If not, what alternatives would you prefer, and on the basis of what evidence?

40 This is consistent with the BRE Standard House Set figures provided in Annex 2 where a property of this type is deemed to require 9,674 kWh/year for space heating and 3,742 kWh/year for hot water.

Mixed fuel use

Where an installation can generate heat from both renewable and non-renewable fuels, the RHI tariff should only reward the renewable component of the mixed fuel load. These situations will usually involve CHP or district heating installations, using energy from waste.

At the **small scale**, the only situation of mixed fuel use we envisage is the use of bioliquids in converted heating oil installations. As stated in Chapter 2, supported bioliquids will likely, at least in the initial years, be blends with fossil fuels. The tariff proposed for these installations would only be paid for the certified renewable content (which in the initial years we expect to be around 30% of the fuel blend).

In all other situations, except in the case of municipal waste (see below), the RHI will require the use of separate boilers (with a dedicated boiler for the renewable fuel), and RHI support will be paid on the metered useful heat output from the renewable fuel boiler.

Where the plant is used to generate heat from municipal waste, our proposed approach follows the principles of the Renewables Obligation Order 2009.[41] It may in practice not be feasible to separate the biomass content of the waste stream. Accordingly we propose to allow mixed waste to be combusted in a single boiler. Equally, it may be difficult to carry out ongoing metering of input fuels. In line with the RO, we therefore propose that, subject to establishing sufficient evidence for Ofgem that the fossil fuel content is unlikely to exceed 50% and that the municipal waste has not been subject to any process before being used that is likely to have materially increased that proportion, generators can agree with Ofgem that 50% of the full RHI biomass tariff be paid.

Our approach to the use of mixed fuels under the RHI is summarised in the table below:

	Small	**Medium/large**
Bioliquids	Certified renewable content	(Not eligible)
Energy from waste (CHP)	(Not applicable)	RHI proportion determined on basis of agreeing with Ofgem sufficient evidence for 50% fossil fuel content; additional supporting evidence required for claiming less than 50% fossil fuel content

41 www.opsi.gov.uk/si/si2009/pdf/uksi_20090785_en.pdf

Q19: Do you agree with our proposed approach on mixed fuels? Do you agree with our proposal that, at larger sites, with the exception of EfW, RHI will require the use of a dedicated boiler for the renewable fuel? Where our approach is to follow the Renewables Obligation, do any aspects need to be adapted to account for the different situation of renewable heat?

District and community heating

District heating, whether in the form of a central boiler for an apartment building, or as a network of pipes delivering heat from a central installation to a number of local households or businesses, can be a useful and cost-effective alternative to installing individual heating systems in individual properties.

As a starting point we propose that district heating installations have the same access to RHI tariffs as other systems.

The financial viability of district heating projects depends not only on the costs of generation, as networks require pipes and other infrastructure to deliver the heat to the consumers. The legislative powers provided for implementation of the RHI under the Energy Act are aimed at providing support for renewable heat only, rather than district heating more broadly. We nevertheless believe that there are good reasons for considering additional support through the RHI to help with the costs of infrastructure.

In particular, district heating may in certain cases be the only viable option for delivering renewable heat. In these "hard to treat cases" it may be physically impossible or disproportionately expensive to install individual renewable heating as a result of, for example, space constraints in tower block apartments or particularly dense urban areas. Here, the stand-alone tariffs proposed would either be irrelevant or not high enough, and a district heating uplift could be a cost-effective way of increasing the potential uptake of renewable heat.[42] We are therefore minded to provide an uplift to the proposed RHI tariffs based on district heating networks supporting hard to treat properties, subject to further analysis.

In particular, we currently do not have sufficient evidence to propose the level of such uplift. Annex 3 contains a call for evidence to help determine any uplift.

42 Studies also suggest that in many cases district heating provides more cost effective carbon reductions than individual renewable heat installations. These better carbon savings and the contribution of district heating are important given the UK's wider targets for energy and climate change. However, it is likely that this better carbon efficiency exists predominantly in situations where there are very high heat load densities, reducing the length of pipe and improving project economics. Since these situations are also likely to represent the hard to treat cases referred to above, for the sake of simplicity, we will assume that where properties are hard to treat, they also represent better carbon savings than the alternative individual renewable technology.

We propose that a district heating uplift would only be available where the network is built simultaneously with the installation of boiler eligible for the main RHI tariff. Where a network already existed, the uplift would only be available if the network is extended with or after the installation of the eligible boiler, and in this case all calculations will be based on the part of the network's heat output that serves the customers connected through the extension.

We propose to calculate the level of any uplift by taking into account the likely extent to which district heating networks will supply hard-to-treat properties, but it may not be practical to check this for each individual case, and to make any uplift subject to supplying a minimum level of hard-to-treat properties in each individual case.

We also propose that, for the purpose of receiving an uplift, district heating would be defined as a situation with a minimum number of customers, for instance 10. We do not believe that an uplift should be available, for instance, in a typical combined heat and power situation with one or a small number of external heat users located close to the CHP plant. In these situations the costs of exporting the heat to these clients would already have been included in our standard cost calculations for CHP, and the available main tariffs for both renewable electricity and heat output should suffice to cover these costs.

RHI support will be available to the extent that the district heating system provides renewable heat.

Q20: Do you believe that we should provide an uplift for renewable district heating?

Q21: Do you believe that an uplift should be available to all eligible district heating networks, or that eligibility should be determined on a case-by-case basis depending on whether a network contributes to the objective of connecting hard-to-treat properties (and, if the latter, how should we determine this for each case)? Do you agree that situations of one or a small number of large external heat users should not be eligible for an uplift, and, if so, what should be the minimum eligibility requirement for an uplift (expressed for instance as a minimum number of external customers)?

See Annex 3 for a call for evidence needed to help calculate the level of any uplift.

Chapter 4

The RHI beyond 2011

Our proposals throughout this document describe the intended design for the RHI at the start of its operation in April 2011. This chapter considers whether tariff levels should be fixed for the lifetime of projects once installed, how we intend to respond to changing circumstances over the years by reviewing the RHI and how we intend to consider innovative technologies that may make a contribution in the longer term.

Fixed levels of support

Government is likely to alter tariff levels for new projects from time to time to respond to changes in technology costs and other circumstances. However, once installation of a project has been completed, investors will consider it important that its support levels are not changed later on. Such a guarantee not to change support for existing projects is known as grandfathering.

For renewable heat there are nevertheless reasons to consider that fixed or grandfathered support levels for the lifetime of projects' entitlement of support might not deliver the kind of certainty investors need. Most of the available renewable heat technologies have significant ongoing fuel costs (e.g. the cost of solid biomass or bioliquids, and that of electricity in the case of heat pumps). If these costs were to rise, fixed RHI tariffs might make continued operation of the renewable heat installation less attractive, which is a risk from the generator's point of view. If the costs were to fall, fixed tariffs could over-reward existing projects, which is a risk from the perspective of keeping the RHI costs under control.

Given that the RHI is intended to cover the cost difference between renewable heat and the cost of fossil fuel, these considerations not only apply to fluctuations in the price of input fuels for fossil fuels heat, but also the price of fossil fuels. For example, if gas prices go up, an RHI tariff that compensates for the cost difference between gas and renewables could arguably go down, and vice versa.

We are nevertheless inclined to provide the RHI tariffs as fixed (grandfathered) tariffs:

- In general, attempting to build tariff fluctuations into the RHI would make the scheme significantly more complex. For biomass in particular, it would be very difficult, certainly in the near future, to find a reliable price index. Also for electricity and gas prices no single transparent price index exists at present. We are currently considering under the Renewables Obligation whether we could determine a usable index of wholesale electricity prices (as part of our work on so-called contracts for difference),[43] but this would not produce an index of consumer prices, and in any case it is still uncertain if and when this can be produced. Unless we could find an objective and transparent methodology that would give investors clarity on how the support would fluctuate, such an approach might in practice not be perceived by the market as giving greater certainty on investment returns.

43 www.decc.gov.uk/en/content/cms/consultations/elec_financial/elec_financial.aspx

- One of the principal reasons for switching to renewable heat will be reduced exposure to future rises in fossil fuel prices. Reintroducing this effect into the RHI would take away what is for many one of the major attractions of renewable heat.

An alternative option would be to commit to full grandfathering for tariffs other than the bio-energy tariffs, and for bio-energy to exclude the part of the tariffs intended to compensate for bio-matter fuel costs from grandfathering, but grandfather the remaining parts of these tariffs. We could split the bio-energy tariffs proposed in Chapter 3 into a fuel component and a non-fuel component for this purpose. Providing a different grandfathering regime for biomass would be more consistent with the Renewables Obligation.

Q22: Do you agree that RHI tariffs should be fully fixed (other than to correct for inflation) for the duration of any project's entitlement to RHI support? Do you agree that we should include bio-energy tariffs, including the fuel part of those tariffs, in such a grandfathering commitment?

The value of heat sold to third parties

The RHI will provide compensation in addition to the benefit that a renewable heat generator gets from the avoided cost of gas or other fossil fuel. Where the heat is sold by the generator to a third party instead of being used on-site (e.g. in the case of district heating, or injection of biomethane into the grid), the equivalent benefit to savings on fossil fuel bills is the actual revenue received by the generator from the sale of the heat or biomethane.

Although we are proposing that the RHI tariffs be paid as fixed (guaranteed) tariffs, we do not propose to regulate the price that generators can receive for such sales of heat or biomethane to third parties. Our approach is thus similar to the Renewables Obligation, where generators are free to secure a price in the market place for their electricity (on top of the compensation provided by the RO in the form of Renewable Obligation Certificates). As under the RO, those selling heat or biomethane under the RHI will likely be professionals used to working in a commercial environment and as such they can be expected to negotiate appropriate sales arrangements for their heat and biomethane. A fixed price for exported heat could add disproportionate complexity to the RHI, possibly involving an obligation on the suppliers of grid gas to pay the export tariff for biomethane, as well as a process that equalises the costs between gas suppliers.

Degression

Over the years we expect the costs of renewable heat equipment to fall as the industry matures and economies of scale are achieved, both in the UK and globally. As a result we would look to reduce RHI support levels for new projects accordingly, to ensure

that the scheme delivers value for money. As discussed below, periodic reviews of the RHI will allow us to reassess technology cost levels as appropriate.

When it comes to the periods between reviews, there is a useful, alternative concept which has been applied in renewable electricity schemes in other countries; this is known as "degression". Under this approach, support levels would drop by a given percentage (e.g. 3%) each year for new projects built in that year. Existing projects would be unaffected.

We do not propose implementing degression from the outset as there are such significant uncertainties in costs and initial take-up of renewable heat technologies. However, we believe that degression could be a useful means to ensure that the costs of the RHI are kept down, as it ensures that tariffs reflect falling capital costs of the technologies and so do not provide greater support than is necessary. We will therefore consider the case for introducing degression at the first regular review.

Q23: Do you agree with our proposal not to introduce degression from the outset of the scheme but consider the case at the first review?

Innovation

Our 2020 renewables target is less than a decade away, and our priority is therefore to introduce the RHI as quickly as possible. In order to achieve our objective of starting the RHI in April 2011, the focus for now must be on introducing the scheme in a way that works for the most commonly-used technologies. We have therefore set each tariff level on the basis of the cost of what we consider to be the most mainstream applications of the energy source in question. For example, the tariffs for energy from the ground are based on the cost of ground source heat pumps rather than deep geothermal energy.

At the same time, we recognise the importance of encouraging potential future options not yet available for mainstream use, in order to maximise our available low carbon solutions for the longer term beyond 2020. We therefore propose to define the technologies eligible for each tariff widely, to avoid unintentionally excluding options. This will allow emerging technologies that meet the eligibility criteria to benefit from the relevant mainstream tariff, even where they may not get a dedicated tariff. For example, syngas would be eligible for the biogas tariff. Also, in the absence of any current wide-spread application for renewable heat from water sources, we intend to make water source heat pumps eligible for the tariffs aimed at ground or air source heat pumps.

Innovative technologies often still have higher costs than the respective mainstream technologies and dedicated, higher tariffs might therefore be the most effective way of helping such technologies to come forward. We will at the first full review of the RHI consider whether there is scope for more dedicated tariffs. In addition, as set out in the

Renewable Energy Strategy, a range of policies outside the RHI already exists to support emerging and innovative technologies.[44]

We are also conscious of the need to keep encouraging innovation, including on cost reduction, in the mainstream technologies for which we are proposing dedicated tariffs. This would be particularly desirable for solar thermal, which is currently significantly more expensive (per unit of heat generated) than the other technologies. Suggestions have been made that this cost could be reduced by applying international best practice, for instance using solar thermal as a contributor both to hot water and space heating requirements, rather than the more common installation in the UK where solar thermal contributes to hot water only. We welcome views on how to encourage such best practice and other cost-reducing innovations. Options include reducing tariffs over time (for instance through reviews or degression, as explained above) to encourage the market to reduce costs, or to make eligibility for RHI support subject to meeting certain best practice or cost-reducing installation features.

Q24: Do you agree with our proposed approach on innovative and emerging technologies?

Q25: Do you have any views on how we should encourage technology cost reductions through the RHI, particularly on solar thermal heat?

Duration of the RHI and reviews

Fixed tariff levels can provide one form of investor certainty. But it is also important to provide long-term certainty to the renewables sector on the availability of support, giving the market the confidence to invest, and allowing supply chains to develop. This is why in the Renewable Energy Strategy we committed to keeping the RHI open to new projects until at least 2020. Even if we later decided that, after 2020, new projects no longer needed RHI support, the scheme would continue to pay out for many years after 2020, until all RHI projects had received the full length of their support entitlement.

Notwithstanding our long-term commitment to the RHI, or perhaps because of the very nature of the RHI as a long-term policy, we will need to review the RHI and its tariff levels from time to time to adapt to changes in technology costs and other circumstances. Such reviews are established practice in existing renewable electricity support schemes, both in the UK and internationally. Under our grandfathering proposals outlined above, such reviews would only affect new projects installed after review changes come into force.

44 The UK Renewable Energy Strategy, HM Government, July 2009, pp. 136–138.

Reviews will be an opportunity to reconsider also various aspects of the RHI other than the tariff levels. We expect to take the opportunity to assess the operation of the scheme and to evaluate the ease of use of the scheme for RHI recipients.

We intend where possible to align the timing of RHI reviews with those of our other renewable energy support schemes, thereby increasing the coherence level between schemes. Avoiding staggered reviews will give investors greater certainty across the range of support schemes. For the first review this may not be possible. The next planned review of the Renewables Obligation is scheduled to be implemented in 2013, and for the Feed-in Tariffs we have proposed the same timing for its initial review.

For the RHI this would mean that the first review would take place barely one year after the launch of the scheme, providing only very limited experience on which to base any changes. However, we expect to start the RHI first review in 2013 to ensure some coherence with the RO and FITs, and to come into effect in 2014/15.

In addition, as we are dealing with an immature market, we also propose to establish a process for enabling a review to take place should a significant occurrence happen between regular reviews. For example, we may receive evidence of a significant change in costs of technology or levels of take-up which may necessitate an emergency review. We propose to work closely with our stakeholders over the next few months to determine situations that may trigger an emergency review in order to set appropriate criteria.

Q26: Do you agree with our proposed approach to reviews, and the timing and scope of the initial review?

Q27: Can you provide examples of situations that could be taken into consideration in determining criteria for an emergency review?

Chapter 5

Interaction with other policies

Interaction with other Government policies

The intention of the Renewable Heat Incentive (RHI) is to increase the use of renewable technology in heat generation. Financial incentives for renewables also exist or are being introduced for other energy sectors, in particular the Renewables Obligation (RO) and Feed-in Tariffs for renewable electricity, and the Renewable Transport Fuel Obligation for renewable transport.

Policies other than financial incentives can also have an impact on renewables deployment, such as those aimed at reducing carbon emissions or increasing energy efficiency through regulations. We do not intend for the RHI to make any special provisions for such schemes, but to provide the same access to the RHI for all, whether or not they are targeted by other regulations.

However, we want to avoid the situation in which eligibility for the RHI results in the diversion of effort away from the primary objectives of such other schemes which, for example, promote energy efficiency or the use of building insulation. Other policies may therefore put in place limitations for receiving support under the RHI. This will mainly be the case for schemes designed to support non-renewable low-carbon solutions such as energy efficiency. Such restrictions (including consultation thereon) are dealt with as part of the decision-making process for those schemes, outside the implementation process for the RHI.

Policies (other than financial incentives) affecting renewable heat

- **Carbon Emissions Reduction Target (CERT)** – The CERT mandates energy suppliers to provide measures that deliver carbon dioxide savings from domestic properties. It is aimed largely at improving domestic energy efficiency. Under the Low Carbon Building Plan the plan is to extend CERT to the end of 2012. A consultation was published at the end of 2009 which included proposals to include an additional target based on tonnes of CO_2; a new Super Priority Group of low income vulnerable households; and measures to stimulate the promotion of insulation measures (including where supported by RHI). The recent consultation on the extension to CERT also asked whether micro-generation measures should remain eligible measures under the CERT extension. If so, the consultation also asked whether any new rules be adopted e.g. that these measures or subsets of these measures only remain eligible to Priority Group (and proposed Super Priority Group) households or no longer be eligible for a carbon uplift.

- **Community Energy Saving Programme (CESP)** – Under this scheme, energy companies must deliver low-carbon measures in a "whole-house" approach to homes in low-income communities. The companies concerned can deliver measures from a prescribed list, including renewable as well as other low-carbon solutions, to fulfil the obligation. Where renewable heat is supported by the RHI this will not prevent such heat from being counted towards fulfilment of the CESP obligation.
- **Voluntary Reporting Guidance (VRG)** – This refers to the guidance to organisations on how to measure and report their greenhouse gas emissions www.defra.gov.uk/business/reporting/index.htm. The Guidance recommends that organisations generating heat from 'owned or controlled' renewable heat sources such as solar thermal can account for this at zero emissions.
- **CRC Energy Efficiency Scheme**[45] – The CRC is designed to increase energy efficiency in large public and private sector organisations – for example local authorities, service industries and retailers. It is designed to drive behaviour and infrastructure change to achieve carbon reductions, primarily through energy efficiency and fuel switching. All heat production, regardless of origin, is zero rated under the scheme, although carbon allowances must be surrendered for fuel supplies to (non EU ETS) combustion plants. In contrast, all electricity supplies will be considered as grid average, with 'Electricity Generating Credits' available in some specific circumstances for electricity generation.
- **Zero Carbon Homes** (and other building regulations) – Under this policy, all new homes in England will from 2016 have to comply with zero carbon building standards. In the interim, building standards for new homes are being tightened step by step. The policy will mandate high level of energy efficiency in zero carbon homes. **We intend that certain on-site renewables including where supported by the RHI count towards the zero carbon standard.** The Welsh Assembly Government is also working towards zero carbon homes, with the intention that all new buildings in Wales will be zero carbon from 2011. The devolution of building regulations is being pursued in order to help achieve this goal.
- **Zero carbon new non-domestic buildings** – The Government is currently consulting on the ambition that all new non-domestic buildings be zero carbon from 2019, with the public sector leading the way from 2018. **Energy efficiency and on-site renewables, including where supported by the RHI, would count towards this standard.** The expectation is for larger non-domestic buildings to act as anchor loads for community-wide heat schemes and/or to export heat to surrounding buildings.

45 formerly Carbon Reduction Commitment.

Transitional arrangements

We announced in the Renewable Energy Strategy (RES) that we would give access to RHI tariffs to projects installed before the start of the RHI in April 2011, namely where they completed installation after the publication date of the RES (15 July 2009). We believe that this will have encouraged and will continue to encourage projects to build now rather than wait until the introduction date of the RHI. Such projects, where they meet the RHI eligibility requirements, will receive RHI support from the start date of the scheme, which we propose will be in April 2011, as if their installation had been completed on the start date, i.e. for the same tariff lifetime and at the same tariff level as new projects completed on such a date.

We are proposing that projects where an installation was completed before 15 July 2009 will not be entitled to RHI support. It has been suggested that some existing bio-energy projects in particular should receive some support because otherwise it would not be financially viable for them to continue operating, but we do not have any evidence to support this.

As set out in Chapter 2, we propose that only new installations (including where they replace existing installations) are eligible, so installations completed before the above cut-off date would not become eligible by carrying out refurbishment, repairs or conversions after the above cut-off date (with the exception of domestic heating oil installations). We are open to views as to the types of situations that should be defined as new or replacement installations on the one hand or refurbishment, repair or conversion on the other hand.

Q28: Do you agree with our proposed approach to allow access to RHI support to new projects where installation completed after 15 July 2009, but not before? Do you have any evidence showing that in particular situations RHI support for installations existing before this date would be needed and justifiable?

Transitional arrangements regarding deeming for small-scale installations

We committed in the RES that installations completed in the interim period between the publication of the RES and the start of the RHI would be eligible for RHI support as if they had been completed at the start of the RHI in April 2011. This means that such installations will, for instance, start receiving support payments from 2011 in the same way as installations built in 2011, and that they will be subject to the same eligibility and other requirements as such installations.

As set out in Chapter 3, we are proposing that one of these requirements – for most small and medium installations – will be to establish the installation's estimated (or "deemed") heat demand. We will develop the deeming methodology over the course of 2010, but in the meantime it will be important to indicate how installations will be

treated that have been completed before the deeming procedure has been finalised, in order to give such projects the certainty they need to go ahead now rather than in 2011 or later.

We therefore intend to apply the following transitional arrangements to installations completed between the date of this consultation document (1 February 2010) and the start date of the RHI.

In case of eligible renewable heat projects in existing buildings, the applicant will need to submit statements to Ofgem from at least two installers certified under the Microgeneration Certification Scheme (MCS) (or equivalent), stating:

- the installer's estimate of the annual useful space heating and hot water requirement in kWh (the "**heat load**");
- where the project in question includes solar thermal: the installer's estimate of the proportion of this heat load to be served by the solar thermal installation; and
- that the estimate of the heat load (and, where applicable, the estimate of the contribution of solar thermal) has been produced using SAP or, as appropriate, SBEM.

Ofgem will apply the lowest estimate(s) as the basis for the project's RHI entitlement.

Where renewable heat is installed in new buildings, the heat load will be as set out in the building's Energy Performance Certificate (EPC); in addition, where the installation in a new building includes solar thermal, the transitional arrangement set out above for deeming the contribution of solar thermal in existing buildings will apply, unless the EPC provides this information as well.

We will apply these transitional arrangements to small-scale installations only (installations covered by the small-scale tariffs as set out in Chapter 3), and only where, following completion of the project:

- the renewable heat installation will be the sole fixed heating installation in the property (not counting any immersion heater that may form part of such installation), or
- solar thermal panels and one other (renewable or non-renewable) installation will be the only fixed heating installations in the property.

Other installations completed during the interim period will need to satisfy the final requirements of the RHI as if they had been completed when the RHI starts in April 2011.

Installations eligible for these transitional arrangements may still instead use the final procedures once available, if they prefer.

These transitional arrangements will apply instead of the final deeming requirements to be put in place for establishing RHI entitlement, but they do not replace other parts of

the registration process, as indicated in Chapter 1, or other eligibility criteria, as proposed in Chapter 2, or any of the other proposals in this consultation document.

Grants

Where a project is otherwise eligible for RHI support but has received or receives a central Government grant, we may require that such grant monies be paid back in order for the project to be eligible for RHI support. As stated in the RES, we will not require this for grants received at the domestic level before the start of the RHI. At this level, householders will not have to pay back central Government grants in order to receive RHI support. RHI eligibility will also not be limited where grants other than those funded by central Government (i.e. European or local grants) are taken up. However, in all these situations, State Aid limitations may nevertheless restrict the extent to which generators would be able to combine RHI support with grant support.

Combined heat and power

Since April 2009 the RO has provided an uplift to support renewable combined heat and power. In most cases the RO grants an additional 0.5 Renewable Obligation Certificates (ROCs) per MWh of electricity produced from a renewable CHP plant over that generated by an electricity-only system using the same technology.

This RO uplift is subject to meeting the "Good Quality" requirements of the CHPQA scheme, aimed at maximising the generation of both electricity and "useful heat" in the absence of a specific incentive for heat generation. We believe that direct RHI support for the heat output of CHP will in itself provide a suitable incentive to generators to balance electricity and heat output efficiently without the need for the controls imposed by the CHPQA. We therefore propose not to require CHPQA for RHI eligible CHP.

Under our proposals in this consultation, CHP installations will be eligible for the same RHI tariffs for their useful renewable heat output as dedicated renewable heat installations. The introduction of dedicated RHI support for heat raises the question of the status of the RO uplift for CHP. Separating out support for renewable CHP into discrete instruments for heat and electricity will provide greater policy clarity. More importantly, it could provide a stronger incentive to operators to increase the use of heat output beyond minimum standards. This increase in overall efficiency would lead to greater renewable output and progress towards renewables targets, as well as energy and carbon savings. The following transitional arrangement is proposed:

Renewables Obligation

- For RO-eligible CHP stations installed after the publication of the Renewable Energy Strategy, we will offer a one-off choice to claim RO + uplift, or RO (without uplift) + RHI. Once a station has become accredited under the RHI as well, it will not be possible to reverse this decision.
- This transitional arrangement would be available for new installations completed before the implementation of the review of the Renewables Obligation in 2013.
- Operators of such CHP stations could decide between uplift and RHI at any point between the start of RHI in 2011, and 2013.
- Once the choice is made, stations will be "grandfathered" on this basis.
- After 2013 the RO uplift will no longer be available for new installations, and all new CHP stations will be able only to claim the basic RO tariff + RHI.

Feed-in Tariffs

- The Feed-in Tariffs (FITs) will not offer any compensation or uplift for heat output of CHP. As regards the useful heat output of FITs-eligible CHP installations, we propose that normal RHI eligibility criteria (as set out throughout this document) will apply.

A number of issues need to be addressed in moving towards separate support for heat and electricity output under the RHI, RO and FITs. These include administrative and compliance costs, and consistency with European laws such as the Cogeneration Directive.

Chapter 6

Administration

Role of administrator

Ofgem will be responsible for the overall administration of the RHI. It will make incentive payments to RHI recipients and deal with the auditing and enforcement of the scheme.

We believe that Ofgem is the best placed body to administer the RHI. It has administered the Renewables Obligation for a number of years, and from April 2010, is due to be taking on the management of the Feed-in Tariffs scheme (FITs). Both of these schemes offer financial support to increase the deployment of renewable electricity. Ofgem can build on its experience to help ensure that the RHI operates as effectively and efficiently as possible.

Ofgem has recently been restructured to reflect its increasing role in delivering the Government's environmental programmes. In September 2009, it announced the creation of E-serve.[46] This body will focus on the administration of environmental programmes, and the delivery of sustainability projects such as offshore wind, smart meters, the proposed carbon capture and storage levy and Feed-in tariffs, as well as the RHI.

Compliance

While we expect the vast majority of owners of heat generating equipment to comply with the rules of the RHI, it is important that there is an effective auditing and compliance regime in place for those that do not.

Non-compliance could take a number of different forms. RHI recipients could provide incorrect meter readings leading to higher incentive payments being made, equipment could be used inappropriately, or, where technology is deemed, they could stop using the equipment or even sell it, yet continue to receive RHI tariffs. Accredited installers could install equipment that does not qualify for support yet falsely claim that it does, or deem the heat demand to be higher than appropriate.

As with any scheme, there will be a spectrum of non-compliance, ranging from those who inadvertently break the rules owing to an honest mistake, to those who deliberately flout the law for financial gain. It is important, therefore, that Ofgem has an auditing and enforcement regime which is effective, proportionate and sufficiently flexible to identify and deal with the full range of non-compliance.

Auditing

As set out in Chapter 1, the onus will be on the owner of the renewable heat equipment to comply with the rules of the RHI. When the technology is installed, in order to receive RHI payments, we propose that the owner of the equipment should be asked to sign a declaration that they agree to meet their obligations under the scheme

46 www.ofgem.gov.uk/e-serve/Pages/e-serve.aspx

(e.g. keeping the equipment working and well-maintained). We then intend Ofgem to require further declarations (e.g. annually) from the owner confirming that they continue to meet their obligations and still qualify for incentive payments.

Ofgem already has governance, auditing and assurance procedures in place, some of which will be suitable for use with the RHI. As a general principle, where existing procedures exist, such as those used for the Renewables Obligation or Feed-in Tariffs, we will look to replicate the auditing procedures. These include automated checks, together with ad-hoc and scheduled audits and assessments.

In line with the principles of the Hampton Review of regulatory inspection and enforcement,[47] we expect Ofgem to take a risk-based approach to auditing, where the procedures used are proportionate to the potential impact of non-compliance. Procedures could include random spot checks or tests (for instance equipment tests). In taking this approach, Ofgem will need to consider the burden, time and cost of further investigative work and weigh these against the potential costs to energy consumers and the taxpayer more generally from non-compliance.

Accredited suppliers

At the smaller scale, we have proposed that accredited installers should only install equipment that meets the required European standards and our proposed deeming process aims to ensure that it is appropriately sized for the location. There is a risk that installers could breach these requirements in order to gain financially (e.g. apply the deeming procedure incorrectly to over-estimate heat demand). We will work with Ofgem and the accreditation bodies to ensure that appropriate auditing processes are in place, in order to detect and tackle any such non-compliance.

Deemed installations

With deeming, owners of heating equipment will not be required to supply meter readings for the purposes of determining incentive payments, but will instead receive a set amount based on the technology installed. There is a risk that an owner of heating equipment could stop using the equipment, use it inappropriately or sell it, but continue to receive RHI tariffs.

Generally speaking, it is unlikely that an owner of heating equipment will go to the trouble and expense of installing equipment and then not use it, particularly as most technologies will replace existing heating systems, and therefore become their primary source of heat. However, we must take care that adequate checks are in place to ensure that the RHI is not abused. We will work with Ofgem to consider carefully what auditing processes are necessary for deemed equipment, while bearing in mind the administrative burden and cost that extra checks would impose.

47 *Reducing administrative burdens: effective inspection and enforcement, Phillip Hampton (2005)* – www.berr.gov.uk/files/file22988.pdf

Q29: Are there any parts of the proposals set out in this consultation that in your view would allow for unacceptable abuse of RHI support, or other unintended consequences? If so, how could we tighten the rules while keeping the scheme workable, and avoiding an overly high administrative burden?

Enforcement

We expect that most breaches of the rules will be accidental or minor, and can be dealt with through the auditing process. However, there will need to be an enforcement regime that can address the more serious cases.

In line with the findings of the Macrory Review[48] of regulatory sanctions and enforcement, we believe that Ofgem should be given access to a range of powers in order to deal with the full spectrum of non-compliance. As with auditing, any enforcement action should be risk-based and proportionate to the nature and impact of the breach.

Sanctions

Non-compliance could in many cases be dealt with through informal responses such as advice and guidance, particularly in the early stages of the RHI, during which owners of heating equipment and installers will be adapting to the new regime. No formal action will be necessary in such cases. For the more serious breaches, where some form of formal action is called for, we will introduce a range of sanctions. Ofgem already has access to a number of sanctions in its licensing regime, in respect of gas and electricity suppliers. These include powers such as warning letters, enforcement orders and monetary penalties. As far as possible, we will look to align any new sanctions with Ofgem's existing powers, whilst ensuring that they are appropriate for the RHI regime.

If a recipient of the payment is found to be abusing the RHI, such as deliberately claiming a larger incentive payment than that for which they are eligible, we propose giving Ofgem the power to exclude them from the scheme.

Where an RHI recipient has received an over-payment, we intend to allow Ofgem to offset the excess against future payments. If an owner of heating equipment has been excluded from the scheme, but has already received an over-payment, we would expect them to repay the money. If they fail to return the money, Ofgem may seek to recover it through the civil courts, as well taking more punitive action for the breach (e.g. imposing a monetary penalty) where appropriate.

If an accredited installer is found to be breaking the rules of the RHI, we expect the accreditation body to take action against them. This could include them losing their

48 *Regulatory Justice: Making Sanctions Effective, Professor Richard Macrory (2006)* – www.berr.gov.uk/files/file44593.pdf

accreditation status, which would have a significant financial and reputational impact on their business. Such breaches may also fall foul of consumer protection law.

Deliberate attempts by owners of heating equipment or accredited installers to gain financially by providing false information could constitute fraud and would be dealt with accordingly. Where Ofgem believes fraud has occurred, it will be able to report such cases to the appropriate prosecuting authority who will decide whether or not to prosecute.

In order to maintain transparency and consistency, we expect Ofgem to publish an enforcement policy setting out the circumstances in which the regulator is likely to take action, and what sanctions it might employ. This policy would also outline the factors taken into consideration when deciding on what action to take.

Rights of redress

Where any sanction is imposed, such as a monetary penalty or enforcement notice, there will need to be an appeal route so the person subject to the sanction can challenge its imposition.

We will also work with the organisations involved in running the RHI to ensure that there are processes for handling complaints against Ofgem, approved installers, or any other body involved in delivering the scheme.

Data collection

In order to assess how well the RHI is meeting its objectives on incentive take-up and the amount of renewable heat generated, a range of data will be collected. The responsibility for data collection will lie with Ofgem.

The data collected will include:

- number and type of installations;
- cost of installation;
- amount of heat generated;
- source of heating that owners of heating equipment are switching from and to; and
- demographic information – country, region, urban/rural, etc.

As well as monitoring RHI take-up, the data collected by Ofgem will be made available to DECC and, where appropriate, the Devolved Administrations for other statistical purposes, such as monitoring renewable energy consumption as required by the Renewable Energy Directive. Ofgem will need to consider the burden of providing data when making any requests and ensure that anything that is requested will be used and is necessary.

Chapter 7

Devolved Administrations

Role of the Devolved Administrations

This consultation sets out the UK Government's approach to renewable heat. The Energy Act 2008 provides statutory powers for the RHI to be established across England, Wales and Scotland. Details of how the RHI will operate will be set out in the form of regulations that we expect to be laid before Parliament in early 2011.

When it comes to the nations and regions of the UK, the proposed regulations are likely to cover partly devolved and partly reserved matters. We have engaged closely with the Devolved Administrations to develop our proposals for consultation and will continue to work closely with them to develop the regulations that will underpin the scheme.

In addition, the Devolved Administrations are developing their own plans to increase the use of renewable energy. We are working closely with them to ensure that our proposals for the RHI complement their plans.

Scotland

As heat is devolved to Scotland, Section 100 of the Energy Act 2008 provides that Scottish Ministers will be consulted, and, where appropriate, their consent obtained, before the regulations establishing the scheme are implemented. This is to ensure that Scottish interests are appropriately taken into account in the design of the scheme.

Scottish Ministers attach a high priority to the development of a policy on renewable heat. This is evident in the Climate Change (Scotland) Act 2009, which mandates the Scottish Executive to produce a plan for the use of heat from renewable sources and to report regularly on its progress.

Scottish Ministers see a particular opportunity for communities and businesses in rural off-gas grid areas to benefit from switching to renewable energy sources, where the economic case for doing so is strong. Individual solutions based on micro-renewables such as biomass, solar thermal and heat pumps will be particularly important. In urban and semi-urban locations there are greater opportunities for the use of renewable district heating.

The Scottish Renewables Action Plan, published in July 2009, identifies collective actions by the Scottish Executive, its agencies and partners, to ensure that by 2020 at least 20% of Scotland's energy comes from renewable sources.[49] This is supplemented by a more detailed Renewable Heat Action Plan for Scotland, published in November 2009,[50] which sets out a framework for activity across a wide range of areas to contribute to Scotland meeting its 2020 targets.

49 www.scotland.gov.uk/Publications/2009/07/06095830/0
50 www.scotland.gov.uk/Publications/2009/11/04154534/

Specifically, the Scottish Renewables Action Plan:

- **Gives an overview of Scotland's current position and goals –** Heat constitutes some 50% of energy demand in Scotland. Renewable heat use is currently around 1.4% (829 GWh). By 2020 Scotland must increase its uptake of renewable heat to 11% of total demand, to contribute to an overall renewable energy target (including electricity and transport) of 20%.
- **Identifies what needs to be done, and by when –** Scotland needs to use all the technological options available, at all scales. Biomass, on an industrial and commercial scale, will make the most impact in the short to medium term. The domestic sector, which is the largest consumer of heat, is more challenging and will contribute to longer-term targets along with technologies such as energy from waste and biogas.
- Identifies indicative milestones to 2020

Year	Estimated Percentage
Actual 2009	1.4%
2011	2.0%
2012	3.5%
2014	5.0%
2016	7.0%
2018	9.0%
2020	11.0%

Wales

The Renewable Energy Route Map for Wales (2008) illustrates Wales's current best estimate of practicable heat and electricity outputs from each of the technologies by 2025.[51] The Welsh Assembly Government's Bio-energy Action Plan consultation shows how by 2020 Wales could generate around 2.5 TWh of renewable heat per annum from biomass.[52] The development of the Welsh Assembly Government's low carbon energy policy statement updates the estimates contained within the Renewable Energy Route Map and will be published early in 2010.

51 http://wales.gov.uk/about/cabinet/cabinetstatements/2008/routemap/?lang=en

52 http://wales.gov.uk/consultations/environmentandcountryside/bioenergyactionplan/?lang=en&status=closed

The Welsh Assembly Government is also proposing to change the Home Energy Efficiency Scheme which will mean it will be able to support the installation of renewable heat technologies, where appropriate, as part of a whole house approach focused on the most inefficient properties.

Arbed: the new Strategic Energy Performance Investment Programme, is a joint housing, regeneration and energy efficiency initiative, which will invest in the energy performance of buildings which in turn will generate green jobs and drive innovation. In total, it is estimated that up to £350 million will be invested in the energy performance of Welsh homes over the next three years, coordinated through Arbed. Renewable heat technologies will be among the measures supported as part of a whole house approach.

The Welsh Assembly Government has also secured European funding for a Community Scale Renewable Energy Generation project and a Wood Energy Business Scheme that will support renewable heat installations across Wales.

Northern Ireland

Northern Ireland will not be included in the RHI as the province is not covered by the legislation in the Energy Act 2008.

Annex 1

Glossary

AD – Anaerobic Digestion; a biological process which produces bio-gas from discarded food and farm waste.

Banding – a mechanism to provide different levels of support to different technologies based on, for example, technology type and installation capacity.

BCC – Birmingham City Council.

BSF – Building Schools for the Future.

CERT – Carbon Emissions Reduction Target; an obligation on energy suppliers to deliver measures that provide CO_2 savings.

CESP – Community Energy Saving Programme; a programme to deliver energy efficiency packages.

CHP – Combined Heat and Power; the simultaneous generation of useable heat and electricity in a single process.

CHPQA – CHP Quality Assurance Programme, provides a means to assess and monitor Good Quality CHP capacity.

DECC – Department of Energy and Climate Change.

Defra – Department for the Environment, Food and Rural Affairs.

Degression – a mechanism whereby tariffs are reduced annually to reflect, and to some extent encourage, expected decreases in technology costs.

DUKES – Digest of UK Energy Statistics.

EfW – Energy from Waste.

EN 45011 – General requirements set by national standards bodies for bodies operating Certification Schemes.

EPC – Energy Performance Certificate.

Feedstock – input material in process.

FITs – Feed-in Tariffs.

g/GJ – Grammes per gigajoule.

GWh – Gigawatt hours.

Grandfathering – provides certainty for an investor by setting a guaranteed support level for projects for their lifetime in a scheme, regardless of future reviews.

HCA – Homes & Communities Agency.

kWh – Kilowatt hour (heat output).

LCBP – Low Carbon Buildings Programme; a programme providing grants for the installation of microgeneration technologies.

MCS – Microgeneration Certification Scheme.

MW – Megawatts (heat output).

NOx – Nitrogen oxide.

Ofgem – Office of Gas and Electricity Markets.

Oftec – Oil Firing Technical Association.

PM – Particulate Matter (emissions measurement).

RED – Renewable Energy Directive.

RES – Renewable Energy Strategy.

RFA – Renewable Fuels Agency – administers the RTFO for Government.

RHI – Renewable Heat Incentive.

RO – Renewables Obligation.

ROC – Renewable Obligation Certificate.

RTFO – Renewable Transport Fuel Obligation; an obligation on supplies of road fuels to ensure a certain percentage of the fuel they supply is made up of renewable fuels.

SAP – Standard Assessment Procedure – for the energy assessment of dwellings.

SBEM – Simplified Building Energy Model – for the energy assessment of non-domestic buildings.

TWh – Terawatt hours (heat output).

UKAS – United Kingdom Accreditation Service.

Annex 2

The BRE Standard House Set and deeming useful energy for heat

This annex provides illustrative estimates of useful energy for space heating in the domestic sector. Although the exact deeming methodology will be determined post consultation, Table 1 can give an indication of the approximate deemed heat demand for a number of characteristic dwellings.

Table 1: Useful energy for space heating broken down by property type and number of bedrooms per property

	Beds	Floor Area	Cavity Wall Construction	Solid Wall Construction
	Units	m2	kWh/yr	kWh/yr
Flat	1	42	3,685	6,244
	2	**61**	**4,441**	**7,525**
	3	89	5,365	9,089
Mid-terrace house	2	63	4,699	7,961
	3	**79**	**5,262**	**8,914**
End-terrace house	2	63	8,248	13,974
	3	**79**	**9,236**	**15,648**
Semi-detached bungalow	**2**	**64**	**6,306**	**10,684**
	3	74	6,808	11,534
Detached bungalow	**2**	**67**	**7,786**	**13,192**
	3	78	8,401	14,234
	4	90	9,024	15,289
Semi-detached house	2	77	8,998	15,245
	3	**89**	**9,674**	**16,390**
	4	102	10,356	17,546
Detached house	2	90	14,674	24,861
	3	**104**	**15,774**	**26,724**
	4	120	16,944	28,707

Notes:

1. The useful energy requirement for hot water is assumed constant across all property types and sizes at 3,742 kWh/year
2. The figures presented in this table assume filled cavity walls and adequate (150mm) loft insulation where appropriate
3. Figures in bold are for base case dwellings. Figures in ordinary type have been extrapolated from the base case dwelling numbers using a scaling factor.

Origin of data:

The information provided in Table 1 is based on the Standard House Set which was developed by BRE with Defra to calculate energy savings for eight main dwelling types found in Great Britain in the context of the Energy Efficiency Commitment (EEC) 2008-11. Drawings were created for these dwelling types and the dimensions of the external walls, roof, floor, windows and doors provided inputs in BREDEM,[53] BRE's Domestic Energy Model.

This information is used in analysis underpinning DECC's Carbon Emissions Reduction Target program (CERT). Rather than calculate energy consumption and savings from efficiency measures, the useful energy for heat has been extracted for seven[54] of the eight 'base case' dwellings. Specifically, the table presents useful energy for space heating for the base case dwellings, shown in bold type and underlined. Figures for other dwelling sizes have been extrapolated from the base case dwellings using a scaling factor. These 'variant' dwellings are shown in ordinary type.

The useful energy requirement for hot water does not depend on the property size and is assumed constant across all dwelling types at 3,742 kWh/year, corresponding to an occupancy rate of 2.9. Again this is the assumption put forward by BRE for CERT.

53 BREDEM-12 was used to generate the numbers presented in this document. More information on BREDEM can be found at: www.bre.co.uk/index.jsp

54 A single Flat type is used where EEC 2008-11 presented two separate Flat designs.

Annex 3

Call for Evidence on district heating networks

On the basis of our previous research and consultations we currently do not have sufficient data, particularly on the details of network costs, to propose a level of uplift. We intend to determine any uplift as follows.

- As with our approach to setting the main tariffs where we have used the costs of average installations (or "reference installations") in each tariff, we would use "reference networks" to determine the level of uplift. As with the costs of generating equipment, network infrastructure costs will vary (depending on for instance the length of pipes or heat load density). It would not be practical to calculate different tariffs or uplifts for each installation based on its specific costs. We would welcome views on the characteristics of "typical" district heating situations that should be used to determine the costs of reference networks.
- It is likely that only parts (or a percentage) of such typical networks would meet our objective of reaching hard-to-treat properties, since other parts of the network could feasibly be supported by stand-alone renewable technologies. So any uplift should only pay for the costs of that proportion of the network which served hard-to-treat properties. We would therefore also welcome views on what proportion of the reference district heating network would typically be supplied to hard-to-treat properties.
- Using this information we would set an uplift in p/kWh which can be added to the main tariff. We welcome views on whether the resulting single uplift would be capable of accommodating differences in physical network size or boiler size, and whether we should accordingly have one uplift for all sizes of installations, or several.

In summary, this approach would involve setting an uplift amount by taking the network costs of a typical district heating system (in p/kWh of the network's heat load over the lifetime of the main tariff in question), and multiplying this with a deemed percentage reflecting the proportion of the network that would typically serve hard-to-treat properties. In addition to feedback from this consultation, we will undertake further research into these aspects during the first half of 2010, and publish any uplift level(s) together with or shortly after the final main RHI tariffs.

Q30: Do you agree with our proposed overall approach to setting the level of the uplift? Can you provide evidence that would help us to determine the level of uplift? In particular:

- **Can you describe typical district heating networks that would be appropriate as reference networks, and what are their network costs, heat loads, and customer numbers and characteristics?**
- **What proportion of the heat load of such networks is typically supplied to hard-to-treat properties? What proportion of the total network of the reference installation(s) supply heat to hard to treat properties?**
- **Should we choose one reference network and determine one uplift (in p/kWh) applicable to all sizes of networks, or should there be several based on a number of differently sized reference networks?**

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www.decc.gov.uk
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