Department of
Enterprise, Trade
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Department of Enterprise,
Trade and Investment

Phase 2 of the Northern Ireland Renewable Heat Incentive

Contents

MINISTERIAL FOREWORD

My Department is committed to the continued development and expansion of the renewable heat market in Northern Ireland. Heat energy accounts for more than half of the energy we use in our homes and businesses and it is therefore not surprising that more and more people are considering how they can reduce costs by becoming more efficient or switching to different heating types. I am pleased with the progress that my Department has made in promoting a more diverse, secure and sustainable heating market through the development and extension of the natural gas network and the introduction of incentive measures for renewable heating. Specifically regarding renewable heating, it is vital that this new sector is supported and grown further and Northern Ireland becomes more self-sufficient in terms of heating energy. I am therefore pleased to present proposals on how my Department intends to expand the incentives already available and provide long term support for the domestic market.

Securing a level of 10% renewable heat by 2020 is a very challenging and ambitious target. The renewable heat market is still in its infancy in Northern Ireland and the supply chain is developing however support available under the Renewable Heat Premium Payment (RHPP) scheme has helped to create a momentum that Phase 2 of the Renewable Heat Incentive (RHI) will build upon. In addition, further work is required to improve public attitudes, perceptions and understanding of renewable heat. My Department has already carried out targeted media activity under the *EnergyWise* branding to increase public awareness on renewable heat – I am keen that this work is continued.

The second phase of the RHI, as outlined in this consultation document, will also be vital in the ongoing development of this market as new technologies are supported and the scheme is extended to the domestic sector. By supporting new technologies, the RHI provides opportunities for innovative heating schemes to be developed in Northern Ireland. Expanding the scheme to domestic users will hopefully create a greater market for potential suppliers, distributors and installers. I am conscious that whilst this is a sector that requires significant support, budget levels are finite and cannot be breached. Therefore in designing tariffs and determining support levels my Department must consider the costs of renewables in comparison to fossil fuels; the need for support and the potential deployment of each technology.

This consultation sets out proposals to provide grant support plus ongoing payments for domestic installations. I believe this proposal will ensure renewable heat technologies become more accessible for all domestic consumers and become a real option for those considering changing their current heating supply. In addition, my Department intends to provide incentive support for new technologies in the non-domestic sector, including deep geothermal, air source heat pumps and bioliquids. These proposals, and consideration of additional support for district heating, will widen the scope of the non-domestic RHI and provide greater choice for those availing of support. Finally, some amendments are proposed in the administrative arrangements to ensure the scheme is fit for purpose and simpler for applicants.

I would encourage all those with an interest in the renewable heat market to carefully consider the proposals outlined and respond accordingly. The consultation process is a vital piece of the policy-making process and ensures that the final proposals are appropriate, both in terms of supporting the market and in providing value for money.

ARLENE FOSTER MLA
Minister of Enterprise, Trade and Investment

EXECUTIVE SUMMARY

This section provides a brief overview of the key proposals included within this consultation document. There are a wide range of topics discussed in this paper, including the introduction of long term support for renewable heat in the domestic sector, the expansion of the non-domestic RHI and arrangements for the ongoing efficiency, administration and maintenance of the schemes.

The key proposals are as follows;

- The introduction of the domestic RHI
  - The domestic RHI will support homeowners who wish to install technologies such as biomass, ground source heat pumps (including water source), air to water heat pumps and solar thermal. DETI is also considering supporting air to air heat pumps and bioliquids.
  - Support for new installations will include an upfront payment as well as ongoing payments for 7 years.
  - Eligible technologies installed and commissioned since 1 September 2010, which were ineligible for grant support under the RHPP, will receive a different level of support to account for the lack of an upfront grant. The overall level of support for those that have, or will have, received grant support and those that haven't has been levelised to ensure no one is disadvantaged.
  - Tariffs are set to cover for the added costs of installing and operating renewable heat technologies compared to fossil fuel systems, with a rate of return of 7.5% also included. The tariffs are designed to cover the additional costs incurred over the lifetime of the installation with these payments compressed over a 7 year period.
  - In most cases the levels of payment will be at a 'deemed' level, determined by a standard assessment of the expected heat demand of the property and multiplying this figure with the appropriate tariff.
  - In certain circumstances (where a fossil fuel heat source remains, for systems outside of MCS standards, or if the house is privately/socially rented) a heat meter will be required.
  - All installations must be commissioned by suitably accredited installers and the technologies must be appropriately certified.
  - Energy efficiency is a key element for the domestic RHI and DETI is keen to ensure that energy efficiency improvements are rewarded. Therefore, the awarded RHI tariff has been designed based on more efficient homes. This reflects the position that homes should have considered energy efficiency improvements before installing renewables.

- The expansion of the non-domestic RHI
  - New tariffs are proposed for large biomass (above 1MW); biomass and bioliquid CHP systems; biomass direct air heating; heat only bioliquids; deep geothermal; and air source heat pumps.
  - The potential introduction of an uplift tariff for district heating schemes where one boiler is providing heat to a number of premises.
  - Eligible technologies installed and commissioned from 1 September 2010 will be eligible to apply.

- Setting standards, managing costs and improving performance
  - Introduction of biomass sustainability standards for the largest biomass installations.
  - Consideration of the need to implement appropriate emissions standards as to protect air quality, in line with EU standards.
  - A method of cost control is to be introduced that will ensure budgets are not overspent and will hopefully remove the need for emergency reviews.
  - Metering arrangements under the non-domestic RHI are to be revised to ensure more systems are defined as 'simple' and therefore require a single meter only. There will also be increased flexibility on 'complex' systems to avoid the need for redundant meters.
  - A number of minor regulatory revisions are proposed that involve the definition of an installation, the relocation of equipment, the eligibility of process heating, the methodology for inflationary adjustments and the use of ground water for GSHPs.

1

BACKGROUND

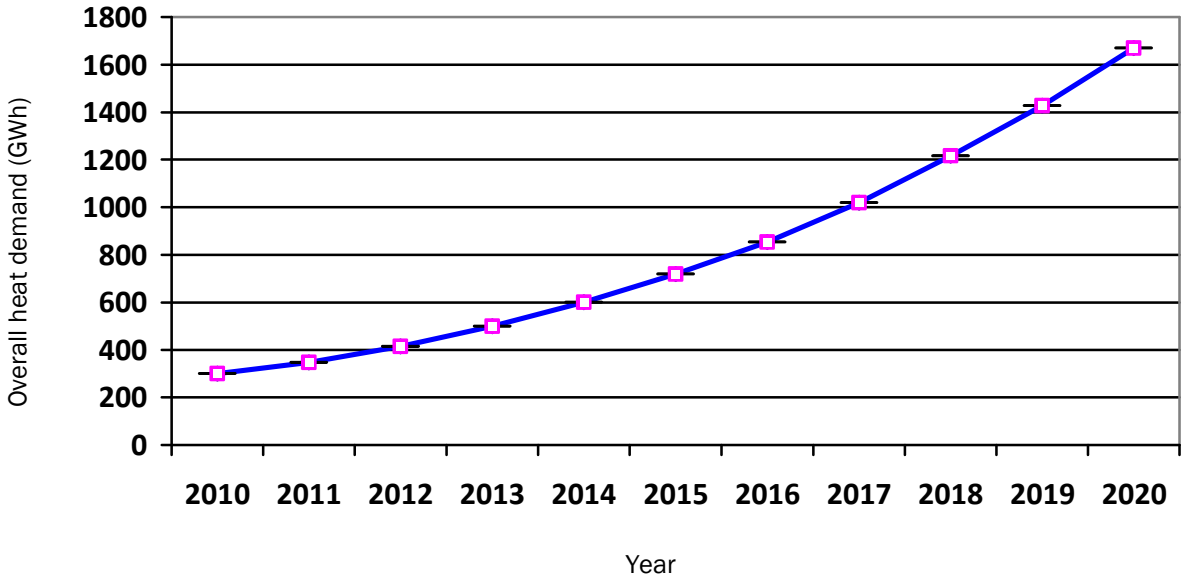
1.1 In September 2010, the DETI Minister, Arlene Foster, adopted a target to secure a level of 10% renewable heat in Northern Ireland by 2020. Additionally, the Minister advised that an incentive mechanism would be designed, developed and introduced providing appropriate budget could be secured. The target and the proposed incentive mechanism were in line with obligations under the EU Renewable Energy Directive (RED) that each Member State had to secure certain levels of renewable energy by 2020. In July 2011, DETI consulted on proposals for a Northern Ireland Renewable Heat Incentive (RHI) for non-domestic consumers and the Renewable Heat Premium Payment Scheme (RHPP) for domestic consumers. Following the consultation process further analysis was carried out and a final policy position agreed. DETI then sought approval from the EU Commission for the scheme, drafted and passed the appropriate Regulations and put into place necessary administrative arrangements. The RHPP was launched on 24 May 2012 and the RHI followed on 1 November 2012.

OBJECTIVES

1.2 The overarching objective of the RHI and the RHPP is the achievement of the target set for 2020, there is also an interim target of 4% by 2015. A baseline position was taken in 2010 that demonstrated that the existing level of renewable heat was 1.7% or 300 GWh. The overall heat demand in Northern Ireland in 2010 was assessed at 17.4 TWh. It is anticipated that the level of heat demand will drop to 16.7 TWh by 2020 as increases in energy efficiency outweigh new developments. Therefore, it is estimated that an additional 1.3 TWh of renewable heat is required by 2020.

1.3 An assumed profile that demonstrates the overall reduction in heat demand and increase in renewable heat is detailed below.

	Level of Renewable Heat (GWh)	Overall Heat Demand (GWh)	%
2010	300	17400	1.7
2011	347	17350	2
2012	415.2	17300	2.4
2013	500	17240	2.9
2014	601	17180	3.5
2015	719	17120	4.2
2016	853	17050	5
2017	1019	16980	6
2018	1217	16900	7.2
2019	1428	16800	8.5
2020	1670	16700	10



1.4 There is no doubt that the renewable heat target is very challenging and requires significant Government intervention as well as a major change in consumer attitudes and behaviours.

BENEFITS

1.5 In addition to the realisation of the renewable heat target it is expected that the development of this sector will yield wider benefits in terms of fuel security, lower emissions and 'green jobs'. Currently Northern Ireland is overly dependent on imported fuel, leaving consumers vulnerable to price fluctuations beyond our control; this is especially true within the heat market. Increased renewable heat will support the promotion of a more diverse, secure, sustainable and competitive heating market – providing greater energy choice for consumers limited by infrastructure issues.

1.6 The expected carbon savings over the lifetime of the policy is in the order of 5 million tonnes of CO_2. The value of this carbon, using the DECC carbon saving methodology (central carbon prices), is in the order of £250m.

PERFORMANCE OF THE DOMESTIC RHPP

1.7 The RHPP scheme was launched on 24 May 2012 as a support measure for domestic customers wishing to utilise renewable heating. This was an interim measure that was put in place in advance of the design and implementation of the domestic RHI. The scheme has proved very popular and as at 17 July 2013, DETI has received 1045 applications and issued 830 vouchers of which 510 have been returned for payment indicating the technology has been installed.

1.8 The total combined capacity of the installed technologies is 7,300kW. The total committed spend is currently in the region of £1.5m, this funding represents a total investment in the sector of £5.9m.

1.9 The breakdown across the different technologies is shown in the table below:

	Voucher value (£)	Total Vouchers Issued		Total vouchers returned for payment	
		Number	% share of technologies	Number	% share of technologies
Air Source Heat Pumps	1700	84	10	48	9
Biomass boilers	2500	406	49	203	40
Ground Source Heat Pumps	3500	84	10	46	9
Solar Thermal	320	256	31	213	42
TOTAL		**830**		**510**	

1.10 Biomass boilers are clearly the most popular technology with almost half the applications received being for either wood pellet or wood log fired boilers. Currently the largest number of actual installations is for solar thermal panels which are made up equally of flat plate and evacuated tube collectors. The solar installation process tends to be simpler and quicker however DETI would expect that biomass boilers will top the installed category in the near future.

1.11 In terms of the displacement of other heating fuels the vast majority of applicants have notified that they are intending to displace heating oil (89%). Less than 2% have displaced natural gas and less than 3% have replaced coal, electricity or LPG. There have been a number of applicants that have used the RHPP to replace or upgrade existing renewable heating technologies (4%); this is allowed under the scheme providing the applicant has adhered to rules and conditions of previous grant schemes if the existing technology had been grant aided. These figures include solar thermal installations where the primary heat source of the home will not have changed and the displacement would be minor.

1.12 There have been a high number of applications from those carrying out self builds (38%). Less than 3% of applicants opt to install two renewable heat technologies in their home. These applicants comply with DETI's ruling that where two technologies are installed one must be a solar thermal panel.

1.13 Domestic renewable heat installations are taking place in all local authority areas but the main concentrations are in rural areas that are not served by the natural gas grid.

PERFORMANCE OF THE NI RHI

1.14 The NI scheme has been in place since 1 November 2012. As the RHI requires installations to be in place before the accreditation process can begin (unless the technology is of sufficient size to warrant pre-accreditation) there is a longer lead in time for projects and for applications to be made. As at 17 July 2013, there have been 31 of applications for support under the RHI and 16 of those have received full accreditation, the other applications are currently in the process of attaining accreditation.

1.15 All the applications, to date, have been for solid biomass boilers with the average size of application being in the order of 200 kW_{th} and the total combined capacity of the applications is over 6,000 kW.

2

BACKGROUND

2.1 DETI has always intended to introduce a long term mechanism to provide support for domestic renewable heating installations however additional time was required to consider the design of the scheme, the appropriate levels of support and the methodology for making payments. Therefore in May 2012 the RHPP scheme was launched as a forerunner to the prospective domestic RHI.

2.2 This chapter outlines DETI's preferred approach in terms of incentive mechanism, support levels, eligibility standards and methodology for making payments. The chapter also includes discussion on other potential design options and the role that energy efficiency has within the domestic RHI. The nature of the scheme means that some of the detailed information presented is complex; DETI therefore welcomes all comments on the proposed scheme as part of this consultation process.

ELIGIBILITY

Eligible and ineligible properties

2.3 Firstly, the domestic RHI will be open to domestic properties only and applicants will be expected to present a copy of an appropriate rates bill to demonstrate that the dwelling is 'domestic' in nature. The domestic RHI also only covers one boiler heating one domestic property, therefore in circumstances where a technology is heating two or more separate properties that will be treated under the non-domestic RHI.

2.4 Similarly to the non-domestic RHI, eligible technologies that have been installed and commissioned on or after the 1 September 2010[1] will be able to apply for accreditation and incentive payments will be made to the owner of the accredited equipment. We expect that in most cases the owner of the equipment will be the owner and occupant of the property being heated by the installation; however landlords and Energy Service Companies (ESCos) will also be able to avail of the scheme. If the property is sold it is presumed that the heating installation will be part of the sale agreement and that the RHI payments would transfer to the new owner, in these circumstances the administrator of the scheme must be notified.

2.5 DETI has considered the treatment of second homes, such as holiday homes or privately rented homes, under the domestic RHI. The primary concern is that these homes may be un-occupied for long periods throughout the year and therefore have a lower heat demand. DETI proposes to include them in the scheme on the basis that these installations are metered and payments are based on the metered output (capped at the deemed level). A process of self-declaration, which will be audited by the administrator,

[1] Compliance with this date must be demonstrated by the MCS certificate and relevant invoices. MCS certificates must be generated within 10 working days of the commissioning date, according to the rules governing the MCS database.

will establish whether a property is a primary residence or a second home. Self build properties will be eligible providing they are occupied. Social landlords will also be able to avail of the domestic RHI tariff.

2.6 One other type of property that has caused much feedback from stakeholders since the launch of the RHPP and RHI schemes has been farmhouses. Given that farmhouses are, by nature, domestic properties used for dwelling but also for running the farm business, there has been ambiguity as to their treatment. Current guidance is that farmhouses can qualify for the non-domestic RHI providing the administrator is content that the dwelling is used for 'wholly or mainly' non-domestic purposes following a space assessment. DETI is aware that this still leaves ambiguity. For the sake of consistency, DETI proposes to treat farmhouses like all other domestic dwellings and therefore eligible for the domestic RHI. This is also in keeping with the likely use of the heat in question and the fact that farmhouses tend to be primary residences. It is proposed that any farmhouses accredited under the non-domestic RHI will continue on that basis but new installations going into premises that are rated as "House (Agricultural)" will be supported by the domestic RHI. DETI welcomes views from the agricultural sector on this issue.

2.7 Finally, for clarification, non-domestic installations where the dwelling is used for commercial purposes and has been significantly adapted for these purposed will not be eligible for the domestic RHI. The rating classification of the dwelling will be used as a guide in determining eligibility. As before, where one technology is heating a number of domestic properties the installation will be eligible for the non-domestic RHI.

CONSULTATION QUESTION 2.1

Do you have any comments on DETI s proposals regarding the eligibility of second homes, holiday homes, privately / social rented homes or farmhouses?

Installations above 45kW

2.8 DETI is aware that in some circumstances domestic dwellings require an installation with a capacity greater than 45kW and therefore breaching the limits set by the Microgeneration Certification Scheme (MCS). DETI has had to consider whether special arrangements should be made to allow domestic installations above 45kW to avail of support or, as is currently proposed in GB, should not make special allowances thereby excluding domestics installing systems larger than 45kW from incentives. On the basis of equity and accessibility, it is DETI's preference for these systems to be supported however there is a significant risk that by opening up the non-domestic RHI to larger installations that technologies could be intentionally over-sized – this is especially the risk in scenarios where the provision of grant support is not a driving factor for switching to renewable heating.

2.9 To ensure equity, whilst avoiding over-incentivisation, DETI proposes the following;

- All installations that are 100kW and above are classed as non-domestic. Therefore if a domestic dwelling requires a heating system above this threshold they would be eligible for a 20 year RHI payment providing they adhered to the rules and regulations of that scheme.
- Installations above 45kW but below 100kW will be eligible for the domestic RHI (as outlined in this chapter) however the payments for these systems may also need to be capped to prevent against the over-sizing of systems.

2.10 DETI welcomes views on the treatment of domestic installations over 45kW and the proposal outlined above.

CONSULTATION QUESTION 2.2

Do you have any views on how domestic installations over 45kW should be treated?

CONSULTATION QUESTION 2.3

Do you foresee any difficulty with the implementation of DETI s proposal regarding domestic installations larger the 45kW and those in excess of 100kW?

ELIGIBLE TECHNOLOGIES

2.11 In determining what technologies should be eligible under the domestic RHI the following general criteria were used;

- The technology is well understood, well established and well proven and therefore can be expected to achieve a significant contribution to the deployment of renewable heat in the domestic sector. DETI is more reluctant to support 'emerging' or 'innovative' technologies in this sector at this stage in order to build confidence in the market at domestic level. More innovative systems are supported under the non-domestic RHI.
- The technology must be considered and defined as renewable by the European Commission under the RED.
- For the purposes of consumer protection and administration, the technology must be accredited under a suitable scheme that is based on international and European standards. Permitting technologies that do not meet MCS or Solar Keymark standards would undermine the scheme and place an undue burden on the administrator to carry out checks and certify technologies and installers.

2.12 Therefore the primary technologies that will be supported under the domestic RHI are;

- Air to Water Heat Pumps
- Ground Source or Water Source Heat Pumps[2]
- Biomass boiler systems
- Solar Thermal

2.13 In addition to these standard technologies DETI is also considering providing support for air to air heat pumps and bioliquids.

2.14 An air to air heat pump is less efficient than other heat pumps as they often require electric immersion heaters to provide hot water. This lower efficiency can lead to higher operational costs. In addition, they are also often reversible and so are able to provide air conditioning which would not contribute to the renewable heat target (although this function can be disabled by the installer and in any case the requirement for domestic cooling is very small in Northern Ireland). On the other hand, they have lower upfront capex and so will be more attractive for lower income households.

2.15 DETI acknowledges that whilst bioliquids or the B30k fuel is not fully renewable nor well established it does have some, albeit limited, potential in Northern Ireland given the current prevalence of oil. Many homes in Northern Ireland may be unsuitable for renewable technologies for issues such as space or access; these could also be the same homes without access to natural gas. Therefore bioliquids could be the only alternative to oil. DETI is uncertain about the potential level of uptake or resource of bioliquids for domestic heating however is considering providing support so as not to limit the market potential.

2.16 Indicative support levels are provided for air to air heat pumps and bioliquids however their inclusion under the domestic RHI is subject to this consultation.

CONSULTATION QUESTION 2.4

Do you have any comments on the proposed list of eligible technologies?

CONSULTATION QUESTION 2.5

Regarding the less well established technologies of air to air heat pumps and bioliquids, do you think these technologies could provide a significant contribution to the renewable heat sector and should therefore be incentivised?

[2] For heat pumps to be eligible for support they must run on electricity. DETI will also introduce standards relating to the co-efficient of performance and the seasonal performance factor.

Microgeneration Certification Scheme standard and OFTEC

2.17 DETI requires that the technologies installed and those installing them are appropriately certified, this will help protect consumers, set standards and ensure confidence in the scheme. DETI propose to recognise certification schemes that meet standards such as European standard EN 45011, which sets out the standards for those bodies operating third party certification schemes, or EN ISO/IEC 17065 (that has replaced EN 45011) MCS[3] meets these requirements.

2.18 MCS is an independent, industry-led certification scheme accredited by the United Kingdom Accreditation Service (UKAS). MCS certification bodies assess microgeneration products and installation businesses against consistent, robust standards. By providing assurances as to the quality, durability and energy generation performance of microgeneration products and guarantees to consumers on the quality of their microgeneration installations, MCS aims to protect consumers in this emerging market. Members of the MCS are also expected to comply with the standards set out by the Renewable Energy Consumer Code[4] (RECC).

2.19 To be eligible for the domestic RHI it is proposed that your technology must be accredited and commissioned by a suitably accredited installer. In the vast majority of cases DETI would recommend and expect the installation and commissioning to be carried out by the same installer. However it is proposed that in circumstances where a non-certified installer carries out the installation the consumer could still apply for support providing that a certified installer commissions the system after the non-certified installer has finished the installation. In this case, the certified installer must provide relevant documentation including the commissioning certificate and the applicant must provide a suitable chain of invoices showing all of the costs of the installation. Technologies and installers must be suitably accredited at the time of installation and commissioning.

2.20 Consumers installing bioliquid boilers would be required to use an Oftec[5] registered installer.

CONSULTATION QUESTION 2.6

Do you have any comments on the proposed standards relating to MCS and Oftec?

Multiple technologies

2.21 DETI proposes to limit the eligibility of multiple technologies to scenarios where solar panels and one other renewable heat technology is installed. The reason for restricting combination installations to solar plus one is that when the heat demand of homes are deemed it will be assumed that there will be one primary heat source that will service the entire space heating requirements of the home, solar thermal is the exception as it will only provide hot water requirements. To allow two primary renewable heat sources (biomass and heat pump) a separate assessment would be required and there would be significant risk of incorrect subsidy, in addition it is expected that these types of installations would be very rare. Support under the domestic RHI will therefore be limited to one renewable heat technology per dwelling (excluding solar thermal).

SUPPORTED TECHNOLOGIES

2.22 Some information on the technologies that will be supported via the domestic RHI, including air to air heat pumps and bioliquids is provided below.

ASHPs (Air to Air and Air to Water)

2.23 An ASHP works by absorbing heat from the air and transferring this heat through a unit which in turn increases the temperature of the heat and circulates it around a building. There are two general types of ASHP, an air to water heat pump (AWHP) will distribute the heat through a standard liquid based central heating system, so the heat from the air is transferred to a liquid and used to heat radiators. The other system is an air to air heat pump (AAHP), where the absorbed heat is used to produce warm air that is circulated to heat a building – it is unlikely that an AAHP will provide hot water as well.

[3] www.microgenerationcertification.org
[4] http://www.recc.org.uk/
[5] http://www.oftec.org/

Bioliquids

2.24 Bioliquids are liquid fuels produced from biomass materials, including waste such as cooking oil and tallow. Examples include bio-ethanol or biodiesel. In the domestic sector it is expected that the B30K bioliquid could be most widely used. B30K is a blend of waste oil and kerosene, comprising of 30% bioliquid Fatty Acid Methyl Ester (FAME) blended with 70% kerosene. The incentivisation of this fuel will, however, be dependent on whether this fuel is determined to be 'renewable' under EU standards. Those installing bioliquids boilers would be expected to make annual declarations and provide suitable evidence to the administrator to demonstrate that the boiler had solely used bioliquids and not normal heating oil. The administrator would therefore ask to see detailed invoices for fuel purchases and any other relevant documentation as appropriate.

Biomass

2.25 Biomass is the collective term for all plant and animal material and a number of different forms can be burned to produce heat, either directly for heating, or to produce hot water or steam. The most common fuel used in biomass boilers is wood, usually in the form of wood chip or pellets. Energy crops such as willow or poplar, grown on short rotation coppice, and miscanthus, together with straw and other organic residues can also be used.

2.26 Biomass boilers using wood chip or pellets can be automatically fed from fuel hoppers. Large systems within the industrial, commercial and public sectors tend to have large storage systems to allow fuel to be bought in bulk. In the domestic context smaller hoppers are the norm and require regular refilling, similar to oil boilers.

GSHPs

2.27 Ground source heat pumps (GSHPs) are electrically powered reverse refrigeration cycles which extract heat from the ground and transfer the heat to building. There are two types of GHSPs; in one method a network of horizontal piping is laid under the surface outside an adjacent building; this method tends to require a large amount of space. A second type, often used where space is restricted, involves installing in vertically bored holes, typically to around 100metres. In both cases the piping installed contains a fluid which extracts heat from the earth, passes it through the heat pump and then transfers it via a heat exchanger to a traditional central heating system.

2.28 All heat pumps have a 'coefficient of performance' (CoP); this refers to the amount of thermal energy that is produced per unit of electricity consumed or required. For example if 1 unit of electricity is required to create 3 units of heat, then the CoP of the heat pump is 3.

Solar thermal

2.29 Solar thermal systems consist of a roof mounted collector and an insulated thermal store. Heat is collected from the sun by the collector and transferred to a working liquid (normally water) to be stored for use. In the summer months, it could be expected that all hot water demand could be met by the solar thermal installation and potentially up to 50% of the annual demand.

INELIGIBLE TECHNOLOGIES

2.30 It is difficult to provide a definitive list of the eligibility requirements given the range of technologies, different types of technologies and specific installations; each application will be considered on a case by case basis.

2.31 As previously outlined, in general terms the domestic RHI will support biomass, solar thermal, ASHP and GSHP installations in permanent domestic properties (including self build, privately rented and second homes).

2.32 The RHI is compatible with the RHPP but not with any other publically funded support. Payments will be made to the owner of the equipment and it is the responsibility of the owner to ensure that all necessary planning permissions (eg planning approval and building control) are received for the installation.

2.33 There are of course some technologies and scenarios that DETI can definitely set out as ineligible. Firstly, the following technologies are not deemed eligible.

- Room heater stoves
- Condensing biomass boilers or stoves
- Cooling from heat pumps
- Transpired solar thermal panels

2.34 The reasons these technologies are not eligible largely relate to their status with MCS (i.e. not certified), the risk of fossil fuel substitution, the fact they are not deemed renewable under the RED or the fact that there is limited market potential.

2.35 DETI will review the list on ineligible technologies throughout the scheme.

CONSULTATION QUESTION 2.7

Are there any technologies that are not currently being proposed for support that you feel could have a significant contribution in the development of the local renewable heat market? Please fully explain your answer.

PROPOSED APPROACH

2.36 In developing a permanent support mechanism for domestic renewable heating installations a number of options were considered.

- **No support,** instead focus support on the non-domestic sector where greater levels of renewable heat could be delivered.
- **A normal term RHI payment**, where tariffs would be set for the lifetime of the asset (to a maximum of 20 years).
- **A compressed RHI,** where tariffs are set for a reduced time period such as 5/7/10 years with payments compressed to cover the total payments expected over asset's lifetime.
- **A grant based system,** where capital support is provided similar to the RHPP.
- **A two phased RHI,** where upfront support is available along with ongoing support over an agreed period of time.

2.37 Consideration also had to be given to the appropriateness of each scheme for the three types of applicants that will be eligible to apply for support, these are;

- **Those who installed since 1 September 2010 and have not availed of the RHPP.** Eligible installations commissioned on or after 1 September 2010 are able to apply for RHI support; the vast majority of these installations will have been unable to receive RHPP support as that scheme only supported new installations from 24 May 2012. There may also be scenarios where an installation has been made since 24 May 2012 but no application was made under the RHPP. DETI would not be able to provide retrospective capital grant support for these installations so ongoing support needs to be provided.
- **Those who availed of the RHPP**. As support has already been provided this must be factored in to any future ongoing payment to ensure that these customers are not over-incentivised, DETI also wish to ensure that these customers are in no way disadvantaged.
- **New applicants** seeking support for installations commissioned following the launch of the new permanent measure.

2.38 The benefits of the various policy options were assessed on the basis of how they could support the deployment of renewable heat; appropriateness for the domestic sector; ensuring renewable heat technologies were accessible to all; and development of the renewable heat market. DETI's preferred option is a compressed RHI with tariffs paid over 7 years with an element of up front support to assist with the capital costs.

Compressed RHI plus grant

2.39 The 7 year tariff structure is appropriate insofar as it reduces the concerns of homeowners who wish to install technologies but may also be planning to move home within the next 5-10 years. It also ensures that technologies supported under the scheme will still be supported by 2020 and therefore guaranteed to be in place and contribute to the renewable heat target. By setting a shorter tariff term there would be a risk that once the support ended consumers may choose to revert to fossil fuels if fuel prices meant this would be a favourable option. This is of particular concern in Northern Ireland where significant numbers of domestic customers will have access to new energy source, natural gas, by 2020 that do not currently have so. On the other hand tariffs longer than 7 yrs creates the risk that consumers are put off by the seemingly long pay back and unsure whether to invest in a home that they may subsequently sell. Therefore the 7 year tariff is proposed.

2.40 It should be noted that a compressed RHI is in no way less lucrative than an asset life (20 year) tariff system. In designing tariffs DETI has assessed the level of support payable over the life span of the technology and has then compressed this payment over 7 years to provide the tariffs outlined. If an asset life scheme was introduced the tariff payment would be lower and the amount payable over the 20 years would be equivalent to the compressed tariff option.

2.41 DETI also proposes to provide up front support for new installations. The experience of the RHPP has demonstrated that up front capital support is important for technologies that remain expensive to purchase and install. DETI is conscious that the capital outlay involved in renewable heat installations could remain to be significant barrier to deployment, as the table below sourced from the 2010/11 NI Family resources survey[6] demonstrates.

Amount of savings and investments	% households
No savings	52
Less than £1,500	10
£1,500 but less than £3,000	9
£3,000 but less than £8,000	13
£8,000 but less than £10,000	2
£10,000 but less than £16,000	4
£16,000 but less than £20,000	2
£20,000 or more	8
Total	100

2.42 The capital element of the proposed support mechanism will increase the accessibility and reduce the costs of any financing required. The set figure of support has remained in line with the grant already available under the RHPP – this level of support has proven to be attractive for investors and has created a high level of interest. Using these figures also simplifies the administration arrangements for those who have already received the grant. For air to air heat pumps and bioliquids, where no RHPP support has previously been offered, upfront grant support of £1000 and £500 is proposed respectively.

[6] http://www.dsdni.gov.uk/frs_2010-11.pdf

2.43 Eligible installations commissioned since 1 September 2010 but not receiving RHPP support can apply for a domestic RHI tariff, these tariffs are set at a higher level to account for the fact that no grant has been, nor will be, offered. DETI has assessed these tariff levels and has ensured that the total lifetime support under both measures (tariff only and grant plus tariff) is equal. The proposed support systems and levels are detailed in the table below.

	Installed after 1 September 2010 and without assistance under the RHPP	New installations and those supported under RHPP	
	Tariff for 7 yrs (pence per kWh)	Up front support[7] (£)	Tariff for 7 years (pence per kWh)
Air to Water Heat Pumps	8.1	1700	3.4
Biomass	7.9	2500	5.5
Ground Source Heat Pumps	13	3500	8
Solar Thermal	16.4	320	13.1
Air to Air Heat Pumps	5.5	1000[8]	3.5
Bioliquids	3.3	500[8]	2.7

2.44 As outlined by the table above, there are varying levels of support depending on the date on which the eligible installation has been commissioned and whether support under the RHPP has been received. The proposed support levels for air to air heat pumps and bioliquids are included in this table but are subject to the inclusion/exclusion of these technologies based on this consultation process. DETI does not propose to allow applicants to avail of the upfront support only, i.e. install an eligible technology, claim the upfront support but then fail to meet the ongoing obligations of the scheme and forfeit the ongoing payment. Failure to meet the ongoing eligibility standards or obligations will result in applicants having to repay all the support received in full.

2.45 It is expected that the RHPP will continue until the domestic RHI is in place – further information on the process for introducing the domestic RHI will be made available once the final proposals are confirmed following this consultation process, there is of course the potential that proposals could be revised following this process.

CONSULTATION QUESTION 2.8

Are you supportive of DETI s proposal to offer up front grant plus a compressed RHI payment for domestic installations?

CONSULTATION QUESTION 2.9

Do you think the proposed support levels and tariffs are appropriate for this sector? If not please explain with evidence.

[7] For technologies installed under the RHPP this support has already been received.
[8] No support has previously been available for air to air heat pumps or bioliquids.

Other options

2.46 There are of course, as already mentioned, other potential options on which DETI wishes to gather views, these are;

- No support for the domestic market
- Lifetime RHI
- Compressed RHI only for 5/7/10 years
- Grant only (max 50% of invoiced costs)

2.47 DETI is keen to hear views on whether a different approach to the proposed 'Compressed RHI plus grant' should be taken. It is worth noting that DETI requires a level of certainty that installations supported under the domestic scheme remain in place to 2020 and beyond. The 7 yr tariff, or longer, provides that level certainty. To reduce the tariff term below 7 yrs would require strict administrative arrangements that would allow claw-back of funding if the technology was made redundant before 2020.

CONSULTATION QUESTION 2.10

If you do not think the grant plus compressed RHI option is appropriate, what is your preference for the design of the domestic RHI? Please explain fully.

TARIFF SETTING METHODOLOGY

2.48 The tariff setting methodology for the domestic RHI is largely similar to that used in setting rates for the non-domestic scheme in that the tariffs are designed to compensate the consumer for the financial costs of the additional capital cost of the renewable heat installation compared with a conventional fossil fuel system and the difference in operating costs over the lifetime of the installation. In addition, the tariffs are expected to compensate for the additional non-financial barriers associated with installing renewable heat.

2.49 The only difference in methodology is that the implied rate of return or discount rate is lower for households than it is for commercial applications. Previously a discount rate between 12-16% had been used for smaller commercial systems that would be a similar scale to domestic installations, this was based on the standard methodology used by DECC in developing the GB RHI levels. However, more recently DECC have used a discount rate of 7.5% for households, DETI has followed this approach – this is the only significant difference in the design of the domestic and non-domestic RHI tariffs.

MEASURING HEAT

2.50 A key issue for the domestic RHI is how the level of renewable heat produced and used by each domestic property is measured and, therefore, how payments will be made. The two options considered by DETI were 'metering' and 'deeming'.

2.51 In the metering scenario, each installation would require a class 2 heat meter to be included with specific guidance on the placement of meters issued by the administrator. The meter would record the heat output of the technology and payments made accordingly. This is how the commercial RHI currently operates. Metering would ensure that systems remain in place and DETI can accurately monitor levels of renewable heat, however, there is a risk that metering could lead to systems being over-used to receive additional payments and their installation could act as a further barrier for domestic customers interested in renewable heat.

2.52 Under a deeming system, each applicant's property is assessed and an expected annual heat demand is calculated – this will factor in the type of heating system, the size of property, the expected use of property, the fabric of the property and other key determining factors. This assumed heat demand is then multiplied by the appropriate tariff to give the payment under the domestic RHI. This approach would have a level of in-built energy efficiency given that it would be in householders interest to use as little heat as possible, it is also a simple system and is broadly in-line with proposals in GB.

2.53 There are, of course other options for assessing heat demand, including requiring each home to present an Energy Performance Certificate (EPC) that would demonstrate expected heat demand. Whilst EPCs have a cost attached they are required when selling homes and therefore would remain useful for the homeowner.

CONSULTATION QUESTION 2.11

Do agree with DETI s proposal to deem heat loads in domestic properties rather than require individual heat meters?

CONSULTATION QUESTION 2.12

Do you have any comments on how heat loads in homes could be most accurately and cost effectively assessed as part of the deeming system?

Circumstances where metering is required

2.54 In the vast majority of cases the payments will be made by the deeming methodology, detail previously. However, in the following cases heat meters[9] will be required;

- **Where the system is not standalone** – DETI understand that in certain circumstances consumers may wish to keep a conventional fossil fuel heating system in place as well as installing the new renewable heat system. This may be due to a desire or need to have a 'back-up' or for efficiency purposes such as heating water in summer months. DETI would anticipate/prefer for bivalent systems to be the exception rather than the norm. In circumstances where a renewable heat technology is installed and an oil or gas boiler remains, a heat meter will need to be installed at the cost to the consumer. As AAHPs cannot be accurately metered these installations will not be able to have a secondary heat source included. This measure does not apply to solar thermal installations as a secondary heat source will always be required for space heating.
- **For systems above 45kW in size** – If it determined that domestic systems above 45 kW_{th} (and below 100kW_{th}) should be treated under the domestic RHI rather than the non-domestic RHI or not provided support at all, these systems would need to be metered. Given that these installations fall outside of MCS, DETI will require heat meters to be installed so performance, usage and efficiency can be measured. Again, the cost of the heat meter will be borne by the consumer.
- **For second homes or social landlords** – Second homes (eg holiday homes or privately rented homes) and social landlord homes will be eligible under the domestic RHI. Firstly, for holiday homes there are legitimate concerns about the level of occupancy of these properties therefore a heat meter will be required to monitor heat usage. For privately or socially rented homes, in the vast majority of cases the decision to install the renewable heat equipment will be taken by the landlord rather than the inhabitant. Therefore, the tenant may not have made the conscious decision to have renewable heating and may decide not to use it as a primary heat source. In addition, rented homes, whilst occupied for the majority of the year may be unoccupied for large period of times also (i.e. student accommodation), therefore the deeming methodology may not be appropriate. For these reasons, all second homes (anything that is not a primary place of residence) will be required to be metered. Applicants will be expected to declare second homes during the application process. Again, the cost of the heat meter will be borne by the owner of the installation.
- **Where DETI decides to install a meter for data collection purposes.** In order to gather data, assess performance and monitor progress against renewable heat targets, DETI may choose to install meters in a random selection of installations. In these circumstances the cost of installation would be borne by DETI.

[9] Heat meter must be a certain standard as per commercial scheme.

2.55 Where meters are installed for bivalent systems; over 45kW systems; and in second homes, the payments will be made on the metered heat output but capped at the deemed level of payment. Where DETI chooses to install a heat meter the payment will be paid through the deeming methodology. Other circumstances may arise during the running of the scheme that requires meters to be installed.

CONSULTATION QUESTION 2.13

Do you have any comments on the proposals relating to the need for heat meters under certain circumstances?

ENERGY EFFICIENCY

2.56 The installation of energy efficiency measures is the most cost-effective method to reduce energy consumption. For renewable heating installations, it is vital that thermal efficiencies are made so smaller, cheaper and more efficient technologies can be installed. Indeed, it is DETI's assumption that those installing renewable heating technologies will have already made their homes as efficient as possible and the installation of the renewable system is the last step in their "low-carbon journey".

2.57 Whilst the deeming methodology has an 'in-built' energy efficiency insofar it is in the interest of the consumer to use as little heat as required there remains a risk that it is advantageous for householders to have inefficient homes with a high heat demand requirement as this could result in higher deemed payments. In the same way, a home with a much lower heat demand because of improvements in energy efficiency could end up receiving lower payments. It is vital that thermal efficiency improvements are encouraged and rewarded. However it is also important that no house or property is excluded because efficiency improvements have not or cannot be made, i.e. energy efficiency requirements should not be a barrier for uptake.

2.58 Based on this assumption, DETI has designed the tariffs to be most appropriate for the most efficient homes and when deeming expected heat loads DETI will assume that applicants have a C-rated home with standard energy efficiency measures in place. DETI will seek information on the dwelling including the size and type of building, from this information a standard assessment will be made on the required heat demand of the household. This assessment will inform the deemed payment.

2.59 For biomass/bioliquids boilers and heat pumps the deemed payment will be based on the expected heat demand (kWh) of the home, based on the assumption that the home is C-rated. DETI views this as a realistic standard that all homeowners can aspire to – in practice the tariff will work best for those in more efficient homes and therefore those wishing to install renewable heat are being incentivised to make their homes as efficient as possible. For solar panels, the deemed payment will be based on the expected contribution of the panel towards the domestic hot water requirements.

CONSULTATION QUESTION 2.14

Do you have any comments on the proposal to assume homes have attained a certain level of energy efficiency when deeming heat loads?

APPLICATION PROCESS

2.60 Whilst the scheme's administration system is still to be determined it is proposed that the application process would be similar to the existing process for the RHI. This would involve applicants installing the renewable heat technology and then seeking accreditation with the administrator. Once the administrator is content that the installation in question meets all the eligibility criteria the upfront support would be awarded and an ongoing payment would be provided on an annual basis on the date of accreditation. The proposed process is outlined below.

Installation	The potential applicant would check all the eligibility standards of the domestic RHI and, once they are content that their installation would be eligible for support, they go ahead with the installation. Some of the key eligibility standards that would need to be considered are that; The technology must be MCS accredited (or equivalent) at the time of installation. The installation must be commissioned by a MCS accredited (or equivalent) installer. The property in question must be domestic. No public grant (other than RHPP) can have been received to support the installation.
Application	It is proposed that applications will be made via an online portal. Applicants will have to provide information largely similar to those requested when applying for the RHPP e.g. details of the applicant, the installed technology and the installer. Information on the property will also be required, including size, use, type etc. To demonstrate eligibility the applicant will also need to provide information relating to the MCS commissioning certificate, the type of premises (rates bill) and demonstrate all necessary building controls/planning permissions have been secured.
Assessment	The application will be assessed and the details provided verified. Where all details have not been provided to DETI s satisfaction the applicant will be contacted asking for further clarification. For systems that require heat meters further information, checks or site visits may be required.
Accreditation and Award	Once all checks have been carried out and the administrator is satisfied the system meets all eligibility standards it will be accredited and the upfront payment will be transferred to the nominated bank account. The applicant will also be informed of their allocated tariff and the expected deemed payment.

CONSULTATION QUESTION 2.15

Do you have comments on the administration arrangements for the domestic RHI?

ONGOING OBLIGATIONS

2.61 There will be ongoing obligations for both the Department and the applicant. Firstly, the Department will be obliged to make ongoing payments for the heat output of the accredited installations. It is DETI's proposal that payments are made annually in arrears with the first incentive payment made 12 months after accreditation. Paying in arrears reflects the position that installers are being supported for the actual renewable heat used; payment in advance would have significant risk and is not required given the capital element of the support. Annual payments are proposed as they are administratively simpler.

2.62 The owner of the equipment must also ensure the technology remains in place, is used appropriately and is maintained to the manufacturer's standards. To ensure these obligations are met DETI will withhold the right to carry out site audits, with installations audited both as part of random sampling or where DETI suspects the rules of the scheme have been broken. In addition, each applicant will be asked to complete an annual declaration of compliance; payments will only be processed when this declaration is received by the administrator.

CONSULTATION QUESTION 2.16

Do you have any views on the timings or frequency of payments?

3

BACKGROUND

3.1 The non-domestic RHI, launched in November 2012, focussed primarily on the better established and well known technologies. This was to act as a primer for the market, to build confidence and understanding of the RHI and to prepare the market for the expansion of the scheme and the introduction of more innovative technologies. The technologies supported under the first phase of the scheme also are likely, for the most part, to be the technologies that contribute greatest to the achievement of the targets of 4% renewable heat by 2015 and 10% by 2020.

3.2 However, it was always DETI's intention to, not only, extend the scheme to domestic customers but also to expand the commercial RHI to include more innovative technologies. This will assist in developing the market and provide further choice for commercial operators wishing to utilise renewable heating. This chapter outlines the new technologies or tariff bands that will be introduced under phase 2 of the RHI, the rationale behind the tariffs developed and the relevant eligibility requirements.

PROPOSALS FOR NEW SUPPORT

3.3 DETI proposes that new support is introduced for a range of new technologies. These technologies tend to be less commonplace and more innovative and therefore additional time has been required to assess the need for support, the appropriate level of support and any other associated issues involved in providing support. The introduction of new tariffs for these technologies will support the further development of the renewable heat sector in Northern Ireland and contribute to the achievement of the targets set.

Tariff setting methodology

3.4 In developing each of the new tariffs the same tariff setting methodology as used under Phase 1 of the scheme was applied. This has four elements;

- Firstly, we identify the required subsidy level, in pence per kWh_{th} to cover the difference between a renewable technology and a conventional boiler. This value is calculated over the lifetime of the technology including variables such as projected fuel costs and non-financial barriers.
- Then, in order to calculate the average lifetime cost, we calculate the annual operating and fuel cost, and add this to the annuitized cost of the upfront capital, installation and barrier costs. We then divide this cost per year by the average annual heat produced to obtain a figure for cost per unit of heat.
- The installations are grouped by technology/kWh_{th} capacity bands to create "supply curves" that represent the renewable heat that would be delivered for a given subsidy level in the absence of any installation or fuel supply barriers.

- Finally, the installation providing the median kWh_{th} on that supply curve is selected as the "reference installation" and the minimum pence/kWh_{th} subsidy required to install the renewable technology to that installation is selected as the RHI rate for the tariff band.

3.5 In the majority of cases the counterfactual fuel position is oil, this reflects the fact that the Northern Ireland heat market remains largely dependent on oil for heating demand and that the vast majority of renewable heat installations will be displacing oil. However in some instances a natural gas counterfactual has been selected, this occurs in circumstances where the mid-point of deployment curve for a particular scale of technology demonstrates that natural gas could be displaced.

Large Biomass (over 1MW)

3.6 Biomass installations over 1MW were not eligible for support under the first phase of the Northern Ireland RHI. The reason for this was that evidence available at the time demonstrated that these types of installations, for the most part, were already cost-effective over the 20 year time period. Whilst it was accepted that a biomass installation over 1MW size was considerably more expensive than the corresponding oil system in terms of capital outlay, the differential in assumed fuel price outweighed the capital costs, given the fuel intensity of these systems, therefore rendering a tariff unnecessary. In fact, when calculating a tariff for this band a negative tariff was generated.

3.7 DETI did undertake to reassess this issue and engaged with sector stakeholders to explore and test the previously held assumptions. Following this re-assessment a number of assumptions were revised;

- The price of wood chip in Northern Ireland was assessed to be higher than in Great Britain.
- Security of supply of biomass fuel was a major concern and the supply of wood chip much more restricted that in Great Britain. This market constraint meant it was likely that wood pellets would be more frequently used as supply of wood chip was limited. A market constraint of 20,000 dry tonnes per annum (this is above the existing wood chip use) of chips was imposed to 2020 representing 85 GWh per annum. This leads to the new assumption that wood pellets will be used more frequently.
- A new sub-sector of 'small industrial' was identified that would encompass potential heat installations between 1MW-10MW. The new Small Industrial category is characterised by food & drink sector, hospitals and universities. Such applications typically have steam as the heat transfer medium. As a result a further change to the assumptions has been to revise the renewable and counterfactual capex figures to be based upon high temperature steam boilers. Steam boilers are more expensive than hot water boilers in particular for biomass systems. The resulting capex increase is from £316/kW to £487/kW.

3.8 The revised assumptions has led to a tariff being set for large biomass installations above 1MW size against a counterfactual position of wood pellets replacing oil. The proposed tariff is 0.6p/kWh for 20 years. This proposed tariff is linked to RPI, similar to all other tariffs.

PROPOSED NEW TARIFF			
Biomass heat only (exc CHP)	1MW and above	20 years	0.6 pence per kWh

CONSULTATION QUESTION 3.1

Do you have any comments on the assumptions used to develop the large biomass tariff?

Biomass and Bioliquid Combined Heat and Power

3.9 Biomass and bioliquid CHP is currently incentivised under the NIRO, with good quality CHP that is accredited under CHPQA in receipt of an additional 0.5 ROC uplift. DETI has indicated that from October 2015 the 0.5 ROC uplift will be withdrawn – good quality CHP projects accredited after this date would be eligible for the relevant electricity only ROC level together with the appropriate RHI tariff. This position is largely consistent with GB however given the fact that DETI has not previously indicated a potential CHP RHI tariff an additional grace period for installations has been allowed rather than adopting the GB timescales of April 2015.

3.10 In developing an appropriate CHP tariff under the RHI, DETI has assumed an investment lifetime of 10 years and a plant lifetime of 20 years. In addition, a discount rate of 12% has been used and the revenue

from ROCs for electricity is included and factored into the analysis. Finally, a counterfactual position of natural gas has been used based on analysis demonstrating that the new CHP sites in 2020 are likely to have access to natural gas as a fuel. Therefore, DETI is proposing a tariff of 3.5 p/kWh for new biomass and bioliquids CHP systems.

3.11 In addition to the tariff for new CHP systems, DETI proposes to introduce a second tariff for existing fossil fuel CHP systems that wish to convert to renewable CHP. The capital costs incurred for converting to renewable CHP from fossil fuel CHP is quite different from the capital costs involved in the development and build of a new renewable CHP station. The tariff for conversion sites has been developed in the same way as the new build CHP tariff however with different assumptions on capex. For existing fossil fuel CHP sites converting to renewable fuelled CHP the proposed tariff is 1.7 p/kWh.

3.12 To receive the RHI the accredited station must be certified under CHPQA. This means before the removal of the existing ROC uplift there could be two different incentive mechanisms for CHPQA systems.

3.13 If the RHI tariff for dedicated Biomass or Bioliquid CHP is approved and introduced in Phase Two of the RHI:

- Before 1 October 2015, generators will have a one-off choice as to which scheme they accredit under (either NIRO uplift or reduced ROC level + RHI);
  - 2 ROCs per MWh; or
  - 1.5 ROCs plus RHI tariff

- From 1 October 2015 and before 31 March 2016, DETI proposes to allow any generating station that has received **pre-accreditation** with Ofgem under the NIRO and is a "qualifying CHP generating station" (this means that they have been issued with a "ROC Eligibility Certificate" in addition to a "Regular CHP" certificate from CHPQA) in advance of 1 October 2015, with a one-off choice of which incentive mechanism to avail of;
  - 1.9 ROCs per MWh; or
  - 1.5 ROCs plus RHI tariff

3.14 Systems that are eligible to choose between the two incentive mechanisms will be asked to make their choice during the accreditation phase. This is a one-off choice and once accredited cannot be revisited.

3.15 DETI expects heat from renewable CHP sites to provide a significant contribution towards the development of the renewable heat market and the achievement of the renewable heat target. It is estimated that over 500 GWh of per annum will be in place through CHP by 2020, over a third of the renewable heat target.

PROPOSED NEW TARIFF			
Biomass or Bioliquid CHP (new system)	All sizes	20 years	3.5 pence per kWh
Biomass or Bioliquid CHP (conversion)	All sizes	20 years	1.7 pence per kWh

CONSULTATION QUESTION 3.2

Do you have any comments on the proposed tariffs and arrangements for CHP systems, including the proposal to introduce separate tariffs for new build CHP systems and for the conversion of existing fossil fuel CHP?

Biomass Direct Air Heating

3.16 Currently the RHI only supports biomass heating whereby the boiler produces heat that is transferred via a delivery liquid or steam to provide central heating, hot water heating or process heating. DETI is now proposing to introduce support for technologies where there is no heat delivery liquid and air is warmed directly through the combustion of biomass – examples of this type of heat use could be found in agriculture in grain drying or in other industrial or commercial drying and curing processes. .

3.17 The issue remains with direct air heating however regarding how the level of heat output is assessed as metering is not appropriate. Therefore a methodology will need to be developed as to how payments can be accurately made against the heat output of these technologies. There are three broad options;

- **Measurement of the biomass** input to determine the expected heat output.

- **A simple deeming approach** similar to the domestic RHI whereby the size of boiler and the size, type and use of property are used to estimate expected heat output.
- **Meter the flow and temperature of gas** – existing metering requirements measure the flow and temperature of the liquid however in the case of biomass direct air a meter may be able to measure flue gases.

3.18 DETI welcomes views on the potential options to assess heat output of biomass direct air heaters. Further guidance on this issue will be provided if a biomass direct air tariff is implemented.

3.19 Two separate tariffs for this technology are proposed, the first of which will cover smaller installations less than 100kW$_{th}$ in size and is proposed to be 5.1 pence per kWh. The second tariff will cover larger technologies over 100kW$_{th}$ but less than 1000kW$_{th}$, this is proposed to be 1.4 pence per kWh. No tariff is offered over 1000kW$_{th}$ in size at this stage.

PROPOSED NEW TARIFF			
Biomass direct air	Less than 100kW$_{th}$	20 years	5.1 pence per kWh
	100 kW$_{th}$ and above but less than 1000kW$_{th}$		1.4 pence per kWh

CONSULTATION QUESTION 3.4

Do you have any comments on the proposal to incentivise biomass direct air heating or the methodology for calculating payments?

ASHPs (Air to Air and Air to Water)

3.20 Air source heat pumps were excluded from phase 1 of the RHI due to a lack of detailed evidence on the costs and performance of the technology and issues surrounding the accurate measurement of heat output. DETI has re-assessed these issues and now proposes to introduce support for both air to air heat pumps (AAHP) and air to water heat pumps (AWHP).

3.21 For AAHP, where heat from air outside is transferred through a heat pump via a liquid and used to produce warm air that is circulated within a building to provide space heating, a tariff of 5.2 pence per kWh is proposed for systems less that 100kW$_{th}$ in size. DETI wishes to limit support for these technologies, at this stage, to smaller systems so the market can be tested and this technology can be rolled out in a staged manner.

3.22 AAHP's are often reversible and can be used to for cooling as well heating, however, guidance from the European Commission states that the cooling element of heat pumps cannot be classed as renewable and therefore is not attributable towards renewable heating targets. This being the case, DETI will limit support for AAHP's for heating only systems, those that are not reversible. Heat only AAHP's are an emerging technology and can be useful to heat building with high space heating requirements but no cooling requirements.

3.23 AWHPs have the potential to displace existing fossil fuel heating systems by providing buildings with space heating and hot water heating by utilizing heat from the outside air transferring this directly to a liquid. These systems are often used alongside under-floor heating but can also integrate with conventional radiator systems. DETI has assessed the costs of these systems and developed a proposed tariff of 2.5 pence per kWh that would be available for systems less than 100kW$_{th}$ in size. Similarly to AAHP, a larger banding for this technology may be considered in due course dependent on evidence gathered during this consultation and through actual deployment of technologies under the RHI.

3.24 Currently, all technologies supported under the RHI must have installed a class 2 heat meter however AAHPs will not be able to meet this criteria and therefore another methodology for determining payment levels is required, as with biomass direct air heating. The preference for DETI would be utilizing a deeming methodology, similar to the domestic scheme, whereby the size, type and use of the building is assessed to determine an expected heat demand that is used to base payments, however this could be more difficult in the non-domestic sector given the wide range of building types and uses. The alternative would be to require a different type of metering based. For AWHPs heat metering will be required as normal.

3.25 Currently, GSHPs supported under the RHI must have a COP of 2.9 or greater. This standard will remain for ASHPs but, in addition, DETI will require that all heat pumps demonstrate that they can attain a seasonal performance factor of greater than 2.5. This will also apply to GSHPs. Guidance on the measurement of SPF will be issued should these proposals be adopted.

PROPOSED NEW TARIFF			
Air to Air Heat Pump	Less than 100kW$_{th}$	20 years	5.2 pence per kWh
Air to Water Heat Pump			2.5 pence per kWh

CONSULTATION QUESTION 3.5

Do you have any comments on the proposed tariffs for AAHPs and AWHPs?

CONSULTATION QUESTION 3.6

Do you have a view on how the heat output of AAHPs could be determined in order to accurately calculate payment levels?

Deep Geothermal

3.26 Under Phase 1 of the RHI deep geothermal installations were eligible through the tariffs set for large ground source heat pumps. At the time of the July 2011 consultation, DETI sought evidence on the potential deployment of deep geothermal energy in Northern Ireland and the existing barriers both financial and non-financial. Early analysis work demonstrated that a tariff range between 1.6p-4.6p could be appropriate depending on the assumptions on the heat being displaced. It was agreed however that further analysis was required and specific support for deep geothermal would be included as part of Phase 2.

3.27 In developing support or incentive measures for deep geothermal, DETI considered two potential options. The first of which was the introduction of a specific tariff for deep geothermal energy. To design the tariff the counterfactual position was re-assessed in line with evidence from stakeholders and experience of recent geothermal developments, this involved new assumptions relating to the likelihood of a geothermal energy developer selling heat to a third party or ESCO rather than taking the heat to individual consumers. This proposed tariff for deep geothermal heating is 3.7 pence per kWh for a maximum of 20 years.

3.28 The second option is to provide support on a competitive basis, whereby potential developers would submit proposals to DETI on a case-by-case basis and DETI would award support, either on the basis of capital grant or a set incentive level, depending on the financial need of the project.

3.29 DETI's preferred approach is the proposed RHI tariff however views are welcomed on the second option of a Challenge Fund scheme. For systems to be classed as deep geothermal the energy must be located and extracted from at least 500 metres beneath the surface of solid earth.

PROPOSED NEW TARIFF			
Deep Geothermal	All sizes	20 years	3.7 pence/kWh

CONSULTATION QUESTION 3.7

Do you have any comments on the proposed level of support for deep geothermal energy?

Bioliquids (heat only)

3.30 As well as considering supporting bioliquids boilers in the domestic sector and bioliquids CHP in the non-domestic sector, DETI also proposes to introduce support for bioliquids boilers (heat only) under the non-domestic RHI. Bioliquids have been incentivised under the NIRO for renewable electricity generation for sometime and DETI is aware that such bioliquids could also have the potential to contribute to renewable heating targets.

3.31 Two tariffs are proposed depending on the scale of the boiler in place, under 100kW$_{th}$ the proposed tariff is 2.6 pence kWh and above 100kW$_{th}$ a tariff of 2.1 pence per kWh is proposed. No tariff above 1MW$_{th}$ is proposed as it is assumed that projects of this scale would be CHP systems and could therefore avail of those relevant tariffs. DETI will, however, consider extending the cap on support for heat only bioliquids to beyond 1MW$_{th}$ if there is sufficient evidence that such projects could be developed in Northern Ireland.

3.32 The RED sets out sustainability criteria for bioliquids, these are already enforced under the Renewables Obligation[10] and the same standards would apply under the RHI. Fuels that are supported under the bioliquids RHI tariff would need to comply with these standards.

3.33 DETI understands that there is some interest in tallow in Northern Ireland. Currently much of the UK's tallow resource is refined into bio-diesel. We propose that the use of tallow oils and meat and bone meal (MBM) are allowed in the non-domestic sector under the RHI, providing they meet the aforementioned RED eligibility standards. Where a solid fuel combustion boiler is installed, rather than a liquid fuelled boiler, the appropriate tariff would be the biomass tariff and not the bioliquids tariff. As with all the proposed tariffs, the bioliquids tariff will be subject to public consultation and approval from the EU Commission.

PROPOSED NEW TARIFF			
Bioliquids	Less than 100kW$_{th}$	20 years	2.6 pence/kWh
	100kW$_{th}$ and above but less than 1000kW$_{th}$		2.1 pence/kWh

CONSULTATION QUESTION 3.8

Do you think DETI should incentivise the use of heat only bioliquids boilers in the non domestic sector and do you foresee any problems with the approach proposed by DETI?

CONSULTATION QUESTION 3.9

Do you agree with the assumption that bioliquids systems above 1MW$_{th}$ will be CHP or is there potential for heat only systems above 1MW$_{th}$?

Large biogas over 200kW$_{th}$ and Landfill Gas

3.34 DETI has assessed the need for and potential of support for renewable heat generation from large biogas over 200kW$_{th}$ and from heat recovery from landfill gas.

3.35 Firstly, biogas combustion is currently supported under the RHI under 200kW$_{th}$ but only in circumstances where the plant is not accredited under the NIRO and in receipt of ROC support. This is due to the fact that ROC levels for anaerobic digestion are already sufficient to support deployment of this technology and the award of a RHI would not be supporting additional renewable heat. DETI has considered support for larger systems but is of the view that no 'heat-only' AD systems will be deployed whilst ROC levels remain at the current level, therefore the RHI would not be supporting additional renewable heat.

[10] The RO sustainability criteria are outlined on the Ofgem website: http://www.ofgem.gov.uk/Sustainability/Environment/RenewablObl/FuelledStations/ro-sustainability/Documents1/Sustainability%20Criteria%20for%20Bioliquids%2019%2012%202011.pdf

3.36 If DETI were to consider providing RHI support for heat recovery from AD CHP this would, most likely, have an impact on the existing ROC level. As the ROC support is providing sufficient support for AD currently, DETI has no plans to either review this support or introduce RHI. Heat only AD systems under 200kW$_{th}$ remain eligible for support.

3.37 Secondly, landfill gas is currently incentivised under the NIRO for the generation of renewable electricity and it could be assumed that heat recovery from landfill gas would only take place where electricity is currently being generated (ROC support for landfill gas ceases in April 2015; from 1 April 2015, 0.1 ROC will be available for heat recovery for new landfill gas sites). Of the 6 accredited landfill gas sites under the NIRO there is only one site that is in close proximity to a potential heat load – this is not surprising given the nature of landfill sites results in them often to be far from commercial or domestic buildings. Therefore any heat recovery from landfill would most likely require lengthy pipework or the creation of new and potentially artificial heat loads. In addition, as landfill gas is diminishing the likelihood of significant deployment and contribution to the 2020 target is minimal.

3.38 Given the very limited potential to contribute to targets, the risk that artificial heat loads could be created to claim RHI and the diminishing nature of landfill meaning that it would need to be replaced within a short period of time, DETI does not propose to incentivise heat recovery from landfill under the RHI.

Large Solar

3.39 DETI also considered the need for incentive support for solar thermal installations over 200kW in size. The experience in the existing UK market is that solar thermal installations over 200kW$_{th}$ are not being considered. This is demonstrated insofar that currently under the GB RHI, as demonstrated by the Ofgem public report[11], there is 662kW$_{th}$ installed in England across 52 separate installations representing an average capacity of 12.7kW$_{th}$. A formal definition of what is large scale solar thermal does not exist but one training course[12] defines it broadly as 40m^2, this represents less than 40kW$_{th}$. In addition, to date no solar thermal installations have been accredited under the Northern Ireland scheme.

3.40 Installations above 200kW$_{th}$ are likely to require a connection to a district heat network, this reflects the variable heat outputs and examples from Europe in particular Germany and Denmark. Solar thermal with district heating would require a community type scheme. This illustrates the fact that 200kW$_{th}$ solar thermal is a truly large installation requiring at least 250m^2 for the collectors. In addition to the above market constraints there is no available evidence of UK solar thermal costs above 200kW.

3.41 DETI has therefore concluded that a tariff for this category is not appropriate until examples in the 50-200kW$_{th}$ category arise.

[11] https://rhi.ofgem.gov.uk/Public/ExternalReportDetail.aspx?RP=RHIPublicReport
[12] http://wagner-academy.com/events/solar-thermal-large-scale-training-16082012/

TABLE OF PROPOSED TARIFFS

3.42 A full list of the proposed tariffs, including existing tariffs, are detailed below

Tariff name	Size	Tariff duration (years)	Northern Ireland levels (pence per kWh)
Air to Air Air Source Heat Pumps	Less than 100kW$_{th}$	20	5.2
Air to Water Air Source Heat Pumps	Less than 100kW$_{th}$	20	2.5
Bioliquids	Less than 100kW$_{th}$	15	2.6
	100kW$_{th}$ and above but less than 1000kW$_{th}$		2.1
Biomass (heat only)	Less than 20kW$_{th}$	20	6.3
	20kW$_{th}$ and above but less than 100kW$_{th}$		6.1
	100kW$_{th}$ and above but less than 1000kW$_{th}$		1.5
	1000kW$_{th}$ and above		0.6
Biomass or Bioliquid Combined Heat and Power (new sites)	All sizes	20	3.5
Biomass or Bioliquid Combined Heat and Power (conversion from fossil fuel)	All sizes	20	1.7
Biomass Direct Air	Less than 100kW$_{th}$	20	5.1
	100kW$_{th}$ and above but less than 1000kW$_{th}$		1.4
Biomethane	Biomethane all scales, biogas combustion less than 200kW$_{th}$	20	3.1
Deep Geothermal	All scales	20	3.7
Ground Source Heat Pumps (exc deep geothermal)	Less than 20kW$_{th}$	20	8.8
	20kW$_{th}$ and above but less than 100kW$_{th}$		4.8
	100kW$_{th}$ and above		1.3
Solar Thermal	Less than 200kW$_{th}$	20	8.8

DISTRICT HEATING

3.43 A 2010 study in the development of the Northern Ireland renewable heat market demonstrated that 31 per cent of Northern Ireland's heat demand lies in areas that could be suitable for district or community heating schemes, where one heat source supplies heating for a number of different buildings. These projects often have additional capital costs because of the need for pipework to transport heat from the heat source to the buildings connected to the network.

3.44 As part of this second phase of the RHI, DETI has considered whether renewable district heating required a specific 'uplift' tariff under the RHI to account for the additional costs incurred. This is a complex task as community or district heating schemes are all very different nature and their costs are very specific to the scale and type of project and the type of heating being displaced. To consider how a tariff could be designed DETI considered a range of district heating scenarios from small schemes linking existing domestic homes to larger schemes that serviced a range of premises including hard-to-treat buildings. This allowed DETI to assess the additional costs of deploying a centralised renewable heat system rather than individual boilers.

3.45 A tariff range for the uplift of 4p/kWh to 14p/kWh was developed, highlighting the differences in the scenarios and the variables within each potential district heating. At this stage, DETI are considering introducing an uplift tariff of 7p/kWh for community heating or district heating schemes. There will of course be stringent eligibility requirements to prevent potential applicants putting in place very small district heating schemes, at little additional cost, to secure a higher tariff.

3.46 Therefore DETI proposes a number of key eligibility criteria;

- The uplift will only be available for biomass heat only systems above 200kW in size.
- All applications must be made in advance of installation via the pre-accreditation route with the administrator.
- The centralised boiler must be a new technology and newly installed, pre-existing boilers cannot be used to heat new district heating schemes.
- Pipework must be new to the installation and represent a new heat linking opportunity, and not for the refurbishment of an existing district heating network.
- It must be demonstrated that individual boilers will be displaced by one or more centralised plant.

3.47 For this tariff to be implemented DETI will also be required to introduce a definition of district heating. The definition will focus on larger schemes with larger heat loads and connections to a number of buildings. It would not be DETI's intention to allow this 'uplift' to be available to smaller schemes that only connect to a small number of buildings, as they schemes do not incur the same costs or difficulties as large district heating projects. In addition, DETI may impose a cap on payments to prevent over-incentivisation, e.g. the 7 pence up lift would only apply for the first 1314 peak load hours, after which point the tariff would revert to the standard biomass tariff, either 1.5 pence or 0.6 pence.

3.48 As this is a complex area, DETI welcomes views on the proposals, the suggested uplift tariff and the eligibility criteria and how the definition of district heating could be crafted.

PROPOSED UPLIFT FOR DISTRICT HEATING			
Biomass District Heating	200kW$_{th}$ and above	20 years	7 pence / kWh

CONSULTATION QUESTION 3.10

Do you agree that district or community heating systems require an additional tariff uplift under the RHI scheme?

CONSULTATION QUESTION 3.11

Have you any comments on the level, design or eligibility requirements of the district heating uplift?

CONSULTATION QUESTION 3.12

Do you foresee any difficulties in the introduction of the proposed uplift?

CONSULTATION QUESTION 3.13

Do you have any views on the potential legal definition of district heating?

CHALLENGE FUND ALTERNATIVE

3.49 There are a number of technologies where DETI has proposed introducing a RHI tariff whilst also suggesting the possibility of an alternative method of support via a competitively awarded challenge fund. Technologies where a challenge fund could be considered, instead of a RHI tariff, would be large biomass (over $1MW_{th}$), deep geothermal or district heating schemes. The reason why a challenge fund scheme could be considered in place of a RHI tariff is because the numbers of potential schemes are small and the capital costs may be barrier to deployment.

3.50 For the sake of clarity DETI wish to outline how a challenge fund scheme could work. Under a challenge fund scheme applicants would be invited on an annual basis to 'bid' for capital funding for their scheme, whether it be a large biomass system, a deep geothermal project or a district heating scheme. Applicants would be asked to submit detailed information on their proposals including the costs, the scale and the expected level of renewable heat delivered. From this information DETI would assess which projects offered the best value for money in terms of £ per kWh and offer funding accordingly. Projects would be ranked based on this evaluation metric (other evaluation criteria might also be considered) and the funding would be distributed based on the rankings until either the budget was exhausted or the proposed projects did not offer value for money. There would be rules regarding the maximum level of grant that could be awarded and when the money had to be drawn down.

3.51 The purpose of the challenge fund would be to deliver a small number of exemplar projects and to reduce the barrier that projects face in terms of up front capital. It would, however, be in place of a RHI tariff and therefore the ongoing operating costs would be borne solely by the owner of the technology. This type of mechanism could be considered for less common systems with higher upfront costs such as large biomass, deep geothermal or district heating; however DETI recognises that the RHI tariff may provide greater certainty for investors. DETI welcomes views on whether the challenge fund option should be considered for any specific technologies or schemes.

CONSULTATION QUESTION 3.14

Do you think a challenge fund option might be more appropriate for any specific technologies or projects? Please provide a full explanation.

COMPATIBILITY WITH OTHER GRANT SUPPORT

3.52 As with the existing RHI scheme, new tariffs introduced under phase 2 of the RHI are not compatible with any other grant support. If an applicant receives public funding for the installation of a renewable heat technology, this installation will not be eligible to receive RHI support. The RHI is designed to cover all additional costs of installing a renewable heat technology (capex, opex and hassle costs) therefore providing RHI to installations that have received another form of public support would amount to over-incentivisation.

3.53 Eligible installations that were installed and commissioned since 1 September 2010 up until the date whereby the phase 2 measures come into effect will be given the opportunity the repay any grant received in order to receive RHI support. The option of repaying grant will only be available to technologies installed during this time period.

SETTING STANDARDS, IMPROVING PERFORMANCE AND COST CONTROL

4.1 This chapter deals with administration changes to the RHI. These include the implementation of standards for biomass sustainability and a new mechanism for controlling costs. DETI also proposes to make some minor changes on heat metering to make the metering requirements simpler, there are also some minor legislative changes proposed. DETI also wishes to seek views on the issue of introducing air quality standards and enhanced preliminary accreditation. DETI has no immediate plans to introduce either of these measures however wishes to gather the views of stakeholders in advance of further consideration.

BIOMASS SUSTAINABILITY

4.2 As DETI is now proposing to introduce tariff support for biomass over 1MW in size, both in terms of heat-only and CHP systems, it will be necessary to also introduce biomass sustainability and reporting standards. This is important to ensure the biomass is being sourced in a sustainable way; similar practices are commonplace under the NIRO and will shortly come into effect for the GB RHI.

4.3 The focus of the biomass sustainability standards will be larger installations that are consuming the most fuel. Systems over 1MW in size (both in terms of heat only and CHP) will be expected to comply with proposed standards and provide regular reports to the scheme's administrator to demonstrate compliance. The proposed standards are in line with GB and have two criteria;

i) **A green house gas (GHG) lifecycle emissions target** whereby solid biomass or biogas/biomethane will have to achieve GHG savings of 60% compared to the GHG emissions of the EU fossil heat average. This equates to lifecycle emissions of less than or equal to 125.28kg CO_2 equivalent per MWh of biomass heat generated. This assumes a boiler efficiency of 70%.

ii) For **land criteria** DETI propose to use the same criteria set for the GB RHI and determine that solid biomass sourced from a Forest Law Enforcement, Governance and Trade (FLEGT) partner to be considered as satisfying the land criteria. Further consideration is required on how biomass not sourced from a FLEGT partner might be treated. For other biomass, biogas/biomethane feedstocks and bioliquids the set land criteria will correspond with standards set under the EU Renewable Energy Directive for biofuels and bioliquids.

4.4 Systems over 1MW_{th} will be expected to comply with these standards and retain records that demonstate compliance. In addition, RHI recipients would be expected to provide reports to Ofgem on the sustainability of the fuel used, in the first year these reports would be provided to Ofgem on a quarterly basis and in subsequent years on an annual basis. The report would need to clearly show that both the CHG lifecycle emissions target and the land criteria had been met.

4.5 DETI is also considering adopting GB proposals to extend biomass sustainability requirements to technologies less than 1MW_{th}, however with less stringent reporting given that these RHI recipients are unlikely to be energy professionals. Instead, accredited installations under 1MW_{th} would be expected to source their biomass fuel from an approved list of suppliers, these suppliers, in turn, would have to demonstrate how their fuel source adhered to the set standards. Those purchasing from approved

suppliers would be required to retain receipts detailing their supplier and the information on the fuel (calorific value, weight, moisture content etc) as well as making an annual declaration of compliance. Those RHI recipients that supply the fuel themselves, from the same estate as where the boiler is located, would be able to register as an approved supplier via a simpler process as a "self-supplier".

4.6 These biomass sustainability standards would apply to all relevant accredited installations, including existing accreditations and new applications. If the criteria change in the future the new criteria would only apply to new accreditations.

4.7 DETI welcomes comments on the proposed biomass sustainability standards, especially on the criteria for systems over 1MW_{th} and the potential to introduce an approved suppliers list for smaller installations in the future.

CONSULTATION QUESTION 4.1

Do you foresee any difficulties for biomass systems over 1MW_{th} adhering to the proposed biomass sustainability standards?

CONSULTATION QUESTION 4.2

Do you have any comments on the potential extension of these standards to all relevant installations and the introduction of an approved supplier list?

AIR QUALITY STANDARDS

4.8 DECC has recently proposed to introduce air quality standards for the RHI in England, Scotland and Wales and propose to introduce Regulations in due course to underpin these new standards. The intention of these new standards is to limit the pollutants associated with biomass heating and will apply to biomass installations smaller than 20 MW_{th}. The maximum permitted emission limits will be 30 grams per gigajoule (g/GJ) net thermal input for particulate matter (PM) and 150 g/gj for NOx. These standards would apply to all new installations commissioned after the date the Regulations come into effect with applicants having to provide a certificate demonstrating that their installation has been tested and met these standards. Once installations are accredited they would not be expected to comply with any further changes to emissions limits.

4.9 DETI welcomes views on the issue of air quality standards; the limits set under the GB RHI and the potential introduction of similar standards in Northern Ireland. Specifically, DETI wishes to better understand the impact of implementing the standards proposed in GB both in terms of air quality and the deployment of biomass. The RHI is designed to achieve a level of 10% renewable heat by 2020 and it is expected that a significant proportion of that target will be met through biomass heating. It is therefore imperative that the impact of increased levels of biomass heating on air quality standards is understood and, if necessary, safeguards are put into place. It is also important that air quality standards set by the EU are adhered to. It is not DETI's intention for the RHI to unintentionally impact upon air quality standards, therefore, the issue of emission limits for biomass installations must be carefully considered.

CONSULTATION QUESTION 4.3

Do you have any comments on the potential future introduction of air quality standards?

METERING ARRANGEMENTS

4.10 DETI is conscious that whilst heat metering is intrinsic to the RHI and is essential to make payments to installers, it is a relatively new area for many of those involved in installing renewable heat technologies, be it applicants or installers. To ensure that heat metering doesn't become a barrier to deployment it is proposed that metering arrangements for the non-domestic RHI are revised to make the requirements simpler and more flexible. The proposed changes are as follows;

- **Redefining what constitutes a 'simple' or 'complex' system** – It was DETI's expectation that most installations accredited under the RHI will be 'simple' rather than 'complex' systems, however the existing definitions have meant that this hasn't necessarily been the case. These definitions will be revised to allow 'simple' systems to encompass the majority of cases where only one technology has been installed or where multiple technologies have been installed but can be metered by a single shared meter. The current definition will, therefore, be revised to remove the need for the installation(s) to be in the same building as where the heat load is required. This should remove the need for multiple meters for systems where a boiler house is separate to the heat load – however external piping will need to be insulated and limited to 10 metres. The 'complex' definition will be amended to provide the administrator with more powers to require meters to be installed to ensure accurate heat calculations. The requirement that a meter be present both at the point of generation and of use will be removed and the scheme's administration will be able to take a more flexible approach.
- **Allowing heat losses from insulated external pipes –** The existing need to measure and report heat losses through external pipework can be difficult for some applicants and could act as a barrier for larger schemes, including district heating projects. DETI therefore proposes to remove the requirement on such heat losses on scenarios where the external pipework is less than 10m in length and is insulated to set standards. Installations with pipework greater than 10m in length will still need to abide by these insulation standards and will be required to present appropriate heat loss calculations. Where the heat loss is calculated to be less than 3% it will be treated as zero.
- **Removing the need for unduly burdensome meters** – Currently there is little flexibility within the Regulations regarding the installation of meters that create significant technical difficulty or are disproportionately costly. DETI will therefore provide greater flexibility in this area and provide the opportunity for heat loss calculations to be used instead to meters. Circumstances where heat loss calculations will be accepted rather than metering include;
  - Where heat loss calculations could prove to be more accurate than meters.
  - Where metering is technically impractical.
  - Where the cost of meters would be a significant proportion of the total installation costs.
  - Where the administrative costs of checking metering placement and processing information would be greater than the value of the losses.

  The administrator will need to be satisfied with the information provided by applicants and will determine whether heat loss calculations can be accepted in place of additional metering. This regulation will not apply to simple metering systems.
- **Changing the approach to ineligible renewable heating –** Currently all ineligible heating must be metered, this includes ineligible renewable heating. This could lead to scenarios where someone has installed a solar thermal panel pre-September 2010 (rendering the installation ineligible) but is required to install a meter. The metering of ineligible solar thermal panels could be at a disproportionate cost for the actual heat output of that technology. Therefore, it is proposed, that in scenarios where ineligible renewable heating accounts for less than 5% of the total heat generated across all installations or has a capacity less than 5kW_{th} a meter will not be required.
- **Proxy measurements for gas and electric heat sources** – The existing Regulations require that any all ineligible fossil fuel heating is metered so this figure can be assessed whilst making payments for the eligible renewable heating element. In some scenarios there are more cost-effective methods for assessing these fossil fuel levels, either by measuring the fuel input (for natural gas) or the electrical power (for immersion heaters). Therefore, DETI proposes to allow 'proxy' measurements for gas and electric heat sources. This revision will not apply to heating oil.

4.11 Further guidance on all these metering issues will be published in advance of the regulations coming into effect. DETI welcomes comments on existing metering requirements and the proposed revisions.

CONSULTATION QUESTION 4.4
Do you foresee any issues with the implementation of the proposed revisions to existing heat metering regulations?

COST CONTROL

4.12 Given the introduction of tariffs for larger systems and the need to maintain confidence and consistency in the scheme DETI is proposing to introduce cost control measures that would ensure budgetary levels wouldn't be breached and to remove the need for emergency reviews or reductions in tariffs at short notice. DECC are in the process of introducing a system of tariff degression in GB whereby tariffs will automatically reduce when deployment levels reach set trigger points. DETI expect to introduce similar measures in the future but in the interim it is proposed that a simpler system is put in place.

4.13 The RHI is different in nature to the NIRO in that there is a finite budget for new installations and these budget limits cannot be breached. Whilst tariffs are designed to ensure that the budget is adhered to there is always a risk that renewable heat technologies might be deployed in greater numbers than what is forecast and payments exceed expectations. The risk of this increases as tariffs become available for larger technologies such as biomass over 1MW, biomass/bioliquids CHP and deep geothermal. Therefore DETI must retain the right to suspend the scheme if budget limits could be breached; however this will only happen at a last resort and, at this stage, is not envisioned to happen.

4.14 In order to ensure confidence in the scheme continues DETI proposes to introduce a number of trigger points that will provide forewarning to potential applicants that the committed budget is nearing the set limit. The trigger points are set out in table below.

	BUDGET LEVELS	ACTION	RATIONALE / FURTHER INFORMATION
TRIGGER 1	50% of annual budget is committed	DETI will make a public notification of the committed budget.	So all applicants are aware of budget levels and potential DETI actions.
TRIGGER 2	60% of annual budget is committed	DETI will make a public notification of the committed budget and warn that the domestic RHI may need to close if the next budget trigger point is reached.	If the budget levels could be breached the domestic RHI will close first. The domestic sector contributes less overall renewable heat to the target and in general terms is less cost-effective than the non-domestic scheme.
TRIGGER 3	70% of annual budget is committed	DETI will make a public notification of the committed budget and will begin procedures to close the domestic RHI for the financial year. The domestic scheme will remain open for new applications for 4 weeks after which no further applications will be accepted until the new financial year. Incomplete applications will be rejected. Applications will re-open for the domestic scheme on 1 April.	The closure of the domestic RHI will be only until the new financial year and will not affect accredited applications.

	BUDGET LEVELS	ACTION	RATIONALE / FURTHER INFORMATION
TRIGGER 4	80% of annual budget is committed	DETI will make a public notification of the committed budget levels and warn that the non-domestic RHI may need to close if the next budget trigger is reached. DETI will formally advise the administrator to prepare for closure.	When this level is reached DETI will begin processes to stop the non-domestic RHI however formal closure will not begin until the next trigger point.
TRIGGER 5	90% of annual budget is committed	DETI will make a public notification of the committed budget and will begin procedures to close the domestic RHI for the financial year. The scheme will remain open for 4 weeks, with only schemes receiving full accreditation within this timescale being supported.	All applicants will be given 4 weeks to attain full accreditation with the administrator; this means having the system in place and ensuring the administrator has all relevant information to accredit. Applications that fall outside of the time period will continue to be considered by the administrator however accreditation will not be awarded until 1 April.

4.15 This proposal will provide DETI with the ability to control the uptake of the scheme and ensure that budgets are not overcommitted; however it will also provide potential applicants with adequate information on the progress of the scheme and the potential for closure.

4.16 DETI welcomes views on this proposal and specifically on the proposed trigger points, actions and rationale.

CONSULTATION QUESTION 4.5
Do you foresee any difficulty or issues with the implementation and administration of the outlined cost control measures?

ENHANCED PRELIMINARY ACCREDITATION

4.17 DETI also wish to seek views on the need for enhanced preliminary accreditation whereby applicants could have a tariff level guaranteed before embarking on the development and installation of the technology. DECC has previously considered introducing enhanced preliminary accreditation given the fact the tariffs in GB are potentially subject to degression and therefore can reduce once pre-assigned trigger points are achieved. DETI does not propose to introduce degression until 2014/15 at the earliest and therefore the need for enhance preliminary accreditation is much less, however DETI welcomes views on the matter.

4.18 It is likely that if such a measure were to be introduced in the future it would be for the largest installations where there is greatest risk attached. Currently preliminary accreditation (whereby applicants can submit plans before installation to get a formal view on eligibility) is restricted to biomass over 200kW, biogas and deep geothermal, it could be expected that enhanced preliminary accreditation would apply to these systems and large GSHPs over 200kW. Whilst enhanced preliminary accreditation would provide greater certainty for investors and reduce risk it could also lead to speculative applications being made and budget being set aside for projects that do not come to fruition. It would therefore be

necessary to ensure that enhanced preliminary accreditation is time-restricted, i.e. the enhanced preliminary accreditation would lapse if the project was not in place within 12 months.

4.19 It is currently DETI's view that in the absence of degression, enhanced preliminary accreditation is unnecessary and not in need of urgent consideration as tariffs will not reduce unless part of a formal review and consultation. However, DETI welcomes views on the need for enhanced preliminary accreditation in the future and the potential eligibility criteria.

CONSULTATION QUESTION 4.6

If DETI were to introduce enhanced preliminary accreditation in the future, what eligibility standards should apply in terms of size and type of technology and regarding the length of time where the tariff could be held for the project?

OTHER ISSUES

4.20 There are other minor changes DETI proposes to make to the commercial RHI scheme to support improved performance and to remain in line with DECC in terms of administration.

- **Dealing with annual inflationary adjustments –** Each year the tariffs are adjusted in line with the Retail Price Index (RPI) with the revised tariffs applying to existing accreditations as well as new installations. This adjustment resulted in tariffs increasing by 3.1% in April 2013. The NI RHI Regulations currently specify that tariffs are rounded to the nearest tenth of a penny; this fact resulted in the smaller tariffs for larger technologies not being affected by the RPI adjustment. DETI consider that this could mean these tariffs are disadvantaged. To rectify this issue, DETI propose to amend Regulations so tariffs are rounded both to the nearest tenth of the penny and the nearest twentieth of a penny and the tariff is adjusted to whichever is the greater value. In practice, this will have no impact on the tariffs for smaller technologies but will ensure larger technologies receive an inflationary rise. This proposal would have resulted in a large biomass tariff of 1.55 pence and a larger GSHP tariff of 1.34 pence.

- **Defining an installation** – DETI proposes to revise the definition of an 'installation', in line with DECC, so a more pragmatic approach can be taken in the determination of what constitutes an installation. This is intended to remove the potential for owners replacing functioning auxiliary elements of technologies just in order to claim the RHI.

- **Process within a building –** The NI RHI Regulations state that the heat generated by a renewable source for heating a space; heating liquid; or for carrying out a process must be used within a building. The building must be permanent and fully enclosed. DETI recognise that this leads to difficulty in accrediting some processes that cannot be carried out within a fully enclosed building i.e. drying of crops. DETI is therefore considering revising the Regulations to state that heat for carrying out certain processes (such as drying) does not have to be used within a building; this requirement would remain in regards heating a space or liquid.

- **Allowing relocation of renewable heat plants –** Currently only 'new' installations are deemed eligible under the RHI, therefore second hand equipment is not allowed nor can a technology be accredited twice in two different locations. DETI has considered this issue and proposes to allow accredited systems to be relocated and remain eligible for support, providing it meets all other eligibility criteria at the new location. This should reduce the risk involved in projects by providing certainty that if a site can no longer use the accredited technology it can be resold or relocated and remain eligible for the ongoing support. The total length of time a single technology is incentivised will not exceed 20 years. Second hand technologies, which have not previously been accredited under the RHI, remain ineligible.

- **Clarification on the use of ground water for GSHPs** – Currently the NI RHI Regulations specify that GSHPs must source their heat from surface water only. This will be revised to enable heat pumps to source their heat from both surface and ground water.

CONSULTATION QUESTION 4.7

Do you have any comments on DETI s proposals relating to inflationary changes; the definition of an installation; the eligibility of processes within a building; the relocation of plants or use of ground water for GSHPs?

NEXT STEPS AND HOW TO RESPOND

5

NEXT STEPS

5.1 This consultation sets out DETI's proposals for the second phase of the RHI. **These proposals are, of course, subject to change depending on the outcome of the public consultation.** In addition, before the second phase of the RHI can be implemented and new tariffs introduced there must be engagement with the EU Commission regarding State Aid Rules. These proposals are therefore not only subject to consultation but also approval from the EU Commission.

5.2 Following this consultation DETI will seek to consider all views offered and finalise the policy position, a response to the consultation and information on the final policy design will be published. DETI will then seek to receive all necessary approvals, put in place appropriate administrative arrangements and pass relevant legislation.

HOW TO RESPOND

5.3 The consultation period will close on **Monday 14 October 2013.** Responses to this consultation should be forwarded to reach the Department on or before that date, and should be sent to by post to:

Peter Briggs
Department of Enterprise, Trade and Investment
Room 47
Netherleigh House, Massey Avenue,
Belfast
BT4 2JP.

Or by e-mail

NI.RHI@detini.gov.uk

CONFIDENTIALITY & DATA PROTECTION

5.4 Your response may be made public by DETI. If you do not want all or part of your response or name made public, please state this clearly in the response by marking your response as 'CONFIDENTIAL'. Any confidentiality disclaimer that may be generated by your organisations IT system or included as a general statement in your fax cover sheet will be taken to apply only to information in your response for which confidentiality has been specifically requested.

5.5 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 (these are primarily the Freedom of Information Act 2000 (FOIA) and the Data Protection Act 1998 (DPA)). If you want other

information that you provide 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, amongst other things, with obligations of confidence.

5.6 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. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

COPIES OF THE CONSULTATION

5.7 This consultation document is being produced primarily in electronic form and may be accessed on the DETI Energy website: www.energy.detini.gov.uk or may be obtained in hard copy from the address above or by telephoning 028 9052 9581. If you require access to this consultation document in a different format – e.g. Braille, disk, audio cassette – or in a minority ethnic language please contact Peter Briggs on 028 9052 9581 and appropriate arrangements will be made as soon as possible.

CONSULTATION QUESTIONS

6

THE DOMESTIC RHI

2.1 Do you have any comments on DETI's proposals regarding the eligibility of second homes, holiday homes, privately / social rented homes or farmhouses?

2.2 Do you have any views on how domestic installations over 45kW should be treated?

2.3 Do you foresee any difficulty with the implementation of DETI's proposal regarding domestic installations larger the 45kW and those in excess of 100kW?

2.4 Do you have any comments on the proposed list of eligible technologies?

2.5 Regarding the less well-established technologies of air to air heat pumps and bioliquids, do you think these technologies could provide a significant contribution to the renewable heat sector and should therefore be incentivised?

2.6 Do you have any comments on the proposed standards relating to MCS and Oftec?

2.7 Are there any technologies that are not currently being proposed for support that you feel could have a significant contribution in the development of the local renewable heat market? Please fully explain your answer.

2.8 Are you supportive of DETI's proposal to offer up front grant plus a compressed RHI payment for domestic installations?

2.9 Do you think the proposed support levels and tariffs are appropriate for this sector? If not please explain with evidence.

2.10 If you do not think the grant plus compressed RHI option is appropriate, what is your preference for the design of the domestic RHI? Please explain fully.

2.11 Do agree with DETI's proposal to 'deem' heat loads in domestic properties rather than require individual heat meters?

2.12 Do you have any comments on how heat loads in homes could be most accurately and cost-effectively assessed as part of the deeming system?

2.13 Do you have any comments on the proposals relating to the need for heat meters under certain circumstances?

2.14 Do you have any comments on the proposal to assume homes have attained a certain level of energy efficiency when deeming heat loads?

2.15 Do you have comments on the administration arrangements for the domestic RHI?

2.16 Do you have any views on the timings or frequency of payments?

EXPANSION OF THE NON-DOMESTIC RHI

3.1 Do you have any comments on the assumptions used to develop the large biomass tariff?

3.2 Do you have any comments on the proposed tariffs and arrangements for CHP systems, including the proposal to introduce separate tariffs for new build CHP systems and for the conversion of existing fossil fuel CHP?

3.3 Do you agree with the proposal to introduce separate tariffs for new build CHP systems and for the conversion of existing fossil fuel CHP?

3.4 Do you have any comments on the proposal to incentivise biomass direct air heating or the methodology for calculating payments?

3.5 Do you have any comments on the proposed tariffs for AAHPs and AWHPs?

3.6 Do you have a view on how the heat output of AAHPs could be determined in order to accurately calculate payment levels?

3.7 Do you have any comments on the proposed level of support for deep geothermal energy?

3.8 Do you think DETI should incentivise the use of heat only bioliquids boilers in the non-domestic sector and do you foresee any problems with the approach proposed by DETI?

3.9 Do you agree with the assumption that bioliquids systems above $1MW_{th}$ will be CHP or is there potential for heat only systems above $1MW_{th}$?

3.10 Do you agree that district or community heating systems require an additional tariff uplift under the RHI scheme?

3.11 Have you any comments on the level, design or eligibility requirements of the district heating uplift?

3.12 Do you foresee any difficulties in the introduction of the proposed uplift?

3.13 Do you have any views on the potential legal definition of district heating?

3.14 Do you think a challenge fund option might be more appropriate for any specific technologies or projects? Please provide a full explanation.

SETTING STANDARDS, IMPROVING PERFORMANCE AND COST CONTROL

4.1 Do you foresee any difficulties for biomass systems over $1MW_{th}$ adhering to the proposed biomass sustainability standards?

4.2 Do you have any comments on the potential extension of these standards to all relevant installations and the introduction of an approved supplier list?

4.3 Do you have any comments on the potential future introduction of air quality standards?

4.4 Do you foresee any issues with the implementation of the proposed revisions to existing heat metering regulations?

4.5 Do you foresee any difficulty or issues with the implementation and administration of the outlined cost control measures?

4.6 If DETI were to introduce enhanced preliminary accreditation in the future, what eligibility standards should apply in terms of size and type of technology and regarding the length of time where the tariff could be 'held' for the project?

4.7 Do you have any comments on DETI's proposals relating to inflationary changes; the definition of an installation; the eligibility of processes within a building; the relocation of plants or use of ground water for GSHPs?

GLOSSARY

AAHP	means air to air heat pump (a type of air source heat pump_
ASHP	means air source heat pump
AD	means anaerobic digestions
AWHP	means air to water heat pump (a type of air source heat pump)
Biomass	means animal or plant matter that is used as a fuel
Bioliquids	means liquid fuel for energy purposes produced from biomass
Capex	means the capital expenditure involved in an installation
CHP	means Combined Heat and Power. A CHP system produces both electricity and heat for energy consumption.
CHPQA	means CHP Quality Assurance Programme, which assesses good quality CHP capacity.
COP	means the co-efficient of performance of a heat pump
DECC	means the Department of Energy and Climate Change
Department	means the Department of Enterprise, Trade and Investment.
DETI	means the Department of Enterprise, Trade and Investment.
DHW	means domestic hot water
EPC	means Energy Performance Certificate
ESCo	means Energy Service Company; this is an energy services provider that accepts some degree of financial risk in providing energy services, so that the payment for the services delivered is based wholly or in part on the achievement of energy efficiency improvements and on the meeting of the other agreed performance criteria
EU	means the European Union
EU-ETS	means the European Union Emissions Trading Scheme
GB	means Great Britain
GB RHI	means the Renewable Heat Incentive scheme in place in England, Scotland and Wales.
GW	means Gigawatt
GSHP	means ground source heat pump
HMT	means Her Majesty's Treasury
kW	means Kilowatt
MCS	means the Microgeneration Certification Scheme

MW	means Megawatt
NI RHI Regulations	means the Renewable Heat Incentive Scheme Regulations (Northern Ireland) 2012
NIRO	means the Northern Ireland Renewables Obligation
Ofgem	means the Office of Gas and Electricity Markets
Opex	means the operating costs involved in an installation
RED	means the Renewable Energy Directive
RHI	means the Northern Ireland Renewable Heat Incentive
RHPP	means the Renewable Heat Premium Payment scheme
ROC	means Renewable Obligation Certificate
SPF	means the seasonal performance factor of a heat pump
TW	means Terawatt

Annex A – Equality Assessment

Under section 75 of the Northern Ireland Act 1998, the Department is required to have due regard to the need to promote equality of opportunity:

- between persons of different religious belief, political opinion, racial group, age, marital status or sexual orientation;
- between men and women generally;
- between persons with a disability and persons without; and
- between persons with dependants and persons without.

In addition, without prejudice to its obligations above, the Department is also required, in carrying out its functions relating to Northern Ireland, to have regard to the desirability of promoting good relations between persons of different religious beliefs, political opinions or racial group.

We have carried out an equality screening exercise for policy proposed under the Phase 2 of the Northern Ireland Renewable Heat Incentive and found that it does not have any significant equality impact. A full Equality Impact Assessment, therefore, is not required. If you would like a copy of the screening form, please contact us.