

Renewable Heat Incentive

Consultation on proposals for a domestic scheme



Department of Energy and Climate Change

Renewable Heat Incentive

Consultation on proposals for a domestic scheme

Presented to Parliament by the Secretary of State for Energy and Climate Change by
command of her Majesty

September 2012

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Ministerial Foreword

Over the next 20 years we must achieve a revolution in the way this country heats its homes and businesses. We currently use almost half of our energy for heating and it is imperative that we drive a step change in both where this energy comes from and how it is used if we are to not only meet our renewables targets but reduce our carbon emissions, as well as improving security of supply. This is going to be a huge challenge but we are taking the initial steps. We launched the first phase of the RHI last year for the non-domestic sector and we are making good progress in delivering renewable heat on the ground but we now need to start making headway in the household sector.



In March this year, we published our Heat Strategy which set out the overarching pathway for how we can achieve this change in the nation's heating. It showed that over the rest of this decade we need to lay the groundwork for the mass rollout of renewable heat in the domestic sector in the 2020s. Working with industry, we need to help raise awareness of the technologies amongst the public, establish the market on a stable and sustainable footing and drive the innovation that will reduce costs and improve performance. Our intention is that the RHI will mean that people become able to not only make their homes greener but save money too. The proposals in this consultation set out options open to all but designed to support in particular those who are most likely to benefit from renewable heat now: those who live in off gas grid areas and therefore use more expensive fossil fuel to provide their heat in the form of heating oil or solid fuels.

The market for renewable heat has clearly changed since the Government of the day last consulted on a domestic RHI in 2010. The uptake of microgeneration technologies, such as Solar PV, under the FITs scheme has shown that renewable systems can become commonplace in this country's homes. However, the action we were required to take in order to protect the budget has shown that it is vital that we get the policy right and strike the correct balance in order to give the market the certainty it needs to be able to grow with confidence. The proposals set out here reflect how we think this could best be achieved, but there are many areas where we are considering the options and for which we also need to test our evidence and assumptions. I want this to be a genuine and full consultation process, with the views and evidence you provide being properly reflected in the final policy.

I look forward to hearing your views and would like to thank you in advance for providing a response to the consultation.

The Rt Hon Greg Barker MP

**Minister of State
Department of Energy and Climate Change**

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General Information

Purpose of this consultation

This consultation document sets out our current proposals for the design of a domestic RHI scheme and covers eligibility criteria, indicative levels of support, assurance mechanisms and budget management. It also considers and seeks your views about additional measures that we might take to ensure continued improved performance of renewable heat installations (particularly heat pumps) and how to ensure that the customer experience of the domestic RHI is as effective and user-friendly as possible.

Issued: 20th September 2012

Respond by: 7th December 2012

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Consultation reference: **URN 12D/330** – Renewable Heat Incentive - Consultation on proposals for a domestic scheme

Territorial extent:

This consultation applies to England, Scotland and Wales.

How to respond:

The closing date for responses is: 7 December 2012

Online responses are preferred and can be submitted via DECC's consultation hub at the following link: <https://econsultation.decc.gov.uk/>

If you are unable to submit your response online please send it in an email to: domesticrhi@decc.gsi.gov.uk . Alternatively, hard copy replies should be sent to the address above.

Additional copies:

You may make copies of this document without seeking permission. An electronic version can be found at: www.decc.gov.uk/rhi

Other versions of the document in Braille, large print or audio-cassette, including a Welsh version, are available on request via the enquiries address above.

Confidentiality and data protection:

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

If you wish information that you provide to be treated as confidential please say so clearly in writing when you submit your response to the consultation. 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 by us as a confidentiality request.

We will summarise all responses and place this summary on our website at www.decc.gov.uk/en/content/cms/consultations/. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Quality assurance:

This consultation has been carried out in accordance with the Government's Code of Practice on consultation, which can be found here:

<http://www.cabinetoffice.gov.uk/sites/default/files/resources/Consultation-Principles.pdf>

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

DECC Consultation Co-ordinator
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Email: consultation.coordinator@decc.gsi.gov.uk

Our Proposals at a Glance

This section provides a brief overview of the proposals included in this consultation and is intended to provide an indicative picture of what the scheme could look like under this approach. However, our proposals are based on a number of assumptions which we are testing through this consultation. There are also a number of issues which are still to be resolved, and on which evidence is sought. Changes to the proposals are likely to affect the level of subsidy offered and/or the shape of the scheme described here. Investment decisions should therefore not be made on the assumption that the proposals set out here will not change.

What is the domestic RHI seeking to achieve?

We are proposing to introduce a domestic Renewable Heat Incentive (RHI) to support households to move away from using fossil fuels for heating and to contribute to the UK's target on renewable energy deployment by 2020. There is also a longer term objective, outlined in the "[Carbon Plan](#)" (published in December 2011), which is to prepare the country for the mass deployment of renewable technologies in the next decade to help meet the Government's ambitious carbon reduction targets. The [Heat Strategy](#) published in March 2012, provides the direction of travel on implementation of renewable heat to 2050.

Who would be eligible for the domestic RHI?

- Any consumer who is looking to replace their current heating with a supported renewable technology, or who has installed any such technology since the 15th July 2009.
- We are proposing support for certain air source heat pumps, biomass boilers, ground source heat pumps and solar thermal systems that are MCS certified and meet all the required standards.
- Consumers would need to have installed those thermal energy efficiency measures¹ identified as 'green ticks' through the Green Deal assessment process.

What benefits for consumers does this policy offer?

If this policy becomes legislation, under current proposals any consumer wishing to replace their current heating system with a ground source heat pump, air source heat pump or biomass boiler would be able to receive a subsidy from the Government to help them with the costs of financing that installation, providing the installation meets the eligibility criteria also set out in legislation.

¹ We are not currently proposing to include solid wall as a required measure

We anticipate that any consumer wishing to install a solar water heating system in their house would be able to receive also a subsidy to help them with those costs too.

We have set out how we think the subsidy structure would work best (i.e. through a 7 year tariff payment scheme) but are seeking further views and evidence from consultation respondents to help our decision-making.

How could the subsidy be structured?

Our lead proposal is to introduce a set of bespoke tariffs which would be designed to compensate for the additional upfront and ongoing costs of renewable heat, compared to the fossil fuel alternative and taking into account non-financial barriers such as the disruption involved in getting work done. The evidence we have used to calculate these tariffs is being updated during this consultation to ensure that the scheme is based on the best available evidence.

The Impact Assessment for this consultation illustrates the impact of the proposals based on existing evidence and using the upper limit of ranges of tariff levels set out in Chapter 4 (as that would have the highest impact on affordability and on value for money).

Our modelling shows that on the basis of the upper limit of the ranges, this could result in around 3.3 TWh/year (c.380,000 installations) of additional renewable heat by 2020.

We ask questions about whether 7 years is the appropriate timeframe over which to pay a subsidy and to test our assumption that all installed technologies will have a lifetime of 20 years.

To ensure that the domestic RHI offers value for money in delivering its contribution to the renewable energy target, we are proposing that any tariffs provided are capped at the marginal cost of renewable energy (i.e. the cheapest technology that could be deployed at a scale sufficient to meet the renewables target). However, we also ask about other factors that should be taken into account when calibrating the tariff levels.

We ask whether the delivery of support should be introduced in a phased or piloted way to mitigate delivery risks; and whether there are additional measures that DECC should take to incentivise the deployment of renewable heat in households.

Can a single tariff scheme meet the requirements for different renewable heat technologies?

Although we are proposing a single tariff scheme, we are keen for your views and evidence on what other types of schemes might work best for the different technologies. Furthermore, within the proposed tariff scheme, we are suggesting a number of variations that, if adopted, would effectively tailor the scheme to fit different technologies better. For example, for heat pumps, we are considering whether we should enhance tariff payments to reward higher performance; for solar thermal we are seeking views on what other forms of subsidy

might best stimulate deployment; and for biomass we ask whether the tariff payment should be restructured to recognise the lack of certainty around future biomass and fossil fuel prices.

How would the payments be calculated?

In the majority of cases, we propose that payments would be made on the basis of deemed heat usage (a calculation of the expected heat usage for the property), with a statistically significant proportion of installations being metered for evaluation purposes.

We are proposing that consumers would be permitted to keep an alternative fossil fuel system as backup in some cases, provided they install a meter. RHI payments would then be made on the basis of metered heat but at levels no greater than the relevant deemed sum. A backup fossil fuel system would not be allowed where consumer are installing biomass boilers².

How might consumers finance the cost of the renewable heat installation?

We recognise that the proposed tariff scheme would still require consumers to find the upfront costs of the renewable heating installation themselves. There is an opportunity, and it is our hope, that the market would respond by creating specific funding packages around the RHI such as loans or other finance schemes to help consumers with the initial capital outlay for their renewable heating systems, perhaps in combination with Green Deal financing. In addition, there are a number of ways that householders could potentially secure that capital such as through savings, the extension of a mortgage or a loan from their high street bank.

Our proposals for the administration of the scheme

In line with the primary legislation for the RHI, we propose to launch the domestic scheme with Ofgem as our delivery partner. Ofgem already has significant expertise in this area, successfully administering a number of schemes for DECC through Ofgem E-Serve, including the non-domestic RHI scheme, the Renewables Obligation and the Feed-In Tariff. However, it is our intention to seek the necessary legal powers to enable us to run a competitive tender process in the future for the administration of the RHI.

What protection is built into the scheme for the consumer?

All renewable heating systems would need to be installed by a business certified by the Microgeneration Certification Scheme (MCS), or equivalent scheme, in order to be eligible for the RHI. MCS brings with it a series of industry approved processes, checks and balances to ensure a high standard of installation and a right to redress for consumers.

² Except in conjunction with an immersion heater

What proposed measures would the scheme have in place to tackle the risk of fraud?

Ofgem, as scheme administrator, would perform spot checks on recipients of RHI payments to ensure they were complying with the requirements of the RHI. MCS also has procedures in place that can be used in relation to certified businesses. Anyone receiving RHI subsidy under false pretences could be subject to criminal prosecution.

What is the proposed approach towards managing the budget?

The RHI is funded from Government spending and we have to ensure that we maintain value for money for the taxpayer and do not spend more than the annual budgets allocated to the scheme. At the same time we want to promote investment and take-up in renewable heat technologies, so that we can meet our 2020 renewables energy targets and deliver the Carbon Plan. The approach to budget management that we are proposing is based on degression, which would lower the tariffs payable for individual technologies if growth and costs exceed expected levels.

What are the timings for delivery of the domestic scheme?

The consultation will run from 20th September to 7th December 2012. DECC then aims to publish its response to the consultation early in 2013. This will be followed by the parliamentary process for approval of the introduction of the domestic RHI which we anticipate will allow the scheme to be open to applicants in the summer of 2013. A more detailed timeline is included in chapter 6.

This consultation concerns only the aspects of the RHI that affect individual households. The non-domestic RHI scheme is already in operation and details of the existing scheme can be found on Ofgem's website³. In parallel to this consultation, DECC is also consulting on an extension to that non-domestic scheme. The non-domestic consultation can be found at DECC's consultation hub⁴.

³ <http://www.ofgem.gov.uk/e-serve/RHI/Pages/RHI.aspx>

⁴ <https://econsultation.decc.gov.uk/>

Introduction

1. Heat is the single biggest use of energy in our society. We use more energy for heating than for transport or the generation of electricity. “*The Future of Heating: A Strategic Framework for Low Carbon Heat*”, published in March 2012, sets out how we supply and use heat today and describes how the heat system will need to evolve over time. It identifies the substantial changes required across our economy and provides a strategic framework within which new policy proposals will be developed.
2. The Renewable Heat Incentive (RHI) has been introduced primarily to help meet the UK’s target of 15% of energy coming from renewables by 2020 (as set out in the Renewable Energy Directive 2009). Renewable heat will contribute approximately a third of this overall energy target, but in order to make that contribution, around 12% of our total heat demand in 2020 will have to come from renewables, increasing from around 2% currently. In addition, renewable heat is essential to the delivery of our carbon budgets and our target of an 80% reduction in carbon emissions by 2050. Some of this can be achieved by demand reduction, through better energy efficiency. However, as we cannot reduce demand for heat to zero, we will also need to reduce the emissions from the heat we will continue to generate.
3. The Government’s vision and strategy for decarbonising heat across the whole economy is set out within a three stage strategy in the ‘Carbon Plan’ published in 2011. The first stage (until 2020) is about preparation for mass deployment in the 2020s and 30s (the second stage). The final stage focuses on long term tackling of more challenging issues. The non-domestic RHI and the Renewable Heat Premium Payment (RHPP) are already encouraging early uptake of low carbon heating, as well as innovation and building of supply chains for low carbon heat technologies.
4. The non-domestic RHI opened for applications in November 2011 and currently supports renewable heat installations in business, industry, not for profit and the public sectors as well as for district heating schemes.
5. The domestic heating sector is also going to have a significant role to play in bringing the UK a step closer to meeting the requirements of the Carbon Plan, Heat Strategy, and Renewable Energy Directive. The proposals set out here for the domestic RHI aim to do just this, by building on the support base for renewable heat that the RHPP has provided until now.
6. There have been a number of initiatives already which incentivised the deployment of renewable heat, including grant schemes such as Clear Skies and the Low Carbon Building Programme as well as contributions from energy companies through CERT and CESP. The domestic RHI scheme is building on the learning from these and attempting to put in place a longer term financial package to give investors and industry confidence to plan now for the future.

7. The RHI was framed in law by the Energy Act 2008 and DECC consulted on an option for a Renewable Heat Incentive in February 2010. Following the consultation, it was decided that the policy for a domestic scheme needed further development.
8. DECC therefore decided on a phased approach, launching the non-domestic scheme in November 2011 to provide support for the most cost effective renewable heat and to tackle the largest individual sites of heat demand. A parallel consultation to this one seeks views on extending and improving the current non-domestic scheme. For details go to <https://econsultation.decc.gov.uk/>
9. Due to the later than anticipated introduction of a long term policy for domestic heat, DECC has run a short grant scheme called the Renewable Heat Premium Payment (RHPP) scheme. This has provided grants to contribute to the capital costs of renewable heat to homeowners, social landlords and, in 2012/13, to fund community groups also. More information on this scheme can be found on the EST website.
10. We are also considering supplementing the RHI tariff scheme with a number of localised 'hubs' of renewable heat across the country and will provide more details on this work separately in due course.
11. This consultation document sets out our current proposals for the design of a domestic RHI scheme and covers eligibility criteria, indicative levels of support and assurance mechanisms. It also considers and seeks your views about additional measures that we might take to ensure continued improved performance of renewable heat installations (particularly heat pumps) and how to ensure that the customer experience of the domestic RHI is as effective and user-friendly as possible.
12. Finally we consider whether there are alternative routes that we should be pursuing to stimulate the deployment of heat through the development of more localised supply chains and/or whether delivery of the RHI should be phased or piloted prior to a geographically universal roll-out.
13. Much of the proposed support set out in the consultation is predicated on a number of assumptions and the evidence we have used to prepare indicative support levels. It is critically important that we test and challenge these assumptions and supplement the evidence base to assure its quality so that the final policy that we develop is as robust as possible. We have a programme of work planned to do this during the Autumn but we would welcome responses to this consultation to include relevant evidence and confirmation of or challenge to our assumptions.
14. Any arrangements reached as a result of this work will be subject to the Government's obligations under EU law, including the terms of any necessary State Aid approvals. In addition, any options proposed will clearly need to be compliant with existing domestic law.

Key Policy Linkages

15. Any proposed domestic RHI policy would sit amongst a portfolio of policies introduced by DECC to meet our renewable and carbon targets and would be part of our whole house approach to energy efficiency and carbon reduction. Below is a list of the key potential policy interactions. More detail on how these interactions will work is included in the relevant sections linked to below.

Renewable Heat Premium Payment (RHPP)

16. The Renewable Heat Premium Payment (RHPP) was designed to provide financial support to householders to help them buy renewable heating technologies (solar thermal panels, heat pumps and biomass boilers) and to learn about the performance and use of renewable heat installations in homes across Great Britain. It is an interim measure to support the market until longer term support for householders in the form of a domestic RHI can be provided. There have been two scheme phases:

RHPP Phase 1	1 Aug 2011 - 31 March 2012	A voucher/one-off grant for householders to help with the cost of installing renewable heating technologies. A competition for social landlords. To provide information to inform the development of longer term support for householders.
RHPP Phase 2	2 April 2012 – 31 Mar 2013	A voucher/one-off grant for householders to help with the cost of installing renewable heating technologies. A competition for social landlords to bid for funds to install renewable heat technologies in social housing. A competition for communities to bid for funds to demonstrate renewable heating in homes.

17. We have confirmed that people who have installed equipment under RHPP 1 or 2 will be eligible for support through the RHI providing they meet the eligibility criteria of the full RHI scheme. Further information and areas on which we seek your views concerning the eligibility criteria are set out in Chapter 2.

Green Deal

18. The Green Deal is a market led framework that will remove some of the biggest barriers to demand for energy efficiency measures, including up-front finance, to create a market for energy efficiency. Central to the Green Deal is a finance

mechanism that will allow access to the finance needed for energy efficiency improvements, allowing the cost of these measures to be repaid through instalments on the consumer's electricity bill for the property. The final parts of the framework will be in place from October 2012 and this will enable Green Deal approved assessors and installers to begin operating - for example by offering assessment and installation services. Green Deal Providers will be able to offer Green Deal plans to consumers from January 2013.

19. To support our 'whole house' approach to efficiency, we are proposing that in order to receive the domestic RHI, consumers will be required to have completed all green ticks on their Green Deal assessment that relate to the thermal efficiency of the house, with the possible exception of solid wall insulation. This is covered in Chapter 3.
20. In addition, we recognise that in a small number of cases, consumers may be able to get some Green Deal finance to help fund a proportion of the costs of their renewable heat installations. In such cases it is our intention that we would also permit those consumers to claim the RHI, as we do not currently believe there is likely to be any material double subsidy issue in practice. However, as with all elements of the policy, we are considering how the proposals interact with State Aid rules, and will engage closely with the European Commission to ensure the policy is consistent with the appropriate rules. All mechanisms will need to be compliant with State Aid rules, where relevant. This is covered in Chapter 4.
21. For the longer term, beyond 2015, we are conducting work to look at how the various renewable energy support schemes could be more closely aligned with each other for the benefit of all consumers.

Energy Company Obligation

22. The Energy Company Obligation (ECO) will work alongside the Green Deal to enable those in harder to treat housing to take advantage of insulation measures such as solid wall insulation, and to enable low income vulnerable households at risk of fuel poverty to heat their homes more affordably to an adequate level. In addition, through ECO, energy suppliers will improve the energy efficiency of homes in some of the most deprived communities in the country. Energy suppliers will be set three targets to achieve these objectives: the Carbon Saving, Affordable Warmth and Carbon Saving Communities obligations. We consulted in early September on the application of in-use factors in the scoring of carbon reductions delivered by different ECO insulation measures. We expect to bring ECO into force as soon as possible following the consultation. We also consulted on a proposal to allow energy companies to count ECO activity delivered from 1 October onwards against their targets, even if the legislation is not in place until after then.

23. Under the Affordable Warmth target⁵, which is the area of ECO most relevant to heating, no restrictions are placed on energy suppliers as to the technologies they choose to install. Suppliers are incentivised through the design of ECO to deliver their objectives as cost-effectively as possible, to deliver best value for money for energy bill payers. For low income vulnerable households on the gas grid, the most cost-effective means of improving their ability to heat their homes affordably remains central heating fired by efficient gas boilers. In households off the gas grid, there may be more of an economic case for installing renewable heat technologies such as heat pumps. However, this will be for suppliers to consider.
24. There is no reason why an Affordable Warmth eligible household should not benefit from both ECO and the domestic RHI in this case, as long as it meets the legal 'additionality' requirement within ECO (i.e. it can be shown that the measure would not have taken place in the absence of ECO).
25. Providing support through two incentives potentially raises value for money concerns, as households could benefit from a free or subsidised measure through ECO and receive tariff payments through the RHI. However, given that eligibility for Affordable Warmth is tightly restricted to those at greatest risk of fuel poverty who would not otherwise have the upfront capital to invest in new heating measures, and that off gas grid households are generally more expensive to treat and therefore may be less likely to benefit from ECO without extra support, we believe that the benefits of allowing both incentives to work together outweigh the risks. We would welcome views on the proposal outlined above as to how ECO and RHI should work together.

⁵ Under the Carbon Saving and Carbon Saving Community targets within ECO, energy companies are required to deliver insulation measures but may also count connections made to district heating schemes towards their targets. District heating schemes are not within the remit of the domestic RHI and therefore have not been considered further within this consultation.

Chapter 1: Objectives and Approach

Our Objectives

26. The Government is committed to meeting the Renewable Energy Directive target of 15% of our energy from renewable sources by 2020. We will be setting out the updated road map for this in the autumn. Currently we anticipate that around 12% of heat will need to come from renewable energy. This is, even after our ambitious policies to reduce heat demand through insulation and other efficiency measures, the equivalent of about 72TWh/year.
27. The non-domestic RHI scheme is anticipated to bring forward a significant proportion of this renewable heat. However, there is also both significant demand and opportunity within the domestic sector to begin the transformation to the carbon free domestic heat system envisaged in the Carbon Plan.
28. As such, the domestic RHI will seek to achieve:
 - Delivery of domestic renewable heat between 2013 and 2020 as a significant contribution to the Renewable Energy Directive.
 - The development of supply chains, reflected through growth in deployment levels, of renewable heat technologies and the improvement in their performance.
29. Beyond delivering these two key objectives, we will be seeking to understand further:
 - Barriers to uptake of and public attitudes toward renewable technologies
 - Innovation, performance improvements and costs of renewable technologies
 - Impacts on other policy areas such as fuel poverty, house building and energy efficiency

Motivations for installing renewable heat

30. We believe it is extremely important to understand the motivations behind consumers wanting to install renewable heat and the barriers they face so that, where possible, this understanding can be built into the initial design of the scheme.
31. While there is still a limited awareness among domestic consumers of some renewable heat technologies such as heat pumps and biomass boilers, research shows that a small percentage of customers are very likely to adopt a technology in the next few years if key barriers can be addressed.⁶

⁶ Delta-ee & Accent Microgeneration research

32. There are many reasons why consumers may be interested in installing renewable heat technologies including environmental and financial factors.
33. Early findings from Renewable Heat Premium Payment customers indicate that, among those who have already installed a renewable heating system, the most common reasons for installing were:
- Helping the environment
 - Rising price of fossil fuels
 - Saving money
 - To reduce their dependence on fossil fuels
34. A poorly performing heating system or low levels of satisfaction with a current heating system were found to be triggers for some consumers to install a renewable heat technology.⁷

Barriers to uptake of renewable heat: A survey snapshot

35. Research indicates that the greatest barrier to installing renewables is the cost of installation⁸.
36. A recent survey part funded by DECC⁹ explored end users' current attitudes towards, and awareness, of microgeneration technologies, including the renewable heating technologies: air source heat pumps; ground source heat pumps; biomass boilers and solar thermal.

Attitudes

37. It was revealed that among those respondents who found these technologies 'very appealing', the five key barriers to the uptake of renewable heating technologies highlighted for all technologies were:

Top Five Barriers
Upfront costs need to be lower
More grants/funding needs to be available
The payback period needs to be shorter

⁷ Early findings from Renewable Heat Premium Payment customers. A full report analysing this data has been commissioned and will be published.

⁸ EST Uptake of Renewable Heat and Energy – The Consumer Journey; Delta-ee & Accent Microgeneration research

⁹ On-line survey with 1,000 respondents carried out by Accent and Delta-ee in May to June 2012

Running cost savings need to be greater
Greater confidence in government incentives and funding is needed

38. Beyond these five, the importance of other barriers became more technology specific, as summarised below:

Technology-specific barriers			
ASHP	GSHP	Biomass	Solar thermal
Space required for installation	Space required for installation	Ease of use	Space required for installation
Ease of use	Ease of use	Length of installation process	Length of installation time
Aesthetics	Aesthetics	Aesthetics	
Length of installation process	Level of disruption during installation	Size of system	

Source: Delta-ee & Accent, 2012

39. The proposed design of the domestic RHI scheme is set to compensate consumers for the barriers to deployment of renewable heat which have been identified by a number of social research projects, such as the one described above. The work on the customer journey, which is set out in chapter 8 is devised to help ensure that the scheme is as streamlined, communicative and user friendly as possible.

Our Approach to the Domestic RHI

40. In developing the domestic scheme, we have looked at a wide range of policy options and their impacts and implications. Questions about our overall approach are at the end of this Chapter.

Why a tariff scheme?

41. Our current thinking is that a tariff scheme will create steady growth over the remaining years of this decade. In developing our proposals for the tariff scheme, we looked at the original premise of spreading the costs over 20 years as is done with the non-domestic scheme. This was the original proposal included in the 2010 consultation. We compared this to shorter tariff lengths and also looked at the option of providing capital grants to fund the costs of renewable heat installations in whole or in part.

42. Current levels of deployment of renewable heat are very low, at least relative to the number of fossil fuel boilers installed domestically every day. In fact, since the 2010 consultation, the market for renewable heat in homes has declined as a result of economic pressure. Therefore, the need for a scheme to support these technologies is greater now than ever to provide certainty to investors, to create green jobs, and to develop the skills to install and maintain equipment in this country.

Who will take the RHI up?

43. The basic idea behind our current proposals for a domestic RHI is that it is a boiler replacement scheme. By this we mean that it is designed to encourage those who would be looking to change their current fossil fuel boiler due to age and/or loss of efficiency. This means that the tariff would be intended to compensate households only for the difference between the fossil fuel and the renewable technology of choice. The overall tariff would then take into account barrier costs and running costs. A full breakdown of the evidence underpinning our policy and the assumptions we are making is available in the appended impact assessment.
44. Our current proposals have been developed on the basis that renewable heat will be generated for 20 years from all of the eligible technologies (although this is an assumption we believe that we need to test). Paying a tariff over the full 20 years could, however, actually work as a disincentive for many consumers, especially as the bulk of the expenditure for installing a renewable heat technology would be made upfront when the technology is installed. Tariff payments made over 20 years would work well only for those consumers who had easy access to the capital. Those consumers taking out a specific loan for the capital, or those part funding the system themselves, may have less of an incentive to switch. In addition, the longer the duration of tariff payments, the greater the ongoing legacy funding implication for Government becomes.
45. As a result, we are seeking views on our proposal that tariffs should be paid over a timescale shorter than 20 years to appeal to consumers who plan and budget in a shorter timeframe and to limit the legacy funding implications. However, with the variation in the cost of finance for loans of different lengths and the risk of consumers switching back to fossil fuels with a shorter tariff, we are aware that arguments remain for structuring tariffs over a longer period. This consultation seeks clearer evidence on this issue.

Getting the subsidy levels right and ensuring value for money for the taxpayer

46. Domestic heat costs vary based on the fuel used by each household. The national gas grid provides a relatively cheap fossil fuel supply to the vast majority of houses in UK. Natural gas also has lower carbon emissions than many of the alternatives such as oil and coal per kilowatt of energy generated. There are, however, almost 3 million homes in UK which do not have gas as an option. These off gas grid homes typically face higher bills and produce more carbon than the equivalent on grid home.

47. The aim of the domestic RHI scheme is not to incentivise every home in the UK to change to renewable technologies, but to start the transition process to lay the foundations for deployment at scale in future decades. It therefore makes sense to target the incentive where the opportunities to switch are cheapest i.e. those households that can make the greatest savings both financially and environmentally. For this reason, we are proposing that the tariff levels are set to be more financially advantageous to those homes off the gas grid, although we propose that the scheme be open to any home in the UK wishing to make the transition.
48. Over and above the absolute costs of switching from fossil to renewable heating, it is important to understand the relative costs of renewable heat within the broader policy context as well as the likely market impacts of different approaches. Given that the driver for the RHI is to meet the requirements of the Renewable Energy Directive, the subsidy offered to incentivise the installation of renewable heat technologies should be consistent with the cost-effectiveness of other renewable energy policies. It is also important to consider whether tariffs are calibrated intelligently to reflect our long term goals and to avoid unintended consequences.
49. Calibrating tariffs appropriately is not easy and is not an exact science. Assumptions need to be made, central scenarios created and many factors affecting the attractiveness of tariffs to investors change over time. This consultation will help us to make sure that our evidence and assumptions are such that our policy will be as robust as possible. However, a critical element of making the policy sustainable is to build in a mechanism to manage the budget as we are doing for the non-domestic scheme. This consultation outlines proposals and options for a degression based cost control mechanism as a core part of the scheme.
50. We have given a commitment that any home that has installed renewable heat since 15 July 2009 will be eligible for a tariff payment if they meet the criteria. This remains the case and we propose that these installations be eligible for the support finally decided upon as a result of this consultation.

Delivery

51. The main proposal within this consultation document is for a tariff designed to target those off the gas grid to be available to all. However, an option which may reduce the delivery and financial risks associated with the delivery of a complex policy in an uncertain environment would be to phase or pilot the scheme before committing to a universal roll-out. For example, the policy could be restricted to just those off the gas grid or focused at particular geographic areas. This might slow initial deployment of renewable heat, but might stand us in better stead to achieve the longer term expansion in deployment that is needed in future decades. Ensuring that the policy is the right approach would allow us the scope to iron out any delivery issues early on when relatively few consumers are involved. This could have a positive impact in terms of building consumer confidence.

Alternative approaches

52. In addition to offering tariff support to individual households there may be other approaches to providing support for renewable heat deployment that may add value. For example, we are also considering the scope to provide support in a way that would promote the development of stronger localised supply chains for renewable heat. This could, for example, be delivered through local authorities and act as a local focus for renewable heat investment, skills, training and awareness raising, especially in the early years of the domestic RHI. Clearly, there are a number of constraints to what may be possible given the legislative basis for delivering the RHI and any options would need to be compatible with the Government's obligations under EU law, including the terms of any necessary State aid approval. We would welcome views and ideas from respondents about additional measures that DECC and its partners could take to build renewable heat supply chains effectively.

Evaluation

53. Alongside the development of the domestic RHI scheme we are scoping a comprehensive evaluation process for the scheme. The evaluation will provide objective evidence on the delivery and implementation of the RHI scheme as well as its impacts. It will be used to improve the policy and assess its effectiveness. The evaluation will inform periodic reviews which will be conducted to optimise the scheme. We anticipate that reviews would be in 2014 and 2017, with a decision on a final review in 2019 being taken in 2017, dependent on progress. More broadly, information from the evaluation of the RHI will be incorporated into the ongoing plans for delivery of our Heat Strategy.

State Aid

54. The Government is mindful of its obligations under EU law, including the rules in relation to the provision of aid by Member States to undertakings (known as State Aid). We are considering how the domestic RHI scheme interacts with the State Aid rules and we will ensure the scheme we implement is compatible with these rules, where relevant.

Consultation Questions

1

What are your views about the proposed approach of a universally available tariff scheme? Is a tariff scheme the most efficient way to drive down technology costs, increase innovation and value for money, together with developing a home grown supply chain? Please include reasoning for your response.

2	Do you think that there would be advantages in phasing or piloting roll-out of the scheme? On what basis do you think it might make sense to phase or pilot the scheme?
3	Do you think that there may be alternative or additional approaches to incentivising renewable heat deployment that we should pursue? What approaches do you think might add most value?

Chapter 2: Eligible Properties

Introduction

55. The domestic RHI is the second phase of delivery of the RHI following the non-domestic scheme launched in November 2011. The proposals for the domestic scheme set out in this document are designed to incentivise the conversion of individual domestic properties from fossil fuels to renewable heating technologies.
56. The non-domestic scheme already provides an incentive to a wide range of industrial and commercial properties. It also goes further by providing incentives to individual community buildings, individual properties used as holiday lets (assets of a business) and to heat networks providing heat to multiple dwellings. For full details of the eligibility criteria for the non-domestic scheme see (<http://www.ofgem.gov.uk/e-serve/RHI/howtoapply/Pages/howtoapply.aspx>).
57. We are proposing that, as per the primary legislation establishing the RHI, payments under a domestic RHI would be payable to the owner of the renewable heat installation. A consideration of potential recipients follows, with an explanation of the indicative tariff levels set out in Chapter 4.

Homeowners

58. It is proposed that people who own their own homes will be eligible for the domestic RHI for a renewable heat system that is installed in that property. The RHI payment must go to the owner of the renewable installation, but as a rule of thumb, we envisage that this would be the owner of the property because the heating system is an integral part of the home. We would presume that ownership of the technology would transfer with the sale of the property which should require the transfer of any remaining RHI payments to the new home owner.

Second Homes

59. Second homes tend to be used significantly less than fully occupied homes. This would mean that while capital costs remain the same, significantly less renewable heat would be produced. In these situations, DECC believes this equates to poor value for money and provides an opportunity for fraud. Therefore we propose to exclude second homes from the scheme. We anticipate that a process of self-declaration would establish whether the property an applicant was applying for was their primary or a second home.

Private Landlords

60. Private landlords own individual properties that they rent out. Usually as the homeowner, they are responsible for the heating system and the capital costs of replacement. However, the tenants are usually responsible for the running costs of the system.
61. It is proposed that installations in these properties be eligible for the RHI with the landlord as the recipient (providing the landlord is the owner of the heating system). However, there are some potential difficulties in making the shape of proposed subsidy payments work in this situation. These are in relation to the relative balance of costs and savings between landlord and tenant if the landlord is the recipient of the RHI, because of the balance of responsibilities for the heating system and its running costs between them.
62. In relation to eligible non-biomass technologies, the tenant should benefit from reduced heating related bills, but as the subsidy would take these savings into account, the incentive may not be sufficient for the landlord to make the switch to renewable heating. On the other hand, given the ongoing operating (e.g. fuel) costs for biomass boilers it would be important that landlords passed on the benefits to their tenants where these technologies were installed to avoid increased fuel bills without the appropriate compensation for tenants. We are interested in your views about how to make the RHI work effectively in these situations.

Tariffs for Social Landlords and New Build Properties

63. We are aware of the potential importance of the introduction of renewable heating within domestic properties within both the new build and the social landlord sectors. It is also recognised, however, that the circumstances are different to the market for individual consumers retrofitting their own properties. We are therefore considering the introduction of specific tariff structures for these two sectors. This is explained further in Chapter 4.

Legacy Applications

64. There are a number of consumers who may submit an application for a renewable heat system they installed before the domestic RHI scheme opens. This section sets out how we propose that their applications will be dealt with under the scheme, in line with the previous commitments that installations installed since 15 July 2009 will be eligible for support provided they meet the eligibility criteria of the full RHI scheme.
65. Broadly speaking, we expect these applications to be from those who have either installed renewable heat since 15 July 2009 but not received any Government

support, or those who have installed renewable heat and have benefitted from an element of the RHPP scheme:

- **Those who have installed renewable heat since 15 July 2009 but who have not received any government subsidy support since then.**
- **Recipients of the Renewable Heat Premium Payment (RHPP)**- The RHPP household vouchers scheme was launched in August 2011 and took the form of a grant to contribute to the cost of installing renewable heating systems. At the time of launch it was made clear that anyone receiving the RHPP would be eligible for the domestic RHI when it came in subject to meeting the requirements of the scheme. Latest figures published indicate that, since then approximately 6,000 households have taken up the RHPP. Consumers currently can receive a voucher for the following amounts:
 - Air to water heat pumps - £850 per installation (to households off gas grid)
 - Biomass boilers - £950 per installation (to households off gas grid)
 - Ground source heat pumps - £1,250 per installation (to households off gas grid)
 - Solar thermal - £300 per installation (all households)
- **Recipients of the three RHPP social landlord competitions** run in 2011/12 and 2012/13. Social landlords were allocated funding on the basis of a competitive process through which they bid for a certain level of funding per installation. The eligible technologies were the same as for the RHPP household voucher scheme. In Phase 1, 37 landlords were successful, receiving approximately £3.7m. In Phase 2, 72 landlords were successful, receiving approximately £4.9m. A third phase of the competition is currently being run in order to allocate the remaining £5m of the scheme budget.
- **Recipients of the RHPP Community Scheme** which was launched in July 2012, whereby groups of consumers belonging to a supported community organisation are able to request funding at levels equal to or above the household voucher scheme. DECC hopes to announce the winning communities in December, and the aim is for all technologies to be installed by the time the domestic RHI is introduced.
- The maximum levels of support payable for both the social landlords and the community competitions are :
 - Air to water heat pumps range - a maximum of £4,400 per installation
 - Biomass boilers range - a maximum of £5,200 per installation;
 - Ground source heat pumps range - a maximum of £6,000 per installation;
 - Solar thermal range - a maximum of £2,000 per installation.

- **Recipients in Scotland of a Home Renewables Loan from the Scottish Government** to help install renewable heating systems in the home.

66. We believe it is important to give fair treatment to all legacy applicants who have installed renewable heat in good faith at an early stage. We will, however, need to take into account any UK government or Devolved Administration funding, or related benefit, already received in deciding the amount of RHI payment to legacy applicants and the proposed eligibility criteria for the domestic scheme.
67. We propose that consumers who installed renewable heat installations since 15 July 2009 will be eligible to apply for the domestic RHI provided they:
- Have installed an eligible technology, as described in Chapter 3.
 - Meet the eligibility criteria on energy efficiency described in Chapter 4. Except in very limited circumstances, this will involve getting a Green Deal assessment and, in some cases, installing some additional energy efficiency measures.
 - Declare any government funding or support already received for the installation of renewable heat.
 - Do not have a back up fossil fuel heating system, or if they do, are prepared or have installed a heat usage meter on which the RHI payments can be based.
 - Meet all current MCS standards. In particular, for air-source heat pumps this includes evidence of either planning consent, or that when applied retrospectively, that the installation complies with the PDR (Permitted Development Rights) procedures in the MCS system.
68. Where applicants meet the eligibility criteria, we propose that any government funding already received will be subtracted from the amount of RHI payable to the householder and will be reflected in the payments received. This will be to ensure that the Government is not over compensating for the renewable heat generated but at the same time consumers do not feel penalised for having acted early. We will need to make sure that this is compatible with State Aid rules.
69. There are a number of ways in which this reduced tariff could be paid but our current proposal is to adjust the length of tariff payments as opposed to the amount. (An alternative approach would be to keep to the payment timeframe, but reduce the annual amount paid.) Our current proposal would mean that consumers would join the scheme and receive normal payments initially up to the value of the residual of the lifetime subsidy. For example, if an RHI payment of £14,000 was due over 7 years, this would equate to £2,000 per annum. If £4,000 had been received previously through the RHPP, it would be taken off the amount due under RHI. The outcome of the two reduced payment proposals described would mean:
- £2,000 continues to be paid per annum but for 5 years instead of 7; or

- £1,429 is paid per annum for the full 7 years.

70. The number of potential applicants that could apply shortly after the scheme opens may also create some delivery problems in terms of managing the budget and applications process effectively.
71. We are therefore considering options for how to manage this. One option would be to introduce a phased application window for legacy applicants, for example that 2009 and 2010 applicants could apply in the first two months, 2011 applicants in the second two months, and 2012 applicants in the final two months of the financial year 2013/14. This would limit legacy applications to that financial year but spread the numbers over that 6 month period, making the delivery more manageable. However, we are eager to hear views on whether this would be an effective approach and whether there are any suggestions for alternative approaches.

Basis for Payments

72. We are proposing that RHI payments will be made on the basis of deemed heat. The heat load calculation will need to be made by a qualified professional along the lines set out in Chapter 4.

Consultation Question	
4	Do you have any comments on the proposed exclusion of second homes from the RHI?
5	Do you have any comments on the proposed approach to private landlords and their tenants under the RHI? Have you any suggestions about how to ensure that the RHI incentivises the installation of renewable heat in the private rented sector and does not disadvantage tenants?
6	What are your views on our proposals for the treatment of legacy applications for installations between July 2009 and the opening of the scheme?
7	Are there any other legacy applicants (aside from those that have received RHPP, a Home Renewables Loan, or installed renewable heating systems since 15 July 2009) that you think we need to consider?
8	What are your views on phasing legacy applications over the first year

	and the option of setting a cut off date for legacy applications?
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CASE STUDY: Air source heat pump



The Westwood Family – customer profile

Property type: Farm house renovation

Location: Off-gas Suffolk

Previous heating system: Oil boiler

Current heating system: 16 kW air source heat pump (x 3) & under-floor heating throughout

Financing: Self-financed from sale of old house

Customer motivations and experience of installing an *air source heat pump*

During the renovation of his new home, Mr Westwood was interested in installing a heating system that would meet all their heat and hot water needs, at as low running cost as possible (without any need for supplementary heat). As the home is in an off-gas area the family considered several options:

- Upgrading the existing oil-fired boiler and radiator system – however the family were conscious of rising oil prices
- Installing a biomass boiler - although they would prefer to avoid handling fuel deliveries
- Upgrade to an all-electric heating system and replace the radiators with under-floor heating.

Due to the factors mentioned above, an all-electric system was preferred and the Westwood family considered both ground source and air source heat pumps. In the end an air source heat pump was chosen due to the significantly lower upfront cost. Mr Westwood then went online to research the products being offered by various companies and then contacted local heating firm GAH Ltd. to supply and fit his chosen brand.

GAH fitted 3 × 16 kW low temperature inverter-driven air source heat pumps (the system was purposely over-sized to negate the need for any back-up). Mr Westwood had to apply for planning consent, but this was easy and simple to do. GAH also programmed the system to the family's requirements. As a refrigeration engineer himself, Mr Westwood was familiar with the operating principle of the technology, but had no previous experience with residential heat pumps. Experience so far:

- **Running costs:** The family are very satisfied with the running costs of heating their 6,000 sq. ft. home
- **Performance:** All of the home's heat and hot water are supplied by the heat pumps and they have no need for supplementary heat, even in winter. The under-floor heating is really effective and they like the lower, more distributed heat.
- **Ease of use:** Mr Westwood finds the operation straightforward, and uses individual room thermostats installed with the system to easily alter the heat delivery to any room as necessary – overall the system is very responsive.

“My experience of using the heating system has been very little – I've not had to touch it since it was set up. I just have to make sure the batteries are OK in the room thermostats” (Mr Westwood, homeowner)

Source: Delta-ee / Daikin (2012)

Chapter 3: RHI Technologies

Methodology for Identifying Eligible Technologies

73. We propose that in order to be eligible for the domestic RHI scheme, technologies must be MCS (or equivalent scheme) certified¹⁰ and adhere to certain principles. In addition, the RHI should incentivise only those technologies which:
- The European Commission considers to be renewable under the Renewable Energy Directive (RED)¹¹
 - Are fully proven and commercially available and hence able to make a significant contribution to the deployment of renewable heat at a domestic level
74. The practicalities of scheme enforcement are also a key factor in assessing whether a technology which passes the RED test can be brought into the RHI scheme in a cost-effective manner. For example, permitting technologies that do not currently have applicable MCS standards, which are based on international and European standards where those exist, would undermine the integrated, MCS-based approach to eligibility and would cause additional administrative burden on the RHI scheme administrator in tracking the suitability of such technologies. An equivalent recognised product scheme to MCS is Solar Keymark which focuses on solar thermal products.
75. We are proposing that the following four core domestic renewable heating technologies will be eligible for the domestic RHI (specific details are given below):
- Air source heat pumps¹² (ASHPs)
 - Biomass boilers (Biomass)
 - Ground source heat pumps (GSHPs)
 - Solar thermal (ST)
76. We are aware that there are other MCS certificated technology types available. However, these do not meet all of the additional criteria and we are therefore currently proposing to exclude them from the domestic RHI scheme. Details are provided in this chapter.

¹⁰ 'MCS Certified' means a renewable heating system that uses equipment from the MCS product list and has been installed by an MCS accredited installer. MCS is explained in more detail below.

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF>

¹² We are proposing that only air to water systems are included initially

77. Although we are expecting that some technologies will be excluded at the start of the domestic RHI scheme, we would plan to keep their eligibility under review. In the future, further technologies may meet the RHI criteria set out here and could therefore qualify for support.

Microgeneration Certification Scheme

78. The Microgeneration Certification Scheme (MCS) is an independent, industry-led certification scheme accredited by the United Kingdom Accreditation Service (UKAS).
79. 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.
80. Members of the MCS are also expected to comply with the standards set out by the Renewable Energy Assurance Ltd (REAL) Scheme's Consumer Code which is currently the only scheme backed by the Office of Fair Trading for the microgeneration sector.
81. The RED obliges EU Member States to ensure that certification schemes which meet certain minimum requirements are available for installation businesses of renewable technologies. The MCS is recognised in the UK as such a scheme and is working towards inclusion of the National Occupational Standards for the sector. Further schemes may be recognised provided they meet the minimum requirements. Under RED, certification schemes based in other EU Member States must be mutually recognised. We will need to consider closely the requirements of these schemes, as they will differ, and how they match with MCS requirements.
82. MCS and equivalent schemes must meet the European standard EN 45011 (which sets general requirements for bodies operating third party certification schemes). References in this document to 'MCS and equivalent schemes' should be read in this context.
83. More information can be found at the MCS and REAL websites:

www.microgenerationcertification.org

www.realassurance.org.uk

Technology Types

Air Source Heat Pumps

84. Currently, we are proposing that only air source heat pumps (ASHPs) that heat water (i.e. air to water heat pumps) will be eligible for the RHI. ASHPs extract heat from the outside air using an electrically driven refrigeration process which is then used to provide space heating via radiators, underfloor heating or fan coils, as well as hot water heating. Relatively simple and easy to install, with little routine maintenance generally, ASHPs perform best in warmer weather. ASHP units (which have to be installed outside the property and use fans to extract the air) can be noisy and so have the potential to disturb neighbours. Therefore, anyone considering installing an ASHP should keep in mind that it will be critical that potential noise issues are dealt with at the installation design stage and mitigated where required so that either local planning consent can be gained, or the Permitted Development Rights process used. The best performance is obtained by using a low temperature heating distribution system. Lower temperatures can be achieved in a number of ways by, for example, improved insulation of rooms or installing larger sized radiators.



Biomass Boilers

85. Currently, our proposal is that just biomass-only boilers and biomass pellet stoves with back boilers will be eligible for the RHI provided they meet 99% of the peak space heating load of the property using the calculation methodologies in MCS (or equivalent scheme).
86. Biomass boilers generate heat through the combustion of organic matter. They can provide both space and domestic hot water heating. The source of the fuel in pellets used in the biomass boilers funded by the RHI can be derived directly from forestry, or as a forestry by-product such as sawdust. High-yielding energy crops such as willow and poplar, together with straw and other plant residues can also be used. Unlike the other three domestic renewable heating technologies, biomass boilers need fuel to be purchased regularly, and for the fuel to be manually fed into hoppers. The moisture content of



the fuel is critical to efficient biomass boiler operation, so a dry pellet storage area is required.

87. For this type of technology, fuel sustainability and air quality also need to be taken into account.

Fuel sustainability

88. We recognise the contribution that bioenergy can make to the generation of renewable heat. However, it is important that encouraging the uptake of bioenergy does not result in untoward environmental and social impacts. Ensuring the sustainability of feedstocks is key to minimising any such adverse impacts. Moreover, we must also ensure that biofuels meet the sustainability criteria set out in the RED.
89. It is important for us to be proportionate in our approach to sustainability and reflect the fact that consumers are unlikely to have the time or expertise necessary to prepare a sustainability report. However, over time, the increased take up of domestic boilers that we hope to see will collectively consume a significant amount of biomass. Therefore, sustainability controls will need to be applied in the domestic sector.
90. For the non-domestic RHI scheme, DECC has recently consulted on bringing in mandatory biomass sustainability criteria for small scale and community installations which takes into account these principles¹³. We propose that the domestic RHI takes the same approach.
91. This proposed approach entails an approved supplier list, which would be set up, managed and monitored by a designated approval body. Biomass suppliers, such as wood pellet merchants, wanting to become an approved supplier would need to approach the list manager for approval. Part of the list manager's role would be to ensure that the suppliers are selling biomass that meets (i) the UK's greenhouse gas (GHG) emissions target and (ii) the 'land criteria'¹⁴.
92. Given that the GHG savings to be obtained require knowledge of the efficiency of the boiler, we propose that the biomass suppliers would be able to assume a specified efficiency when calculating the GHG savings of their fuel. In line with the non-domestic scheme, the intention is that all fuel suppliers would have to supply fuel which achieved 60% GHG lifecycle savings¹⁵ compared to fossil fuel use assuming a

¹³ http://www.decc.gov.uk/en/content/cms/consultations/rhi_cert_perf/rhi_cert_perf.aspx

¹⁴ The non-domestic RHI consultation documents set out proposals for what the 'land criteria' should be.

¹⁵ The 60% target is only legally required under the RED from 1 January 2018. However, the UK's Renewables Obligation has decided to enforce the target earlier. In order to ensure consistency across all UK renewables policy (including the non-domestic RHI scheme), the same approach is proposed. The impact assessment for the non-

boiler efficiency of, in the case of the domestic scheme, 70% which is the MCS minimum requirement.

93. We feel that this approach balances sustainability considerations against the cost and administrative burdens involved in demonstrating the use of sustainable fuels. We believe it is a practical approach for consumers to comply with.
94. We are proposing to introduce a sustainable fuel eligibility requirement following a transition period because of the time necessary to establish an approved supplier system. We intend that from April 2014, consumers would have to purchase the biomass for their boiler from one of the approved suppliers. As evidence, consumers would be asked to keep their invoices to show they have purchased from approved suppliers and to submit them annually to the RHI scheme administrator as a condition of receiving their RHI payment. Before then, we would recommend that consumers purchase sustainable fuel.

Air quality

95. Good air quality is vital to human health and the Government is committed to controlling emissions throughout the UK. We also have to ensure that we meet legally binding targets for air quality and national emissions of certain pollutants.
96. The combustion of biomass can increase the emissions of certain pollutants in the atmosphere, including particulate matter (PM) and oxides of nitrogen (NOx), where it replaces gas heating or electricity generation. In general, biomass combustion produces lower emissions than coal and is similar to heating oil. However, given the projected growth of biomass combustion over the next decade, it is important that emissions are controlled.
97. As with biomass sustainability, we intend that the domestic RHI scheme takes the same approach regarding emissions limits and the tests to assess compliance as that set out in the recent consultation on the non-domestic scheme¹⁶.
98. This has set maximum permitted emissions limits of 30 grams per gigajoule (g/GJ) net thermal input for PM and 150 g/GJ for NOx. In order to ascertain compliance with these limits, the procedure being consulted on for the non-domestic scheme would allow testing of one or some of the appliances in a range of boilers of the same design rather than the whole range. A list of all such type-approved certificated appliances would be held and published by HETAS (the recognised approvals body for biomass and solid fuel domestic heating appliances) on its

domestic RHI consultation provides further details: <http://www.decc.gov.uk/assets/decc/11/consultation/rhi-certainty-performance/5885-ia-biomass-rhi-cons.pdf>

¹⁶ http://www.decc.gov.uk/en/content/cms/consultations/rhi_cert_perf/rhi_cert_perf.aspx

website¹⁷. HETAS is a member of the MCS. It is proposed that only biomass appliances that are on this list will be eligible for the RHI.

99. We propose that the list of MCS certified products¹⁸ will be reviewed to assess whether it can also show which products meet the RHI's air quality criteria. This would provide greater clarity, enabling consumers to easily identify RHI-eligible products on a single website.

Ground Source Heat Pumps

100. Our proposal is that ground source heat pumps (GSHPs) will be eligible for the RHI.
101. GSHPs operate in a similar way to ASHPs, but instead of using air they take their heat from the ground, lakes or rivers. They tend to be installed in one of two ways. The most economic method is generally to install a "slinky", or network of horizontal piping, under the surface layer of soil outside the house. Where space is at a premium, GSHPs are connected to pipes installed in vertically bored holes. In both cases the piping contains a liquid which, after being warmed by the earth, enters the GSHP where the heat is upgraded and transferred to a second medium, usually water and glycol, which is then used to heat the building via radiators, underfloor heating or fan coils. Like ASHPs, little routine maintenance is required but, unlike ASHPs, GSHPs are unaffected by colder weather and are less likely to have any significant noise or planning consent issues.



Solar Thermal

102. Currently, our intention is that only flat plate and evacuated glass tube solar panels will be eligible for the RHI.
103. Solar thermal technologies concentrate ultraviolet radiation from the sun onto a collector which transfers the heat energy to a working liquid which is then used to produce domestic hot water. There are two basic collector types – flat plate or evacuated glass tube. All solar heating systems contain a storage element in



¹⁷ <http://www.hetas.co.uk/>

¹⁸ <http://www.microgenerationcertification.org/mcs-consumer/product-search.php>

the form of a hot water tank. This is to ensure that the heat can be provided at the desired time, and not just when the sun is shining¹⁹. The amount of heating a system can provide is primarily dependent on the surface area of the collector and its orientation. Solar thermal systems are normally roof-mounted.

Consultation Question	
9	Do you agree with the proposed approach to the selection of eligible technologies for the domestic RHI scheme? Please include reasoning for your response.
10	Do you agree with the proposed eligible technologies set out above? Are there others that should be considered for inclusion?
11	Do you agree that an approved suppliers scheme is the best option for domestic biomass heat installations to demonstrate their use of sustainable fuel? Please provide reasoning with your response.
12	Do you agree that as part of the approved biomass supplier list we should assume a level of boiler efficiency? Please provide evidence to back up your response.
13	Do you agree that April 2014 is an appropriate date from which to start requiring users of domestic biomass heat installations to provide proof of meeting the sustainability criteria? Please provide reasoning with your response.
14	Is the air quality approach set out above appropriate for the domestic RHI sector? Please provide your reasoning with your response

¹⁹ Solar heating can operate in shady conditions, with lower efficiency.

CASE STUDY: Biomass (pellet) boiler



The Lord Family – customer profile

Property type: 4-bed 18th Century Cottage

Location: Off-gas grid, Derbyshire

Previous heating system: Anthracite Boiler

Current heating system: 25.5 kW Pellet fired boiler and 1.5 ton pellet store.

Cost of system: c. £12,000

Financing: Self-financed (from retirement lump sum)

Customer motivations and experience of installing a *biomass pellet boiler*

The Lord's decision to upgrade their system was taken when their old anthracite boiler broke down. Initially the family were keen to replace it with an oil boiler. The priority for the family was to:

- Reduce the amount of effort required to keep the house warm – the anthracite hopper had to be filled twice daily
- Have a more controllable (and reliable) source of heat
- Reduce the need for supplementary heat provided by an inefficient old Aga.

The Lord family approached a small local heating installer, *Elliott's of Bakewell*, who have a strong reputation in the area for installing high quality oil boiler systems. Having recently installed a biomass boiler for himself, their installer recommended a wood pellet boiler as the answer to the Lord family's problem. Mr Lord had not previously considered wood fuel but liked the idea that this would provide the controllable heat they required, and cut his carbon emissions.

The pellet boiler was installed in the old coal store located adjacent to the front door of the property, and a 1.5 ton pellet store added which can hold several months' supply of fuel (average pellet consumption for a domestic boiler is 5 tons).

Experience so far:

- **Installation:** there was minimal disruption, the system is compatible with their existing heat distribution system.
- **Ease of use:** The family finds the system easy to use and less time consuming than their previous system. It is automated so only needs filling infrequently – filling 200kg of pellets takes about 10 minutes, and would last for a week when temperatures are at their coldest, longer the rest of the year. As a bonus the family have also been able to remove the old Aga. The control system is straightforward and effective.
- **Space required:** The unit is hidden in an old cold store and no thermal store was required, so no internal space was lost, however the family have gained some space with the removal of the old Aga.

"It's almost like having gas! It's got the same ease of use as a gas boiler" (Mr Lord, homeowner)

Source: Delta-ee/Windhager 2012

Excluded Technologies

104. We are proposing to exclude the following technologies from the domestic RHI scheme at this stage.

Excluded technologies	Reason
Woodchip and log-fuelled stoves with back boilers	The high risk of fossil fuel substitution in such systems is problematic from a scheme enforcement perspective. Furthermore, emissions levels tend to be such that they are unlikely to meet the RHI scheme's air quality standard. Should this change in the future, we will review their eligibility.
Room heater stoves	The intention of the domestic scheme is to support the installation of entire heating or hot water systems, not individual appliances. Also, administering payments for extremely small appliances would be impractical.
Condensing biomass boilers or stoves	Not currently MCS certificated due to the high levels of pollution in the condensate. However, we are aware that MCS is looking at the option of developing standards (including on condensate) with a view to offering certification. Our policy towards this type of technology could therefore change.
Air to air heat pumps	We propose not to include these at the launch of the domestic RHI scheme, although we intend to keep this issue under review. See further comments below.
Cooling from heat pumps	We propose that cooling generated using heat pumps would not be eligible for the RHI based on European Commission guidance that it is not currently deemed to be renewable under the RED.
Exhaust air heat pumps	These use air extracted from inside the building, for example from the kitchen or bathroom, as their air source. We propose that these would not be eligible for the RHI as this air source is not deemed to be renewable under the RED.
Transpired solar thermal panels	Not MCS certificated and their size means they are not suitable as a domestic level technology. However, we are aware that MCS is currently looking at the option of certificating this type of solar thermal panel. Our policy towards them could therefore change.
Bioliquids	Not MCS certificated. Also, there are important factors that should be considered such as the need to support systems that are wholly renewable, the need to avoid diverting bioliquids away from other important industry sectors and the need to use bioliquids in a sustainable way. See further comments below.

Biogas combustion	Not MCS certificated. Also, the technology is not considered appropriate for the domestic sector. See further comments below.
Micro combined heat and power (CHP)	Micro CHP systems currently use fossil fuel only as an energy source and are therefore not deemed renewable under the RED. For this reason, we propose that they would not be eligible for the RHI. The situation will be reviewed should systems be developed which use renewable fuel.
Installations larger than 45 kWh/th	Not MCS certificated. Allowing above 45kW scale installations without an applicable MCS standard would place an onerous administrative burden on Ofgem. See further comments below.
Combinations of multiple eligible technologies, except solar thermal plus another eligible technology	We are proposing to calculate RHI payments on the assumption of one eligible technology meeting the deemed total space heating demand of the property, so support would not be given to multiple installations (except solar thermal combinations). See further comments below.

Air to Air Heat Pumps

105. We believe that there is no need for RHI incentives to support the uptake of such heat pumps in the domestic sector. Industry stakeholders have also expressed this view to us. However, we welcome evidence to the contrary, in particular case studies, since we will be keeping the situation under review.

Bioliqids

106. Biomass can exist in liquid form or be processed to produce a fluid known as a 'bioliqid' when used for heat and electricity, and a 'biofuel' when employed in transport. Bioliqids typically have a very high energy density and can either be burned directly to produce heat or blended with a mineral fuel component with the resulting fuel blend being burned.

107. We are proposing to exclude bioliqids from the scheme because we do not believe that partially renewable solutions such as the B30K²⁰ blend have a sufficient role to play in the transformation of the domestic heating sector to subsidise them through the RHI. We are keen to see the replacement of fossil fuel systems with wholly renewable domestic heating solutions in order to maximise both our renewable heat generation and carbon savings. By encouraging the installation of part renewable solutions, we believe we may undermine this objective.

²⁰ A mixture of 70% kerosene (standard domestic heating oil) and 30% biodiesel

108. Overall, considering the principles of the UK Bioenergy Strategy²¹, the Government's intention is to support bioliquids at a level which is unlikely to cause a significant diversion from other key sectors such as transport and within the limits of sustainable supply. Oils used to make biodiesel tend to have a constrained supply and Government to date has taken a cautious approach.
109. We recognise there are potentially valuable uses of bioliquids in combined heat and power, including those developed from wastes such as used cooking oil and those made from advanced technologies. The consultation on extension of technologies eligible for the non-domestic RHI examines this issue in more detail.

Heating from Biogas Combustion

110. Biogas is gas produced from renewable materials such as food waste, commercial waste, farm waste or sewage, most commonly through the anaerobic digestion of those materials. For the purpose of heat generation, biogas can be burned and used to create heat directly or to boil water and produce steam.
111. Currently, there is no MCS (or equivalent scheme) standard which exists for biogas and in the absence of such consumer protection, biogas will not be eligible for the domestic RHI. This will be kept under review.
112. Furthermore, biogas combustion is likely to be common in a farm setting and the heat generated is likely to be used in outbuildings as well as the farmhouse. We do not intend to incentivise such a scenario under the domestic RHI scheme. However, such generators would be able to apply for the non-domestic RHI.

Installations Larger than 45kWth

113. Currently, the MCS standards apply only to installations up to 45kWth, but we are aware that there is interest from larger homes in schemes such as the RHI and RHPP. However, we consider that to allow above 45kWth scale installations into the domestic RHI without an applicable MCS standard would place an onerous administrative burden on the RHI administrator and we are therefore proposing to exclude this size of installation from the scheme²². We intend to keep this under review and we will track any developments in MCS closely.

Multiple Renewable Heating Installations other than those Including Solar Thermal

114. We propose that individual homes would be eligible to apply only once during the lifetime of the scheme. In line with this, domestic RHI payments would be calculated on the assumption of one eligible technology meeting the deemed total space

²¹ http://www.decc.gov.uk/en/content/cms/meeting_energy/bioenergy/strategy/strategy.aspx

²² Note that if a renewable heat measure is installed to provide heat for multiple dwellings or premises, the consumer could be eligible to apply for the non-domestic scheme instead.

heating (not hot water) demand of the property. The exception to this would be solar thermal panels, where a separate calculation is done based on independent assessments of their heat load factor. Multiple installations that include solar thermal will be permitted because very rarely can solar thermal systems meet the entire space heating and hot water needs of a property. Normally, they can only support a percentage of hot water needs. The benefit of installing a complementary solar thermal system is that it will perform the primary heat generator role for hot water which will allow the other system to concentrate more on space heating, thereby increasing the efficiency of that other system.

115. As a result, to avoid overcompensation, we are proposing that the installation of multiple eligible renewable technologies under the domestic RHI be restricted to solar thermal in combination only. In addition, the domestic RHI scheme is aimed at replacing fossil fuel-based systems. Therefore, if a renewable technology such as a biomass boiler or heat pump is already in situ, the addition of further renewable technologies (except for solar thermal) would not be eligible for RHI support. However, where solar thermal is the only renewable technology that is already in situ, the addition of more solar thermal capacity or another eligible technology would receive support under the RHI.

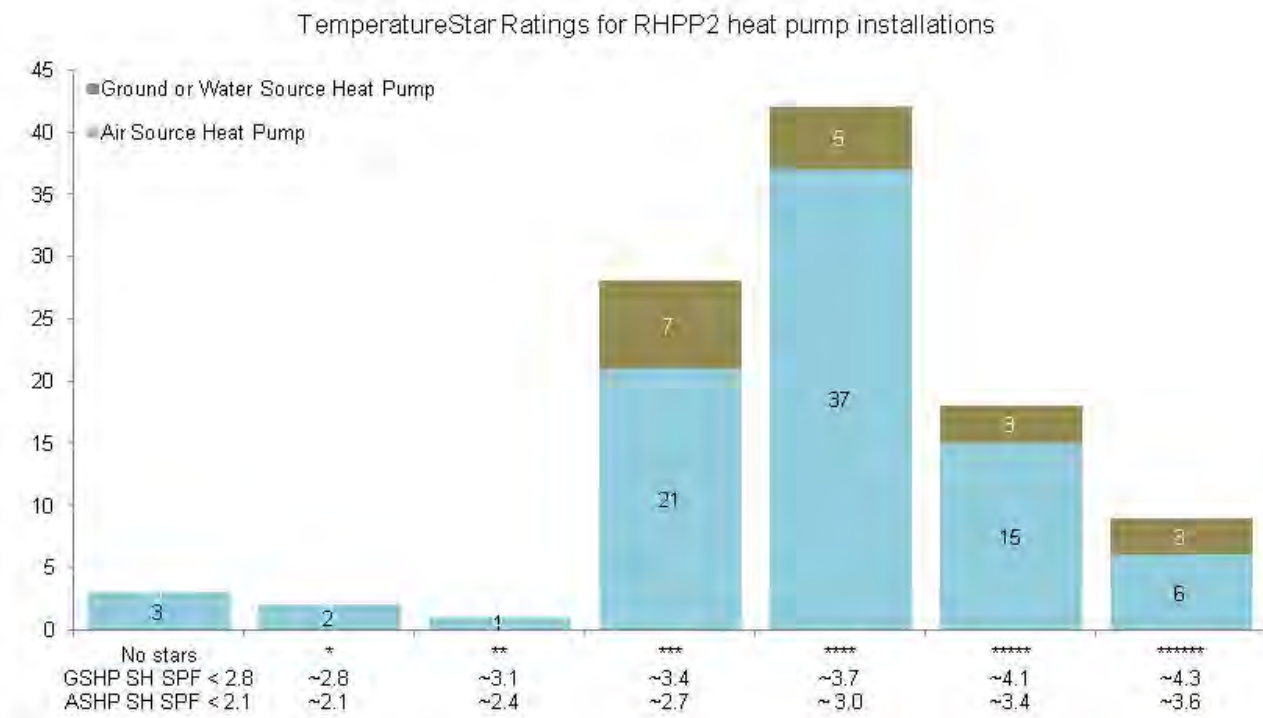
Consultation Question	
15	Do you have any views on our proposals for excluding certain technologies? If you would like to suggest changes, please provide evidence to support your view.

Performance Standards for Heat Pumps

116. We are keen to see the development of a renewable heating market that provides high quality, high performing and reliable renewable heating systems to the householder. This will be vital if we are to convince consumers that renewable heat is a real alternative to traditional heating systems.
117. In addition, the Renewable Energy Directive sets out a minimum efficiency that heat pumps are required to meet in order to be counted as renewable. In order to do this, the Directive uses an equation called the Turmes formula, which is based on the pan-EU average efficiency of electricity generation. Heat pumps which do not meet this efficiency level will not be counted towards the UK's renewables target. Currently, the minimum Seasonal Performance Factor (SPF) required by the EU is set at 2.5. The RHI is designed to only support installations that qualify as renewable

under this Directive so this is the minimum level of performance we are prepared to support.

118. MCS (or equivalent scheme) accreditation of technologies, which we propose to be a requirement for the RHI, dictates that heat pumps need to meet a Coefficient Of Performance (COP) of 3.2 for air source products and 3.5 for ground source products. We would expect heat pump systems using technology of these MCS efficiency specifications, which are designed, installed and used appropriately, to meet an SPF requirement of 2.5 but we would like to see better and improving performance over time.



119. The chart above shows the designed performance of some of the heat pumps installed in the Renewable Heat Premium Payment scheme. It shows that over 90% of installations had a likely space heating SPF of more than 2.7. As part of the domestic RHI scheme we propose to monitor the design intent of installed heat pumps to ensure that installers are setting out to design high-performing systems and would take action to enforce higher standards if the evidence shows that systems are intentionally being poorly designed. We set out proposals to measure how well systems are performing in Chapter 5, which would provide us with data to check that systems are performing according to their design prediction.

120. The European Commission has committed to produce guidance by 1 January 2013 on how to calculate SPF for different heat pump technologies and applications, taking into account differences in climate conditions. Therefore, we intend to review that final

guidance to inform our decision as to whether and how our efficiency requirements for heat pumps should be defined.

121. We also recognise that it is important for the RHI to continue to drive improved performance of heat pumps in the future. There are a number of ways in which this could be done, including an SPF requirement greater than the one required by the Renewable Energy Directive, which are discussed in more detail in Chapter 5.

Consultation Question	
16	Do you agree with our proposed approach to efficiency requirements for heat pumps?
17	Do you agree with our assumption that heat pump systems, using technology that meets MCS efficiency specifications, should meet an SPF requirement of 2.5 providing they are designed, installed and used appropriately?

Energy Efficiency Requirements

122. The installation of energy efficiency measures, such as cavity and loft insulation is the most cost effective approach to reducing energy consumption and carbon emissions in the home. For renewable heat, improving the thermal efficiency of the home allows for smaller, and cheaper, systems to be installed and allows them to run more efficiently. It therefore makes sense for an energy efficiency requirement to be part of any proposed eligibility criteria for the scheme.

123. The Green Deal aims to empower consumers and give

Potential 'thermal efficiency' measures

- Loft Insulation
- Cavity Wall
- Solid Wall – *an exception see below*
- Draught Proofing
- Duct Insulation
- External Wall Insulation
- High Performance External Doors
- Hot Water Cylinder Insulation
- Internal Wall Insulation
- Pipe Work Insulation
- Roof Insulation
- Sealing Improvements
- Secondary Glazing
- Under Floor Insulation

them new ways of financing energy efficiency home improvements. Under the Green Deal, energy bill payers will be able to get energy efficiency improvements without having to make the initial upfront investment. Instead, businesses and finance organisations will provide the capital in the form of a low cost finance and recoup the money in instalments via the energy bill attached to the property, over the term of the Green Deal plan . At the heart of the offer to the customer is the "Golden Rule" which states that the estimated savings on energy bills, which arise from the installation of energy efficiency measures should always equal or exceed the cost of the work. The ECO is extra help for those most in need and for some of the measures that do not meet the Golden Rule. It is a fundamental component and demand-driver for delivering the Green Deal.

124. We are proposing that in order to receive the domestic RHI, consumers would be required to have completed all green ticks on their Green Deal assessment that relate to the thermal efficiency of the house. The box above shows a list of measures that are likely to be counted as thermal efficiency measures.
125. By adopting the Green Deal as an eligibility requirement for the RHI, consumers would be able to benefit from an integrated process for installing energy saving and renewable technologies in their home. Furthermore, because the Green Deal assessment is specific to the individual house it should drive the most suitable cost effective measures for that household.

How will this requirement work?

126. We propose that anyone interested in receiving the RHI would need to undertake a Green Deal assessment which involves an authorised Green Deal assessor visiting the house to assess the current energy efficiency of the property and the particular usage of the occupants, in order to advise as to which improvements might be most suitable for installation. More detail on how this interaction will work is included in the customer journey in Chapter 8.
127. From this assessment the consumer will receive an Energy Performance Certificate (see example below) providing a list of measures that the consumer could consider installing. This will detail the likely cost and savings they are expected to generate, indicating whether they are worth doing purely from an economic perspective and therefore eligible for Green Deal support. Certain measures will be attributed a tick, with green ticks indicating that the measure is likely to be eligible for full financing through the Green Deal while those with an amber tick are likely to be only part funded. The only exception is for solid wall insulation which will get a green tick indicating that it could be fully financed, provided that the Green Deal Provider is able to fund some of the cost via a contribution made by an energy supplier under ECO.

Recommended measures	Indicative cost	Typical savings per year	Rating after improvement	Green Deal finance
Increase loft insulation to 270 mm	£100 - £350	£31	C69	✓
Cavity wall insulation	£500 - £1,500	£72	C73	✓
Floor insulation	£800 - £1,200	£49	C75	✓
Low energy lighting for all fixed outlets	£95	£40	C76	
Heat recovery system for mixer showers	£585 - £725	£15	C76	✓
Solar photovoltaic panels, 2.5 kWp	£9,000 - £14,000	£222	B83	✓

128. We are looking for the consumer to install the most cost effective measures so we will require consumers to install at least those thermal efficiency measures that have received a green tick. We are proposing that the green tick measures would need to have been installed and proof of installation provided to Ofgem (in the form of the revised EPC) before the renewable heating system is eligible to receive a subsidy. This approach has been proposed in order to ensure that the renewable heating system is sized to take into account the energy efficiency measures that have been installed, but we recognise it creates an additional level of complexity in the process, and would welcome views on alternative approaches.
129. We also recognise that in some cases consumers will not be able to install all their 'green tick' measures, either because they cannot secure financing or because of technical reasons relating to the location or nature of the property. We anticipate that in such exceptional circumstances and provided consumers have submitted proof to Ofgem of these difficulties, they would still be eligible for the RHI.
130. We are also aware of the concerns over any requirement to install solid wall insulation, which qualifies as a green tick due to ECO eligibility, and the potential for it to act as a barrier to uptake in the early life of the domestic scheme. We are therefore considering excluding solid wall from the 'green tick eligibility' requirement. In practice this would mean that consumers will not be required to install solid wall insulation (if it appeared as a green tick on their Green Deal assessment) in order to be eligible for the RHI. If we exclude the requirement to install solid wall insulation, this could be on a phased basis, for example, with the requirement being introduced for applicants after an initial 2 years of the scheme's operation.

Requirement for new build housing

131. Chapter 4 outlines that we are considering whether it is appropriate to introduce a tariff to support renewable heat in new build housing. If the outcome from the consultation is that a tariff should be introduced then it is likely that these properties would require a separate energy efficiency requirement. We are proposing therefore that if a house has been classified as a new-build (Part L1A of the Building

Regulations) or a renovation that is significant enough to come under Part L1B, then we will no longer require a Green Deal assessment. This is because L1A and L1B both have carbon emissions reductions requirements within them that should allow renewable heating systems to sufficiently benefit from the improved efficiency.

Consultation Question	
18	Do you think that the ‘Green Ticks approach’ to an energy efficiency requirement is appropriate to the RHI? Please provide reasoning for your response and further information on any exceptional cases you think might arise
19	What are your views on our proposal to require consumers to have installed energy efficiency measures and provided proof to Ofgem before they become eligible for the RHI? Can you suggest an alternative approach that guarantees the installation of the green tick measures, but provides RHI subsidy at an earlier point ?
20	Do you think that solid wall insulation should be excluded from the energy efficiency requirements or be introduced in a phased way? Please provide evidence for your response.

132. We recognise that the link between the Green Deal and the RHI raises a number of questions around the potential customer journey and the process that the potential applicants will need to go through to apply for the two schemes. This is considered in more detail in chapter 8.

CASE STUDY: Ground Source Heat Pump



The Cawdell Family – customer profile

Property type: Converted barn with garage

Location: Off-gas grid, rural Staffordshire

Previous heating system: Oil boiler

Current heating system: 12kW Ground source heat pump with ground array (installed May 2011)

Cost of system: c. £15,000

Financing: Self-financed (savings)

Customer motivations and experience of installing a *ground source heat pump*

The Cawdell's main motivation was to upgrade to a system that could comfortably meet their heating requirements and also deliver savings on their energy costs, because:

- The previous oil heating system provided an inadequate amount of heat and hot water for a family of four and they had to supplement it with electric fan heaters
- The volatile price of oil resulted in unpredictable, high fuel bills

The decision to install a GSHP was an 'investment' decision. In the short term the system will save significantly on energy bills (c.£1000 per year), delivering a payback of ~15 years. With no intention to move the family view this as an investment in their home.

Mr and Mrs Cawdell decided they wanted to replace their system and contacted installation company, *Purple Energy* for advice on what type of heating system could best meet their needs defined above. They had not considered a GSHP previously, however *Purple Energy* made a recommendation for the technology, based on the family's needs and the availability of outside space for a ground loop – they may not have considered this technology had the installer not recommended it to them.

Experience so far:

- **Controls:** The system is easy to use – the family have not had to touch the controls since the installer initially programmed them – the family also like that they do not have to handle fuel (the alternative solution was a biomass boiler)
- **Visual impact:** After the initial works there is minimal impact as the indoor unit is neatly out of the way in the garage, no alterations were required to their existing wet central heating distribution system.
- **Performance:** The family no longer have to supplement their heating system with electric fan heaters and the system is performing well.

“We are delighted with the heat pump system. It provides consistent, comfortable heat and produces lots of hot water which is really important for our family of four” (Mr Cawdell, homeowner)

Source: Delta-ee / Danfoss(2012)

Chapter 4: Tariff Design

Our Proposed Approach to Designing Tariffs

133. We are proposing to introduce a bespoke tariff scheme for the domestic renewable heating sector that would pay domestic consumers on a quarterly basis over a number of years for generating renewable heat. The tariffs, which would be available to all consumers who meet the eligibility criteria, would be designed to compensate the consumer for the financial costs of:
- the 'additional' capital cost of the renewable heat installation – that is the difference between the cost of the renewable heating system and the fossil fuel replacement system that the consumer would otherwise have to install; and
 - the difference in operating costs of renewable heat generation taking into account the assumed lifetime of the technology
134. The tariffs would also aim to provide the consumer with compensation for some additional non-financial barriers, associated with switching to renewable heat. These could include compensation for additional building work in the house and/or garden, lost space within the property (due to the fitting of a hot water tank, needing space for solid fuel or fitting larger radiators, for example). It might also include compensation for some of the perceived risks associated with the installation of renewable heat and the receipt of a government subsidy over a number of years.
135. The proposed approach to tariff setting also aims to provide compensation on the additional upfront installation costs of 7.5% to cover costs of financing, which is at the same level which the modelling for the Green Deal assumes interest rates would be available through Green Deal finance.

DECC review of evidence

136. A key part of this consultation is to work with stakeholders to ensure data on costs and performance used to set tariffs is as accurate as possible. A data collection exercise is being launched (reporting in October), which aims to provide a comprehensive update to this data set through examination of evidence from the Renewable Heat Premium Payment (RHPP), other government departments and stakeholder surveys and interviews.
137. In addition, the annexes of this consultation's Impact Assessment and the accompanying spreadsheet are intended to demonstrate as fully as possible the data that DECC currently holds and how it has been used to arrive at the indicative tariffs.

138. DECC welcomes any evidence which could help improve this evidence base over the consultation period. This can be submitted as part of consultation responses or separately. We will also be approaching stakeholders as part of our wider engagement at events during the consultation period to get direct feedback on evidence.

Period for tariff payments

139. The approach on which our indicative tariffs are based is paying tariffs over 7 years for heat generated over 20 years. However, there are other options that could also be considered for the shape and length of the subsidy payment. These could include paying the subsidy over 20 years, as in the non-domestic scheme and proposed in the 2010 consultation, tariffs paid over a shorter period (for example 3, 5, 7 or 10 years), capital grants and a mixture of grants and ongoing payments.
140. Paying tariffs over 20 years was consulted on in 2010 but might not be seen as optimal both from a consumer perspective, as that is a long time over which to plan domestic investments from a government perspective as it creates a large spending legacy. However, there remain concerns about finance costs and potential switchback to fossil fuels of introducing any shorter tariff.
141. Capital grants have also been considered on the basis that the approach would reduce lifetime government spending since there is no need for compensation for borrowing costs and the subsidy risk facing households is reduced. It was also recognised that it is probably the simplest type of subsidy for consumers to understand and make decisions on, and overcomes the significant barrier of upfront capital expenditure required. However, this option is not proposed here on the basis that it increases the pressure on the budget in the early years of the scheme in a way that would make it very difficult to deliver sufficient renewable heat generation. We also have concerns that if consumers were paid in full up-front, the ongoing incentive to keep using renewable heating for the full lifetime of the measure would be significantly reduced and difficult to enforce.
142. To try to overcome this final concern, we have examined the possibility of structuring a tariff to include both an element of upfront grant designed to compensate for capital costs, along with an ongoing tariff designed to cover operating costs. This would have the advantage of ensuring some incentive to continue generating renewable heat persisted through to 2020. However, the majority of the costs still lie upfront and this option would retain significant cost in the early years for government and still entail associated difficulties of maintaining budget control using a degression mechanism.
143. Other periods of tariff length have been considered and modelled including 5 year tariffs and 10 year tariffs. However, 7 year tariffs are being proposed as the lead option on the basis that they may offer the best balance between short term affordability and reducing both cost and risk while also being appealing to

consumers. For example, it is not unusual for consumer loans, finance or purchase agreements to be available over this approximate timescale. In terms of subsidy payments and the pressure on budgets, the longer the payment period the greater the legacy cost issues to government; the shorter the payment period (3-5 years), the more pressure there is on immediate budgets. The spending profile of a 7 year tariff seems to balance these two extremes. The way in which tariff structures affect consumer decision-making is the focus of ongoing research by DECC which will be continued during this consultation. However the risk of consumers switching back to a fossil fuel heating system after the tariff is not longer being paid remains a concern for the Department.

Consultation Question

21

Do you think that 7 years is a suitable time period for tariff payments under the RHI to be made? Would a different time period for tariff payments suit different technologies? Please provide evidence to support your view.

Timeframe over which renewable heat is delivered

144. The proposed 7 year payment period is designed to pay for 20 years' worth of heat. Paying a tariff out over a shorter period than that assumed for the length of time over which heat is delivered brings challenges in relation to ensuring that the assumed levels of heat are actually generated and that some potentially perverse incentives for product specifications are avoided.
145. For example, due to the price differences, particularly for biomass, between the renewable fuel and its fossil fuel alternative there may be a risk that consumers may be tempted to switch back to the fossil fuel system after an initial subsidy period had finished. There may also be consumer protection issues in relation to consumers being able to assure themselves that technologies with running cost savings will last for 20 years so that they are not out of pocket if an installation does not last that long (the tariff paid assumes savings generated over a 20 year period due to lower running costs than the counterfactual oil or electricity-based system).
146. In light of the switchback risk identified for biomass boilers we are considering the potential to split the tariff provided for biomass into one tariff for an initial period comprising upfront and barrier costs with an additional tariff for the operational costs only paid over 20 years. There are two options for how the 20 year payment could be set:

- The element of the proposed tariff that is for ongoing costs would be split out and provided over a 20 year period rather than over the initial period of say 7 years currently proposed. This would ensure an ongoing (albeit small) incentive was available to cover the ongoing costs up to 20 years; or
 - As the future prices of biomass and counterfactual fuels (oil and electricity) are uncertain, we could reduce the proposed biomass tariff by stripping out the operating costs beyond the initial tariff period. This would enable us to then set an appropriate secondary tariff of RHI payments to consumers at the end of that initial period. A secondary tariff would be introduced at the appropriate time based on more up to date information on the differential costs of the fuels. This tariff would automatically be paid to all biomass registered RHI customers for the remainder of the 20 years as long as they continue to provide the evidence of ongoing use of their biomass boiler as required.
147. The efficient lifecycle of a renewable technology plays a significant role in setting the tariff. This is because we credit the technology for the years of renewable heat that it produces. In parallel to this consultation we are undertaking a study into the costs and performance of technologies which will inform final tariffs. We are keen to receive evidence on the likely operational lifetimes of renewable heating technologies.

Consultation Questions	
22	Please provide evidence on the potential lifetimes for the different renewable heating technologies, particularly where they are expected to last less than the 20 year period that we are assuming.
23	What is the risk of switchback after the period over which tariff payments are made? Do you think this applies solely to biomass?
24	Do you think that either of the proposed solutions would mitigate the risk of switchback? Which approach would be better? Is there any other action we could take to ensure the continued use of biomass in this way?
25	What do you think are the other risks associated with paying a tariff over a shorter period, say 7 years, but assuming heat delivered for 20 years? How do you think we should mitigate these risks?

Ensuring value for money

148. Having identified the costs that we expect to be associated with installing renewable heat as a starting point for establishing any tariff, it is also important for us to ensure that the policy is as cost-effective as possible and achieves the best value for money for the taxpayer. As the policy's key objective is contributing to delivery of the renewables target, the value for money of the subsidy provided under the scheme needs to be seen in the context of the portfolio of policies that government has introduced to meet this target, including the Renewables Obligation and the Feed in Tariff.
149. Our analysis has shown that offshore wind is the marginal technology that requires support to meet the renewables target i.e. it is the cheapest technology that could be deployed at a scale sufficient to meet the renewables target. Therefore, in the context of meeting the renewables target, we believe that any incentives for other renewables should be no more expensive than the current price of offshore wind. In 2010 prices, offshore wind is currently funded through the Renewables Obligation at 8.3 p per kWh over 20 years. On the basis of a subsidy paid for heat generated for 20 years but paid over 7 years, the equivalent subsidy rate would be 17.3p per kWh in 2012 prices. If we proposed under the domestic RHI to pay more than 17.3p per kWh (for a domestic tariff based on 7 years of payments), we could alternatively generate the same amount of renewable electricity more cheaply. This reflects the approach taken in the non-domestic sector scheme where the current solar thermal tariff is set at the equivalent to a lifetime cost of 8.3p at 2010 prices.

Indicative Tariff Levels

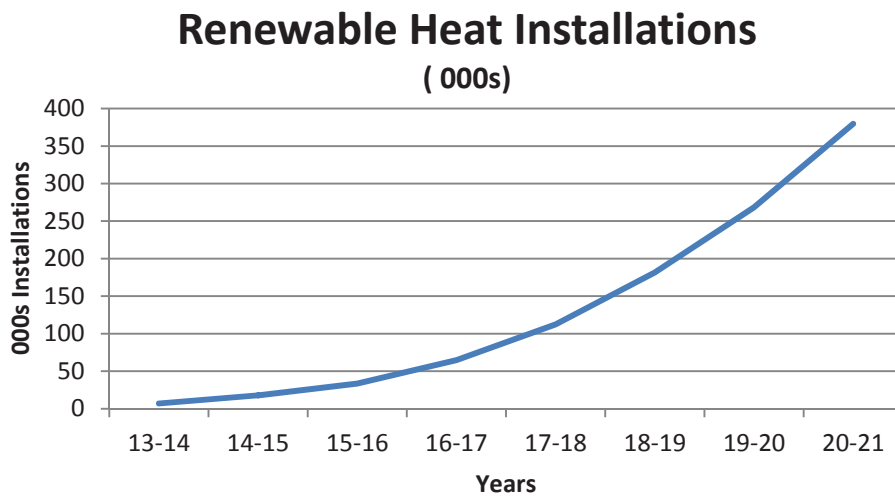
150. As stakeholders and other industry specialists have made clear many times, it is important for us to set tariffs at the right level to stimulate growth of renewable heat in a sustainable way. Too low a level could prevent the supply chain from growing effectively, preventing the industry from expanding and reducing costs to a point where subsidy is no longer needed. Too high a level of subsidy could result in a 'stop – start' cycle of deployment. Calibrating tariffs is therefore critical and our intention is that they are set at an encouraging level while also proposing the cost control measures outlined in Chapter 9.
151. The calculation of the tariff included within this consultation document is based on a number of underpinning assumptions which are subject to change. As set out earlier, we will be going through a period of refining, updating and verifying our evidence during the autumn including the incorporation of evidence that we gather from this consultation and the most up to date data from the RHPP scheme and other government calls for evidence. This means that the final tariff rates will almost

certainly be different to those set out in this consultation. In preparing indicative tariff levels included here, we have made a number of assumptions including:

- Technology and installation costs;
 - Technology efficiencies – if a technology type is more efficient than we have assumed, the costs incurred will be lower;
 - Technology lifetimes – depending on the technology and balance of capital and operational costs, a longer lifetime can either increase or decrease the tariff that we would consider necessary;
 - The cost of financing;
 - The use of off gas grid consumers as the key market means that the more expensive fossil fuels, such as electricity and oil, have been used as the basis for calculations.
152. Based on current evidence, and the assumptions used, we have set out a range of tariffs for each technology within which we would expect the tariff to fall. Evidence from stakeholders has suggested that our current data does not adequately reflect the current market and as such could result in tariffs being too high or too low.
153. The tariff level at the top of the indicated illustrative band for ASHPs and biomass reflects the median costs of what our current evidence and assumptions would suggest. The figures within the Impact Assessment reflect this. However, there is significant uncertainty around the evidence base and the lower figures reflect that. As mentioned above, we are collecting and testing our evidence which will allow us to identify a final single tariff for each technology. If this new evidence shows that the actual value is outside the ranges indicated, we would need to set the tariff at the appropriate level. This may be outside the illustrative range. The ranges are therefore intended to indicate the potential variation in final tariffs resulting from this update in evidence rather than to fix upper and lower bounds.
154. The tariffs implied by our current evidence base for ground source heat pumps and solar thermal would both exceed the marginal cost of renewables and we would therefore apply the proposed value for money cap of 17.3p per kWh for a tariff paid over 7 years. The effect of applying the cap to GSHPs is to cap the upper end of the range of 20.9p to the marginal cost of renewables at 17.3p. For solar thermal, the current evidence base suggests that the costs are such that the whole range possible tariff levels would be above the vfm cap. The proposed indicative tariff is therefore not set out as a range but at the level of the marginal cost of renewables i.e. 17.3p.

	Biomass	ASHP	GSHP	Solar Thermal
Tariff (p/KWh)	5.2 - 8.7	6.9 - 11.5	12.5 - 17.3	17.3

155. The graph below shows that, at the top end of the range, the tariff structure as presented would result in an additional 3.3 TWh/year of renewable heat by 2020 for a total of 5.9 TWh/year of renewable heat in the domestic sector as a whole, at a subsidy cost of around £400 m over the next 7 years.



156. The rationale for capping any tariffs at the equivalent price of offshore wind has been outlined earlier. However, we are conscious that the impact of capping one or more technologies could be to reduce its deployment in comparison to that which might be expected with the higher tariff. This is because in some cases the tariff may no longer fully compensate the user for the additional costs incurred. This may put cheaper products at a greater competitive advantage and therefore able to secure a greater market share as they would be more cost-effective for more people. Our heat strategy highlights the importance of supporting a diverse mix of technologies to ensure innovation and supply chain growth are delivered to allow future policy delivery.

157. Without sufficient deployment levels in any particular technology, cost efficiencies and other economies of scale that reduce the long term costs are less likely to occur, with public awareness and acceptance of the technology less likely to be realised. Therefore, although tariffs above 17.3p may not be cost effective in terms of meeting the 2020 renewables target alone, going beyond the cap with the longer term aim of degressing the tariff may be justified in terms of achieving our broader objectives

from the policy. Some additional options to reward high performing equipment and installations are set out in Chapter 5.

158. We are therefore keen to hear your views on how we can achieve the optimum balance of obtaining value for money for the taxpayer and developing a market that not only delivers renewable heat towards our targets, but will also allow for the delivery of carbon savings in the long term. We have considered a number of options including:
- Partially or fully removing the cap that we have applied to some technologies, at least for a specified period, on the basis of the competition impacts of having the cap, the need to retain all elements of the technology mix for the longer term, inherent benefits to some technologies that may not be adequately reflected in the comparison with other renewables and the scope to prompt cost reductions over time by stimulating the market sufficiently now;
 - Reducing the tariffs offered to cheaper technologies to allow for the same rate of return on the capital expenditure as is achieved by a less cost effective technology (though on the basis of the current indicative tariffs it would not be practical to calibrate other tariffs at the level of the capped tariff for solar thermal technologies);
 - Changing the cap to include a factor for relative carbon savings or other benefits of the technology;
 - Adjusting the shape of support offered to take account of the different nature and funding requirements of the technologies. This is explored further in the next section.

Consultation Question	
26	Do the tariff ranges above accurately reflect the costs faced by consumers installing renewable technologies? Where possible we would welcome cost-based evidence that supports your views.

Solar Thermal

159. Solar thermal has a different role on the whole to other renewable heat technologies. It can be installed at any point in a boiler's lifecycle and bring both cost and carbon savings. As the technology has little or no operating costs once installed, with no fuel costs and relatively small maintenance requirements, it can be considered as 'fit and forget' technology.

160. Solar thermal needs to be installed in parallel to a space heating system as it will only ever make a contribution to rather than replace the current (or renewable) option. However, where it is installed alongside a heat pump it can significantly improve the performance and reduce the running costs of that equipment as the heat pump is no longer required to carry out the harder job of providing hot water.
161. Relative to the renewable energy this technology produces, it is a more expensive option, although there are very significant variations in the costs incurred to install it. It also competes in the marketplace with solar PV²³ support through the Feed In Tariff policy, which although on a trajectory to the marginal cost of renewables, is still currently subsidised at higher levels. Given its costs, our proposal to cap tariffs at the marginal cost of renewable energy (equivalent to 17.3p for a tariff paid over 7 years for 20 years of heat) and competition with solar PV, we would expect solar thermal deployment to be very low.
162. We are therefore considering what alternative approaches there may be to incentivising this technology. One option would be to substitute tariff payments with a one-off upfront grant. Another option would be to separate some of the costs of installation and have a combination of a grant for one element and a tariff for the remainder of the costs. Both of these options have the advantage of reducing the capital that households would need to invest themselves. However, we are eager to hear your views on whether there are any alternative options which would provide greater impetus to the market.

Consultation Question	
27	What are your views on the support for solar thermal as set out? What evidence is there to support a tariff higher than the renewable energy cap? Do you have any suggestions / views on other ways in which a subsidy for solar thermal could be paid, for example, through a capital grant or through increasing the tariff beyond the cap?

Ground Source Heat Pumps

163. Currently the indicative tariffs include a single tariff range for ground source heat pumps (GSHPs). However we are aware that GSHPs operating from a borehole are

²³ Electricity-generating systems

likely to be more expensive to install than GSHPs operating from a ground loop array. We are considering an option of introducing differentiated tariffs.

164. As with solar thermal technologies, given its costs, constraints on installation and our proposal to cap tariffs at the marginal cost of renewable energy (equivalent to 17.3p for a tariff paid over 7 years for 20 years of heat), we would expect deployment of GSHPs to be low. We are therefore keen to hear your views and any evidence on whether a different approach to the proposed cap should be taken in respect to GSHPs.

Consultation Question	
28	What are your views on the support for GSHPs as set out? What evidence is there to support a tariff higher than the renewable energy cap?
29	What are your views on differentiated tariffs for GSHPs?
30	Do you have any data that you can share on the current market split between borehole and ground array GSHPs, associated costs and the likely future demand of these?

Potential capping of tariffs for other technologies

165. As set out earlier, the work we are doing to update our evidence and assumptions is likely to affect the final amount of support that we offer through the RHI. As such, although on the basis of the current assumptions it does not appear that biomass or air source heat pump tariff rates would be capped, this could change should the assumptions and/or evidence change. It is therefore important to consider whether there are additional factors that should be taken into account in relation to the potential application of the proposed vfm cap set at the equivalent cost of offshore wind.

Consultation Question	
31	Are there other factors which should be taken into account when calibrating the tariff levels for either air source heat pumps or biomass boilers if the value for money cap were to become applicable to those technologies?

New Build

166. We are considering whether support should be offered within the new build sector (for developers and/or self-build) and would welcome your views on whether a new build tariff should be built into the domestic RHI scheme.
167. To date we have considered that the domestic RHI would only cover the retrofit of existing homes because Building Regulation updates relating to strengthening the energy efficiency standards for homes would eventually effectively oblige developers to put renewables, including renewable heating, into new-build properties.
168. Given that Part L of the Building Regulations (England) sets carbon emission targets and is functional in approach, the house-builder can decide upon the most cost-effective and practical way of meeting carbon requirements. It is therefore likely that under current circumstances, renewable electricity technologies that can be subsidised through the Feed In Tariffs would be chosen over and above renewable heat technologies.
169. However, we recognise the importance of renewable heat being incorporated into new buildings since they will still be in use by 2050. If renewable heat technologies are not fitted into a building during its construction, they would need to be retrofitted which would be much more expensive and could potentially require a much higher level of taxpayer subsidy than if they were installed during the initial building process.
170. We anticipate that the costs in the new build sector would be lower as hassle and disruption costs should not apply while installation costs should be largely reduced. Furthermore, heat pumps would be expected to reach high SPF's because of the lower fabric and ventilation heat losses of the buildings they would be installed in and so may have greater operating cost savings. In terms of RHI proposals for this sector, this could result in low tariffs or even zero tariffs for some of the cheapest technologies. We are currently procuring further market research on the costs of renewable heating technologies, with particular reference to new build properties, and this will be used to inform final tariff calculations.
171. However any tariff would only be available on new developments after the launch of the domestic RHI in Summer 2013 and where the renewable heat technology is additional to the compliance with Building Regulations. This would not affect the position of those who installed in new developments since July 2009 where they replaced a heating system installed by the developer, nor those new build properties (such as self-build) which claimed the RHPP, where the eligibility criteria set out in Chapter 2 would apply.

Consultation Question	
32	Do you believe that the introduction of a domestic RHI tariff for new build is appropriate? If so, what additional costs and/or savings should DECC take into account if setting a new build tariff?
33	Do you have any evidence on the percentage cost reductions associated with fitting a renewable heating system into a new building, compared with retrofitting it?
34	If you do not agree with a domestic tariff for new build along the lines proposed, can you propose alternative ways to incentivise the uptake of renewable heating in the sector?

Social Landlords

172. We are also considering whether support should be offered under the domestic RHI scheme to registered social landlords and if so what the appropriate level should be.
173. Our current position is that registered social landlords installing individual renewable heat installations into each flat or house would not be eligible for the domestic RHI²⁴. However, we believe that social landlords may offer the potential for a significant contribution to the overall uptake of domestic renewable heat. Unlike individuals, their often large property portfolios mean we anticipate that they are likely to be able to access cheaper finance and negotiate cheaper purchase costs for equipment and in regard to on-going biomass fuel costs. For these reasons, as the proposed domestic tariff compensates at a rate for individual households, we believe that offering it to social landlords would over-compensate them and, given the scale some can operate at, this could result in significant profits. However, given the additional costs of renewable heat compared to fossil fuel alternatives, we do believe that some level of subsidy may be required, albeit at a lower level than that offered to individuals and possibly over a different period of time than the proposed 7 years.

²⁴ Note that if a social landlord was putting a renewable heat installation to provide heat to multiple dwellings (for example, one pump to heat five houses), they would be eligible for the non-domestic RHI.

174. As with the situation for private landlords, there would seem to be some potential difficulties in making the shape of proposed subsidy payments work effectively in the landlord/tenant scenario. This is due to the relative balance of costs and savings between landlord and tenant if the landlord is the recipient of the RHI, because of the balance of responsibilities for the heating system and its running costs. For tenants, we would hope to see them benefitting from reduced heating related bills. We are aware, though, of the ongoing operating (e.g. fuel) costs for biomass boilers. We will be assessing options to address this, but would nevertheless hope that landlords pass on the benefits of all renewable heating installations.

Consultation Question	
35	In light of the above, do you think we should introduce a domestic RHI tariff for social landlords? Why/why not?
36	Do you think that the proposed 7 year period for tariff payments would be appropriate for social landlords too or would another timeframe within the assumed 20 year life of equipment be more appropriate?
37	Do you have any evidence on the percentage differences to costs/benefits of fitting individual renewable heating systems into social housing?
38	Is there an alternative way in which you think we should incentivise renewable heat in the sector?

Ensuring Payments are Accurate

Metering and Deeming

175. We are proposing that the RHI would provide a tariff payment based on the amount of heat used by the consumer. This section sets out the options we are considering to calculate this heat usage and how we will ensure that the mechanism used is accurate, replicable and not open to abuse. This will be vital in making sure that the consumer receives the correct level of subsidy and to protect the scheme from gaming and fraud. For the domestic scheme, we have a choice between whether to meter (measure the heat usage through a meter) or 'deem' this heat (calculate the likely the level of heat usage based on size, location and level of insulation in the property combined with the renewable heating technology chosen, and pay the RHI on that basis).

176. We currently do not consider that it would be appropriate, or economic, to meter every single domestic installation. Our experience, from the significant metering done under the RHPP pilot scheme and non-domestic RHI, has shown that the costs have been fairly high, meter performance has been mixed and this has presented significant logistical challenges for the installer. Although lessons have been learnt in improving installation standards it is likely that costs will continue to be high. Metering would also involve significant additional administration costs in collecting and processing readings.
177. There are also concerns that basing payments on metered heat would not provide sufficient incentive to consumers to change their behaviours and in fact may drive perverse incentives (such as wasting heat) because increased usage would increase the payment.
178. We are therefore proposing for the most part to pay the domestic RHI on the basis of 'deemed' heat with metering being required for:
- Situations where the consumer has chosen to keep and continue to use a fossil fuel system as well as their renewable heating system (see section on bivalency);
 - A statistically significant number of installations for evaluation, MCS surveillance and learning purposes (see Chapter 5);
 - Any additional metering that could result from the implementation of the raising performance options that are being considered in chapter 5.

Consultation Question

39	Do you agree that deeming, as opposed to metering, is the most appropriate approach on which to base the calculation of RHI payments? If not, why not?
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Method of deeming

179. In terms of how and when the calculation of the deemed heat usage figures could be obtained, there are currently two points in the process where this could be done. Firstly, as part of the Green Deal assessment, the assessor will produce a heat load figure from an RdSAP calculation which will be presented in the property's Energy Performance Certificate (EPC). Secondly, the MCS (or equivalent scheme) certified installation business will need to assess energy consumption as part of the design process of the renewable heating system.

180. We think that the installer, as a trained heating engineer and the closest connection to the consumer, should be responsible for the deemed figure used for calculating payments. As it stands, there is a calculation included as part of the MCS calculation for heat pumps which gives the peak heat load of the property. This is so that the heating system can be designed to meet the maximum demand required. Clearly it would not make sense for the RHI subsidy to be paid on a figure that relates to the highest possible output of the heating system, as there will be points in the year (over the summer months) when the system will be barely used.
181. Therefore we are looking for the adoption, within MCS of an **accurate and standardised ‘deemed’ calculation for the average annual heat load**. We are not necessarily intending for MCS to create a new calculation from scratch and there may already be calculations available that fulfil the criteria. For example, the figure resulting from a SAP assessment could be used if it was felt that this was an effective solution. The installer would not necessarily need to carry out the calculation themselves but would be responsible for ensuring the figure was accurate. We will be working with MCS to ensure that the calculation used is one that industry feels confident is sufficiently robust and can be used consistently for all installations. As a test, we think the calculation would need to fulfil the following criteria.
- **Individually tailored to each property** - Simulations or comparisons with notional buildings would not be considered as sufficiently accurate. The methodology would have to be based on all the elements that make up a heat loss calculation such as ‘u’ values, climate, ventilation, design internal temperatures, etc.
 - **Technology agnostic** - The calculation methodology, including for DHW (Domestic Hot Water) heating, should lead to identical outcomes whether solar thermal, heat pumps or biomass are used.
 - **Carried out to a British Standard** - Meaning that the MCS will need to develop a harmonised approach so that the same calculation methodology will be used for all technologies and for all domestic applications.
 - **The responsibility of the installer** - If the calculation is sub-contracted, then any assumptions, as well as the methodology and any software package, should be recorded by the installation company for future audit either by their MCS Certification Body, or by the RHI scheme administrator. Identical assumptions should be used for sizing heating appliances (i.e. peak sizing), and calculating the annual energy consumption (i.e. upon which the RHI payment is based).
 - **Simple for a consumer to understand** - Whilst the calculation methodology may be complex, it must be simple for householders to understand the outputs such as the running costs, and the peak heat loss which is used to size the heating appliance.

182. As any calculation will be the basis for government subsidy payments, we will need to work with MCS and other schemes to ensure that the standards and training required of those making the calculation are of the highest possible standard and that sufficient auditing arrangements are in place to prevent abuse or fraud. We will be working with MCS and Ofgem over the coming months ahead of launch to make sure sufficient safeguards are in place.

Consultation Question	
40	Do you agree that a calculation by the MCS installer, or equivalent, is the best approach and that the above criteria are adequate for developing an effective calculation?
41	Do you have any views on which calculation would be most appropriate for deeming heat? Please provide evidence to support your claim.

Bivalency

183. Bivalency refers to running of two, or more, heating systems alongside each other.
184. The RHI is being introduced to encourage the uptake of renewable heat over the long term and any proposal would therefore encourage households to make full use of their renewable systems. Consequently, in the majority of cases we propose that consumers would be required to remove their existing fossil fuel heating systems in order to be eligible for the RHI.
185. However, we are aware of some situations where consumers may want to keep a bivalent system, such as:
- As a back-up in case of a break-down, or
 - To gain peak performance from the overall heating system. This is because in some cases we are aware it can be more efficient to use back-up boilers to heat water, such as during the summer months when whole house heating is not required.
186. We are concerned however about the potential for unintended consequences and risk of fraud from allowing fossil fuel systems to be retained without appropriate controls in place. For example, biomass boilers are likely to continue to have higher running costs than conventional heating systems and the tariff has been designed to compensate for this additional cost. However, given the ongoing fuel costs of biomass, this could result in a perverse incentive to produce heat using biomass for the duration of the tariff payments to gain the full RHI subsidy, (i.e. for seven years), but then switch to the back-up system from then on. This would mean that the

renewable heat benefits of the boiler would accrue for a shorter period of operation rather than the expected 20 years accounted for in the potential tariff. This would severely damage the value for money of the scheme.

187. In order to balance these potential consumer concerns with the risks, we are proposing the following approach:

- For solar thermal installation - we propose to allow bivalency as this technology is unable to meet the entire heating needs of a household and is therefore only feasible in a bivalent system
- For ground or air source heat pump installations - we propose to allow bivalency with the requirement that the **consumer pays** for a meter to be installed and RHI payments will be made on the basis of metered heat.
- For biomass boilers - we do not propose allowing bivalent systems, except for electric immersion heaters for hot water and solar thermal, due to the risks involved around the consumer switching back after 7 years.
- For legacy applicants we are proposing to allow bivalent systems if they have been installed and the heat load will be calculated based on metered readings
- We propose that individual LPG, gas and electric room heaters would be allowed except for the unlikely combination of biomass plus mains gas room heater. Such heaters would not be taken into account in ensuring that the renewable system covers 100% of the heat load.
- Where pre-existing fossil fuel Rayburn range cookers are in place, we propose that these need not be removed but that the range cooker should be disconnected from the heating pipes and boiler, allowing the householder to continue to use the cooking facilities. These systems would not be taken into account in ensuring that the renewable system covers 100% of the heat load.
- Where pre-existing Aga range cookers are in place, for safety reasons we propose that these could remain connected to the boiler but they should be disconnected from the radiators.

188. Where the heat is metered, we propose that the amount of heat paid for would be capped at the figure deemed for the property so as to avoid intentional over use. The household would need to make the scheme administrator aware of any bivalent system as part of the annual self declaration process and this would be subject to spot checks by the scheme administrator.

Consultation Question	
42	Do you agree with the approach outlined here for the treatment of bivalent systems?

Financing

189. We recognise that a tariff (rather than a grant) scheme would still require consumers to find the upfront costs of the renewable heating installation themselves. We anticipate that this could be done in a number of ways :
- Savings - the tariff factors in a 7.5% compensation for finance of the capital costs²⁵ which is significantly higher than current interest rates in most savings options. This could therefore be seen as an attractive investment for those households with that option.
 - Extension of mortgage – many homes have existing equity in their property. Homeowners could borrow the capital costs against that equity. Mortgage rates are currently very low, typical tracker mortgages are at about 2.5% interest, so again where this is possible it would be an attractive option for those who are able to access it.
 - Loan from high street bank – banks are also likely to be willing to lend money to households in recognition of the income stream that RHI provides. The 7.5% compensation is designed to offset the cost of borrowing money at the high street rate.
190. Given that the RHI would provide consumers with a steady income stream over 7 years, it is expected that the market would respond by creating specific funding packages around the RHI such as loans or other finance schemes to help consumers with the initial capital outlay for their renewable heating systems. This is something that we will monitor as part of our market intelligence and review process.

Consultation Question	
43	Do you anticipate that financing offers will come forward from the market to provide support for renewable heat in conjunction with the RHI? If not, is there anything DECC could do to support this?

²⁵ Paid on the difference between fossil fuel and the renewable installation

Green Deal Financing

191. The Green Deal, which will be launched in October 2012²⁶ will provide customers with a means of financing energy efficiency improvements in their properties through low cost finance which is repaid in instalments via their energy bills. The Green Deal removes the need for consumers to find upfront capital to fund, for example, the insulation of their homes. The financial obligation will be attached to the property and repayments should be covered by the savings generated in the energy bill which will not mean any obvious additional expenditure for the consumer.
192. In order to establish the amount of finance which can be provided under the Green Deal, the 'golden rule' is applied which is the principle that the annual estimated savings on energy bills, that will arise from the installation of energy efficiency measures, should equal or exceed the annual amount of the Green Deal instalments collected on electricity bills. This means that a package of measures which is financed entirely under the Green Deal ought to be capable of paying back through savings on energy bills within their lifetime and within the lifetime of the Green Deal plan.
193. The Green Deal already includes the potential to fund renewable heat measures, however, at present, their high cost means that they are unlikely to be fully fundable through the Green Deal.
194. In addition, Green Deal financing is only available in cases where a household is likely to save money on their energy bills as a result of installing the measure. However, in a small number of cases, where customers are able to save money on their energy bills resulting from the installation of renewable heat, we anticipate that renewable heat measures could be part-financed under the Green Deal, up to the limit permitted under the golden rule.

²⁶ Finance to be available from January 2013

Example:

Sam Brown lives in rural Lincolnshire off the gas grid and currently heats his home electrically using a combination of very inefficient electricity storage heaters and supplementary electric radiators. He gets a Green Deal assessment which identifies he could do loft and cavity wall insulation and get it fully funded through the Green Deal. The assessment also identifies that if he installed a ground source heat pump (costing around £15,000), he could save approx £200 per year on his electricity bills. A conversation with the Green Deal finance providers confirms that GD finance up to £2000 (and repayable through energy bill savings over ten years) is also available to help him with the cost of installing the ground source heat pump.

195. We can confirm that if a consumer can get some Green Deal part finance along these lines, it is currently our intention that they should also be eligible to receive the RHI provided their installation meets the eligibility criteria set out in Chapter 3. In the case of the above example, Sam Brown would be able to get Green Deal finance and the RHI to help him switch from electric heating to a ground source heat pump.
196. We currently do not believe there is a material double subsidy issue with the above interaction between the Green Deal and the RHI, but we will continue to examine this to ensure we comply with our EU obligations in respect of State aid.

Consultation Question

44

To what extent do you believe the ability for some consumers to fund their renewable heat installations through Green Deal and the RHI will improve deployment of renewable heat ?

Chapter 5: Raising Performance

197. This chapter considers whether we should take any additional action through the domestic RHI which is specifically aimed at raising the performance of renewable heating installations.

Background

198. Very efficient renewable heat installations will reduce energy bills, build awareness and confidence in those technologies and generate more renewable energy and greater carbon savings. High performing heat pumps will also reduce the amount of electricity generating capacity required in the future, limit our exposure to heating-related spikes in electricity demand and increase the number of the heat pumps that can be installed on a street without the need for (electricity) distribution network reinforcement.
199. Very efficient installations require high-performing equipment, thorough design and installation and appropriate use. Given the proposals in this consultation document, once the choice of a technology has been made, it would be in consumers' interest to acquire efficient equipment, ensure the system is well designed and competently installed and to use it appropriately. This is because higher efficiency reduces running costs for a recipient without affecting their RHI payments (because of the proposal to base payments on deeming). However, this is only likely to happen if consumers have the right knowledge and information. We are aware that systems installed in the past have not always worked as well as they should.
200. Field trials conducted by EST on installations from 2008 and earlier have previously measured poor performance (efficiency and/or energy consumption) particularly in heat pumps but also, to a lesser extent, solar thermal systems. Since EST's heat pump field trial, the Microgeneration Certification Scheme installer standard for heat pumps has been extensively revised and we know that many people in industry think this will go a long way to prevent the poor performance of the past. This is an important difference between the heat pump industry in 2010 (the time of the last RHI consultation) and now.
201. At the beginning of 2012, we started another heat pump metering programme in the Renewable Heat Premium Payment scheme to take a snapshot of heat pump performance. The preliminary data from this programme (which is still being verified) appears to indicate that on average there has been a measurable but modest improvement in the Seasonal Performance Factor. We think it is likely that on average the results will still be a long way off the high-performing systems that are consistently being measured in Germany.

202. Therefore, there is a performance gap between installations in the UK and similar installations in Europe, we believe there could be a strong case for using the RHI to promote continued improved performance. Although the incentive for consumers to install more efficient heat pumps is obvious, consumers may not have the knowledge or the expertise to ensure this happens.
203. Therefore we set out below a number of options that could be added into the domestic RHI scheme to drive continued performance improvements in this area. We would welcome your views on which of the options would be most suitable for the consumer and the wider market. Going forward and depending on your response, either all, some or none of these options could be implemented. The options that we are considering include:
204. Additional financial support for systems that include a metering and monitoring service package;
205. Varying RHI tariffs for heat pumps so that they are linked to the Seasonal Performance Factor (SPF) measured in the metering and monitoring service package;
206. Introducing a higher SPF for heat pumps as an eligibility requirement for the RHI;
207. Enhanced monitoring of installations for evaluation of the domestic RHI (including all installations to be meter ready).

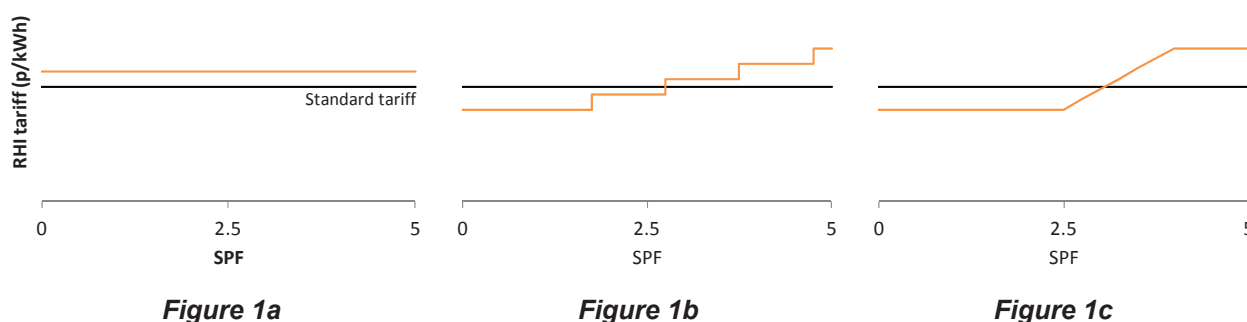
Option 1: Additional Financial Support for Systems that include a Metering and Monitoring Service Package

208. We believe that high levels of metering and monitoring of renewable heat installations in the home can give the householder, installer and possibly manufacturer the opportunity to spot poor, or lower than expected performance and subsequently correct it.
209. This option would therefore offer more financial support, perhaps in the form of an enhanced tariff or a bonus payment, to consumers whose systems met the higher standards of metering and monitoring. In order to control expenditure, we would envisage capping the provision of this additional financial support to a certain number of systems or the end of this spending review period in 2015, whichever occurs sooner.
210. We would like to generate these requirements and explore the magnitude of additional financial support we should offer collaboratively with industry and consumer stakeholders, (selected based on the responses to the consultation questions below) before the RHI launches as we know that variants of this type of system are offered by several organisations, including manufacturers and installers, already.

211. We anticipate that for a system to qualify for this additional financial support the consumer would be offered a service that was able to do some or all of the following:
- Measure or accurately estimate the total heat output from the system at a defined system boundary
 - Measure or accurately estimate the total energy input to the system at a defined system boundary
 - Measure or accurately estimate the energy input to the system from supplementary heat sources
 - Measure the amount of heat that is used for space heating and domestic hot water
 - Measure the internal air temperature of the dwelling
 - Measure the external air temperature
 - Measure diagnostic system temperatures and pressures (for instance, ground flow and return temperatures for ground source heat pumps or emitter flow and return temperatures)
 - Log data with a frequency and resolution that enables system diagnostics
 - Provide a property-specific, quarterly report to the customer and a third party nominated by DECC on the performance of the system in an industry-recognised and consistent format (using that data)
 - Provide the customer with a 'live' stream of data from their system in a way that is easy for them to understand
 - Enable the installer to view a live stream of technical system information
 - Provide the wider public with an anonymised view of how other people's systems are performing
212. Requirements like this should allow users to understand whether their equipment is performing effectively and enable improvements to be made if necessary.
213. When we say "measure or accurately estimate" in the requirements above, there are a range of options we would like to explore more with industry. In the case of heat pumps, for instance, the options to estimate SPF might range from comprehensive metering to a comparison of electricity consumption and the deemed central heating energy requirements.
214. For all technologies, the additional financial support for this option would be paid independent of the system efficiency that the equipment measures or estimates on the assumption that informed customers, installers and manufacturers will take action if the measured or estimated performance is poor.

Option 2: Varying RHI Tariffs for Heat Pumps so that they are Linked to the SPF Measured in the Metering and Monitoring Service Package

215. For heat pumps, we are also considering building on option 1 above to explicitly link the measured or estimated SPF data from an installation to customers' RHI payments.
216. The relationship between SPF and RHI tariff would need to factor in several things including the location of sensors; the method of measurement or estimation; and the amount of domestic hot water being used at the site compared to the space heating energy requirement. There are different ways in which we could link SPF data to customers' RHI payments, as illustrated in the graphs in figure 1. The fixed tariff premium (that is independent of SPF) that we have illustrated in figure 1a is the kind of approach that could be envisaged for the metering and monitoring service package set out under option 1 and is included here for comparison only. A stepped approach (figure 1b) could see a bonus paid as a result of reaching specific higher levels of performance. A third approach (figure 1c) is similar, but reflects a different profile of how payments would change with performance. Both axes in these charts are only indicative.



217. The types of relationship between actual performance and payments that we have illustrated in figures 1b and 1c introduce risk for the customer because if measured performance is poor, customers would be paid less than the standard RHI tariff. It is possible that a mechanism like this would therefore see installers who are happy to take on this risk offer the customer a guaranteed level of performance. We would like to know whether you think this would be an attractive proposition to some customers.

Consultation Questions	
45	Do you agree that a metering and monitoring service package like the one we have outlined would be effective at driving long-term system performance improvements?
46	Do you think that the additional financial support in option 1 should be distributed as a flat-rate increase to the RHI tariff, a one-off upfront payment or in some other way?
47	Do you offer a system that already provides some of the requirements outlined in option 1? If so, please can you provide details of how your system works and whether you would be interested in helping us develop this proposal further.
48	Should consumers' RHI tariffs for heat pumps vary according to the measured or estimated performance of the system? Do you think installers would offer performance guarantees if this was offered in the RHI? Please comment on the method we have described in option 2.

Option 3: Introducing a Higher Seasonal Performance Factor (SPF) for Heat Pumps as an Eligibility Requirement for the RHI

218. As set out in Chapter 3, the EU sets minimum performance standards for heat pumps for them to be classified as renewable (articulated as a Seasonal Performance Factor (SPF)), and we intend to use a light-touch approach to enforce this by monitoring the Temperature Star Rating of the systems being installed. If installers are intentionally designing systems to perform poorly, we would take action to prevent them doing this. However, in order to ensure that heat pumps are performing as well as possible we could introduce a minimum level of performance that goes beyond what is required in the RED. For example, we could require a minimum SPF of 2.7 as an eligibility criterion. This could be based on the likely design space heating SPFs in the Heat Emitter Guide for Domestic Heat Pumps, which is part of MIS 3005, the MCS installer standard for heat pumps. Setting an SPF of this level is higher than the current EU minimum, which changes every year but is currently 2.5. However, it is lower than that claimed by many heat pump retailers and significantly lower than the SPF levels required by the Heat Pump Stimulus Programme in one of the EU's largest markets for heat pumps – the German Federal Environment Ministry's Marketanreizprogramm – which requires 3.5 for air source heat pumps and 3.8 for ground source heat pumps.

219. Setting an SPF level of at least 2.7 would aim to balance the need to ensure that only well-performing systems are installed, with our desire to keep the barriers to renewable heat uptake to a minimum. Given the lower bills that would result for consumers from more efficient heat pumps, they should already have a financial incentive to install efficient equipment and use it properly. However, to drive continued technology improvements, this minimum level could be raised steadily over time. For example, we could increase the SPF requirements as part of our proposed standard review of the scheme in 2014 to, say, 3.0 initially, with further increases envisaged for implementation at subsequent reviews.

Consultation Questions	
49	Do you think that setting a minimum SPF higher than the EU minimum for air source and ground source heat pumps could be an effective driver of performance? What figure do you think might be suitable?
50	If we took this approach, should the minimum SPF required increase over time? Please comment on how quickly you think the required SPF should rise and to what level it should rise.

Option 4: Enhanced Monitoring of Installations for Evaluation of the Domestic RHI (Including all Installations to be Meter Ready)

220. The purpose of this approach would be to give us better evidence on how much renewable energy is being generated and what carbon savings are being made. We already intend to meter the energy input and outputs at a statistically significant number of installations in the scheme (rather than metering all installations as for the non-domestic RHI) but we are considering whether we should further enhance this metering activity to ensure continued high standards of MCS, or equivalent scheme, installation businesses by ensuring that at least one installation for every “active” installer was metered and met the appropriate standard. The term “active” installer would need to be agreed but could be taken to mean any installer who is fitting a given number of renewable heating systems a year. Any installer meeting the required standard would receive industry recognition of this fact (e.g. a ‘super’ or ‘five star’ installer). The intention would be that this would also build trust with consumers. There could be such a qualification for air source heat pumps, ground source heat pumps, biomass boilers and solar thermal installation companies. Over time, this process could also ensure that an installation company not meeting the required standard would be called to account by the appropriate Certification Body.

221. We believe that this approach would provide reassurance to consumers and should help ensure we obtain maximum value for money from the scheme for taxpayers. In the future, it may also be possible to incorporate metered data into demonstration of competencies and achievement of qualifications for certification. We are committed to creating an industry that is continuously learning and improving.
222. To deliver this approach, given our experience of metering the RHPP scheme, it would mean that all installations would need to be ‘meter ready’. Making an installation meter-ready is very straightforward and inexpensive. It requires the installer to fit isolation valves either side of where the heat metering equipment might later be installed.
223. For RHPP 2 we created an Installer Checklist²⁷ which is completed by the installer on behalf of the consumer to confirm that the system is indeed ‘meter ready’. This checklist guarantees that, should the installation fall under the metering requirements, the metering team will have access to the necessary pipe work and will not have to drain the system down to fit a meter. In the case of RHPP 2, a percentage of grant payments were withheld from any consumer failing to make their system ‘meter ready’ where it could be shown it would have been possible to make it ‘meter ready’. If we pursued this option we would envisage following a similar approach to the need for installations to be ‘meter ready’ in the domestic RHI. However, given that the proposed domestic RHI is a deemed tariff payment, rather than a one-off grant payment (like the RHPP) the penalty for consumers not making their installations ‘meter ready’ would need to be different.
224. One proposal that would be reasonably easy to administer is that consumers lose the first year of their RHI payment if they failed to comply with the meter-ready requirement. Another would be to reduce all of their RHI payments by a fixed amount such as 20%. We welcome your views on this.

Consultation Questions	
51	What are your views on the use of the RHI budget to pay for metering equipment to be installed for the purpose of policy evaluation?
52	What are your views on the proposal that we should share data with MCS Certification Bodies so that it can be used to improve MCS installer surveillance?

²⁷ <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Financial-incentives/Renewable-Heat-Premium-Payment-Phase-2#5>

53	What are your views on the requirement to make all installations ‘meter ready’ and the use of an Installer Checklist?
54	Do you agree that there should be a financial penalty for consumers who do not ensure their installation is ‘meter ready’?
55	Should the penalty for consumers who do not make their installation ‘meter ready’ be the loss of the first year of their RHI payments or a reduction of all of their payments? What other penalty might be appropriate?

Option 5: An Uplift in Tariff for Systems with Solar Thermal Installed Alongside other Renewable Technologies

225. There are often significant advantages in the performance of renewable space heating technologies to installing them alongside solar thermal systems. For biomass, it reduces demand in summer months when space heating is required less often and for heat pumps, where the solar thermal provides more of the hot water (which requires a higher system temperature) it allows the heat pump to perform more efficiently.
226. We are keen to encourage the installation of these systems where possible, but we recognise that for many households, the costs of installing both technologies might be prohibitive. One proposal, therefore, would be that we pay an uplift to provide a further incentive to this market to consumers installing solar thermal in conjunction with a complementary renewable technology.

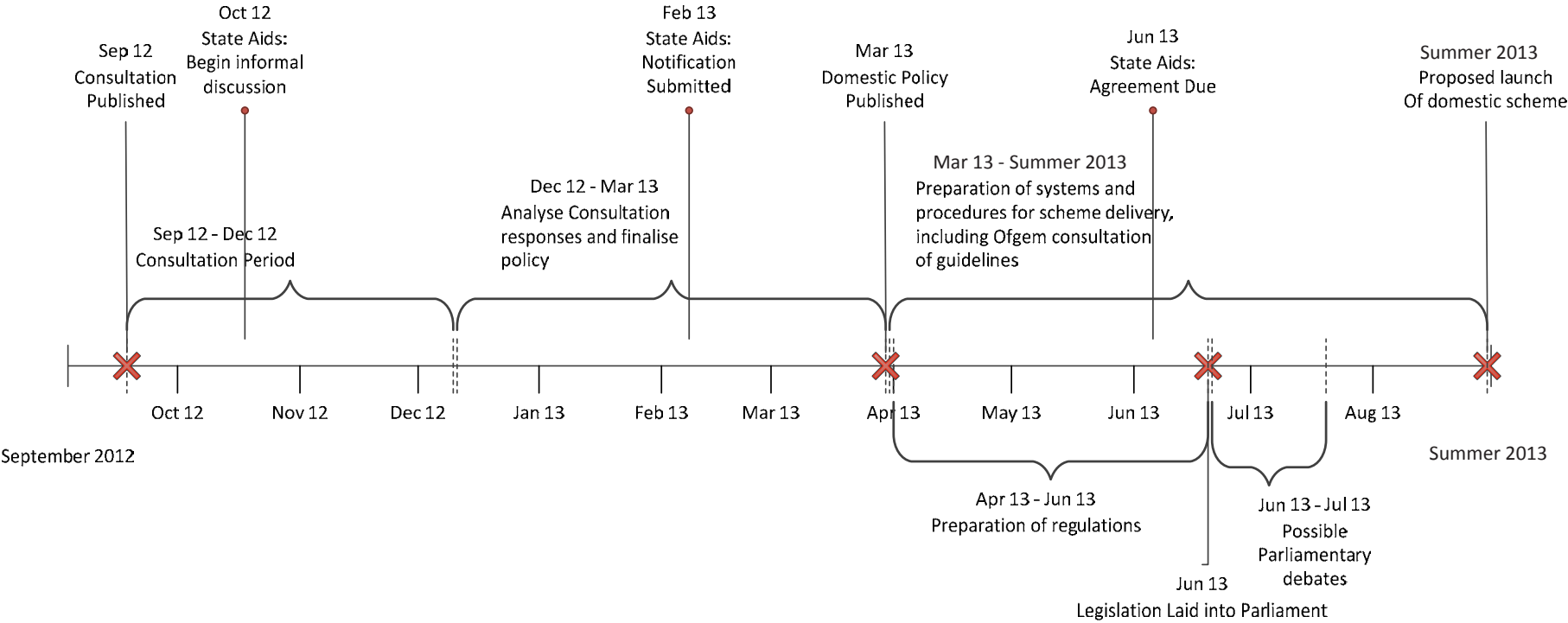
Consultation Questions	
56	What are your views on providing a tariff uplift for systems where solar thermal is installed alongside other renewable technologies
57	Do you have any evidence on the size of tariff that should be provided in order to encourage the deployment of these systems.
58	Are there any other approaches that you think could drive continued improved performance of renewable heating systems?

Chapter 6: Delivery

227. We intend to launch any domestic RHI scheme with Ofgem as our interim delivery partner. Ofgem already successfully administers a number of schemes for DECC, through Ofgem E-Serve, including the non-domestic RHI, the Renewables Obligation and Feed-in Tariff and has significant expertise in this area. The experience of running these programmes is frequently evaluated to ensure lessons are learned by both Ofgem and DECC to improve the customer experience and value for money of policy administration. We will be working closely with Ofgem ahead of the launch on the detail of the domestic RHI scheme in order to put in place the resource, IT and processes necessary to ensure the scheme runs effectively, the information householders will need is readily accessible and the application process is as simple as possible. As with the non-domestic scheme, Ofgem would develop and consult on detailed guidance about how they plan to administer the scheme based on the draft regulation conferring their roles and responsibilities.
228. It will be our intention to make the scheme as simple as possible to facilitate cost effective and streamlined administration of scheme delivery. One particular issue that we are considering at the moment is ensuring that our plans for offering support to legacy applicants (those who have installed since 15 July 2009) are deliverable in an efficient manner as set out in chapter 2.
229. In 2010 DECC's Delivery Review recommended that in future, delivery partners should be selected on the basis of a competitive tender process to ensure value for money and promote the best possible delivery standards. The legislation that sets the basis for the RHI (Section 100 of the Energy Act 2008) limits the administration of the scheme to either Ofgem or the Secretary of State. This means that as drafted there is no scope for opening the delivery of the domestic RHI to competitive tender at this stage.
230. It is our intention to seek the necessary legal powers to enable us to run a competitive tender process for the administration of the RHI in future. The timing of this will depend on Parliamentary and procurement timetables. We do not expect it to be before at least 2015 and are committed to maintaining Ofgem as our delivery partner in the meantime.
231. We are committed to delivering a domestic RHI by Summer 2013. To achieve this goal, we have set out a challenging but achievable timetable. The steps identified in the timeline below provide the framework for delivery and monitoring our progress

Renewable Heat Incentive

Scheme Timetable



Payment Proposals

232. There are currently several options for how and when payments to consumers would be made. We are working with Ofgem to identify the optimum option from a delivery cost perspective. The options relate to the frequency of payments and whether payments are in advance or in arrears.
233. Householders will usually pay any borrowing on a monthly basis. It would be extremely costly for Ofgem to be paying homeowners on such a regular basis. Therefore we are seeking views from stakeholders on the pattern of payment that would be most attractive to homeowners between:
- Quarterly or annual payments
 - In advance or in arrears

Consultation Question	
59	What are your views on the above options for the proposed pattern of payments?

234. As set out in the introduction, we are also considering the scope to phase or pilot the delivery of the domestic RHI scheme to mitigate delivery risks.

Chapter 7: Assurance

Consumer Protection

235. Given that fewer than 1% of UK homes currently have a renewable heating technology installed, we are aware that there is a lack of information available to consumers. A lack of awareness of renewable heat may also make consumers more vulnerable to mis-selling and less able to assure the quality of installations than would be the case in a more established market sector.
236. Evidence from a variety of social research sources strongly suggests that prospective consumers may lack the confidence to begin to proceed down the customer journey at all without some trustworthy independent advice, and knowledge that there is consumer protection in place. We are therefore looking to work with industry to ensure that appropriate safeguards are in place and that consumers are aware of these.
237. We are proposing to take steps to overcome consumers' concerns around the performance of heat pumps. Our policy proposals include some minimum quality standards as eligibility criteria for receiving the RHI and Chapter 5 outlined options for ensuring that the policy supports high performance of technologies effectively. We are also proposing to offer the option for those consumers installing heat pumps to keep a bivalent fossil fuel system so as to provide additional reassurance as set out earlier in Chapter 4 if they wish.
238. The proposed standards and certifications to be met before eligibility for the scheme is granted are important to protect consumers effectively and a key mechanism would be the requirement that all installations would need to be certified under the Microgeneration Certification Scheme (MCS) or equivalent schemes²⁸, such as Solar Keymark for solar thermal products. This means that both the technology and the company installing it would need to be certified under the MCS scheme or equivalent. When applying for RHI support, applicants would be asked for details of MCS certification.
239. MCS certified installation businesses and equipment must adhere to certain standards and there is a complaints procedure available to consumers which addresses issues such as mis-selling and poor design, installation or performance.
240. MCS (or equivalent schemes) is already the requirement for the Renewable Heat Payment Premium (RHPP) and Feed-In Tariffs installations up to 50kW and will be the certification route for Microgeneration under the Green Deal. On balance

²⁸ As certified under British Standard EN45011 (General requirements for bodies operating product certification schemes)

therefore, we feel it is better that we continue to focus on the development of the current system, rather than incurring what would be significant costs and duplication of effort - as well as the confusion - of introducing a separate quality scheme for the RHI.

241. In accordance with our European obligations we would also recognise certification by schemes equivalent to MCS which meet the requirements of the Renewable Energy Directive. Solar Keymark, which is a product certification scheme for solar thermal systems, is equivalent to MCS and we are proposing that the RHI scheme accept these products from the launch of the scheme. Thus, we believe that our proposed approach achieves the objective of protecting consumers in a cost-effective manner, without overly distorting the workings of the microgeneration market and would allow the linking to alternative certification schemes as they emerge.
242. In order to prepare for accreditation under the RHI, those wanting to receive support once the scheme has started should ensure they have documentary evidence that their renewable heat installation is MCS certified, both in terms of the product and installer. Practically, this information will be captured on the MCS certificate that they will have been issued with following their installation. We also ask people to retain any invoices and receipts, which can provide further evidence of installation.
243. MCS would back up these arrangements with an enhanced spot check regime on installers to ensure that standards are continuing to be met. In addition, checks would also be carried out on installations where complaints have been received.
244. As part of MCS, installation businesses sign up to the REAL Assurance Scheme which has been set up by the Renewable Energy Association. REAL membership indicates that the supplier has agreed to abide by the standards set out in their Consumer Code. This code is backed by the Office of Fair Trading as part of its self-regulation initiative, the Consumer Codes Approval Scheme.

Consultation Question

60

Do you think that MCS (or equivalent schemes) will provide sufficient consumer protection for the RHI or should additional consumer protection be built into the scheme? If you think more is necessary, please explain what you think is required.

Maintenance

245. The proposals for the RHI scheme set out here are designed to subsidise the use of renewable heating systems over the assumed lifetime of the equipment. It is therefore vital that any systems installed under the RHI scheme are not only running as well as they can when first installed but continue to do so over their lifetime. We have therefore considered whether maintenance should be included as a scheme requirement to ensure this.
246. There is a natural incentive for households to keep their renewable heating systems maintained and working well in order to heat their homes satisfactorily. However, the risk that some might not means that poorly maintained installations, generating less than optimal amounts of heat, may be claiming under the RHI. In terms of maximising the value for money of the RHI scheme, this is an undesirable outcome. In addition, poorly maintained biomass equipment may present a risk to the environment in terms of air quality. Also, particularly in such an emerging market, there is a need to educate households as to the ongoing requirements of these relatively unfamiliar technologies. We believe that there is a need for a scheme maintenance requirement in the RHI and the costs are included in the indicative tariff calculations.
247. We have considered whether this should take the form of introducing a requirement into the RHI regulations regarding regular maintenance inspections, with proof to be provided to the administrator. However, such an approach would be likely to result in a significant and undesirable intervention by Government in what is an emerging market. Additionally, the setting of maintenance standards is likely to be complex and may unfairly advantage some industry players to the detriment to others. The burden falling on consumers could also be resented and therefore impact on scheme take-up, whilst the resulting enforcement activity is likely to have scheme administration cost implications.
248. Our currently preferred approach is therefore for an intermediate option of using annual consumer self-declaration (akin to tax self-assessment) supported by further

risk-based enforcement activities such as spot checks where necessary. Such a declaration could say that the system continues to be operational and that the equipment is being maintained in accordance with manufacturers’ requirements. We see this approach as having minimal adverse consequences. It is a neutral approach, allowing the market to develop freely; consumers will face a minimal burden and the scheme administrator’s responsibility will be limited to the execution of additional enforcement activities such as risk-based spot checks. We feel that this approach will keep scheme administration costs low with barriers to take-up minimised. Support for this option has come from recent focus groups at which the majority of participants indicated that they would expect to enter into a service contract with the installer for microgeneration technologies, such an arrangement automatically ensuring that the system was well maintained and serviced regularly where necessary.

249. While we accept that there is a potential argument for a mandatory requirement being introduced for biomass systems given the greater public health risks, at present we believe that setting up an alternative enforcement regime would result in disproportionate overheads at launch.

Consultation Question	
61	<p>Do you agree that our proposed approach of an annual consumer self-declaration, supported by supplementary spot checks is the best way to ensure that equipment installed under the RHI continues to be operational and generate heat optimally over time? What should the penalties for non compliance be? If you think that the proposed approach is not the best or could be improved, please set out your reasoning and any evidence to support that.</p>

Fraud

250. We have a duty to ensure that the design of the domestic RHI scheme from a policy perspective does not pose an unduly high risk of being gamed or defrauded. We have identified the following key areas which we believe pose the most obvious fraud risks, together with the protective measures that could be built into the scheme to mitigate them.

<u>Risk</u>	<u>Mitigation</u>
Use of non-MCS (or equivalent scheme) certified installation business which	Awareness raising of the RHI scheme will include informing potential

<u>Risk</u>	<u>Mitigation</u>
<p>would nullify the consumer's application.</p>	<p>consumers of installer eligibility requirements and the opportunity to check MCS accreditation.</p> <p>Within the RHI scheme itself, Ofgem would be able to confirm via the MCS website the details of the MCS installation business named on the RHI application sent to them.</p> <p>More generally, making false representations in order to achieve a financial gain is an offence and court proceedings could be brought on this basis.</p>
<p>Consumer applies for and receives RHI payments when they have not put in an eligible renewable heating system.</p>	<p>Before approving the start of payments, Ofgem would require proof of installation by an MCS certified business (as well as proof that the green tick energy efficiency measures have been installed).</p> <p>There would be an audit process to check and to meter a percentage of all installations.</p> <p>Any MCS installation business is also liable to an MCS audit of work done.</p>
<p>Consumer submits false documents claiming they have actioned their green ticks (energy efficiency measures identified on their property's Energy Performance Certificate(EPC)).</p>	<p>It is proposed that an application for RHI support should include a copy of a revised EPC done after the green tick measures have been installed. The EPC will confirm they have been done. Where necessary, Ofgem would be able to check the online register of EPCs to confirm that what they have received is valid.</p> <p>Also, deemed heat usage figures calculated by an appropriate installer will be set on the basis of a consumer having actioned all the relevant green ticks. A</p>

<u>Risk</u>	<u>Mitigation</u>
	renewable heating system is unlikely to work effectively if the green tick measures are not installed. We would make this clear in our communication surrounding the scheme.
RHI payments are requested for a system installed in an unoccupied or partially occupied home.	It is proposed that, when applying for RHI support, recipients would be required to declare that the property they are applying for was their primary residence. It is also anticipated that Ofgem would use random spot checks to ensure compliance and would have powers in place to reclaim payments where it subsequently became apparent that they were falsely claimed for.
Consumer has previously received RHPP support and does not declare any or correct details of it, leading to over-compensation under the RHI.	<p>We propose that the necessary procedures would be in place to allow Ofgem to check what (if any) RHPP payments an RHI applicant had already received.</p> <p>Furthermore, it is anticipated that Ofgem would have provisions in place that would allow them to claim back any payments where it subsequently becomes apparent that the recipient had falsely claimed them.</p>
Where a meter has been installed (e.g. where a bivalent system is in place), the consumer's heating use behaviour is designed to prompt overpayment.	Payments based on meters are capped at the deemed rate, so that there cannot be any overcompensation in these situations.
Consumer keeps a fossil fuel system, whilst installing renewable heat and getting the RHI, but continues to use the fossil fuel system.	In circumstances where a back-up system is permitted, RHI payments would be made on the basis of metered heat. Furthermore our proposals suggest that, as part their annual declarations to Ofgem, consumers with bivalent heating systems would have to

<u>Risk</u>	<u>Mitigation</u>
	<p>provide relevant information to show their ongoing use of the renewable system. It is intended that Ofgem would also perform spot checks on RHI payment recipients as part of their audit process.</p>
<p>Consumer replaces a broken renewable heating system for which they receive RHI payments with a fossil fuel system, but continues to claim those payments.</p>	<p>From a practical perspective, it would be anticipated that a consumer would seek to make use of any warranties that the system might have to get it repaired or replaced. They may also have chosen to put in place a maintenance contract under which a replacement system could be obtained. Furthermore, the time, disruption and cost involved in installing a different type of system rather than seeking to get the broken system mended may be seen as a deterrent.</p> <p>From a scheme perspective, it is proposed that RHI payment recipients would be required to provide regular self-declarations as to their continued use of the renewable heating system and it is anticipated that Ofgem would use random spot checks to ensure compliance.</p>
<p>Consumer switches back to a fossil fuel system after the 7 years payment of RHI has been made.</p>	<p>The proposed approach of generally not permitting a back-up system or paying on the basis of metered heat generation reduces the scope for this, especially in the case of heat pumps as there should be no economic incentive to do this.</p> <p>We acknowledge that this could be different for biomass and this issue is covered in chapter 4.</p>
<p>Consumer moves home, but continues to accept payments.</p>	<p>It is proposed that consumers would need to provide regular self-declarations about their continued use of the renewable heating system and Ofgem</p>

<u>Risk</u>	<u>Mitigation</u>
	<p>would have a random spot check process to ensure compliance. Furthermore, it is anticipated that Ofgem would have provisions in place that would allow them to claim back any payments where it subsequently becomes apparent that the recipient had falsely claimed them.</p>

251. We plan to do further work with Ofgem to understand and mitigate fraud risk. Once the scheme is close to launching it will be for Ofgem, our delivery partner, to protect against fraud through the checks and balances that it puts in place to administer the scheme.
252. Anyone receiving RHI subsidy under false pretences could be subject to criminal prosecution.

Consultation Question	
62	Are there other risks of fraud or gaming that we have not identified in the table above?

Chapter 8: Customer Journey

Background

253. Understanding the journey that potential consumers would take when considering or actually applying for support under the domestic RHI scheme is key to ensuring the scheme's success and that of the RHI policy as a whole. The purpose of this chapter is to set out our work so far in developing a picture of what journey a consumer may take and in identifying any issues along that journey which might impact negatively on the consumer's decision-making, or ability to continue along it. This work is ongoing as we develop our policy thinking and clearly the answers to many of the questions within this consultation document could affect the customer journey.
254. The domestic RHI is expected to form part of a suite of Government-sponsored schemes that will contribute towards the UK reaching its overall carbon reduction targets. The energy efficiency of buildings is central to the Government's plan to meet those targets and we need to position the domestic RHI scheme in a way that complements this.
255. Our intention is to help consumers benefit from RHI payments by preventing or mitigating as much as possible the impact of any issues that could affect the customer journey. We hope to achieve this through actions such as making certain sufficient information is made available to provide consumers with assurance about the scheme and to be the basis for making decisions.
256. We will also continue to address linkages with related schemes. Since we are proposing that consumers would need to meet important energy efficiency eligibility requirements (the green ticks in a Green Deal assessment) before qualifying for RHI support, the link with Green Deal will be particularly important.

Stages of Change in the RHI Customer Journey

257. Below we have set out the 'stages of change'²⁹ that a consumer is likely to go through when thinking about and taking up the RHI. This has helped us to identify at a high level some of the issues that are likely to impact on the consumer's experience at each stage as they move towards getting payments under the RHI. However, the journey does not yet reflect all of the wider considerations and issues that might affect the consumer's decisions. These topics are outlined in more detail below.

²⁹ Based on the Prochaska and Di Clemente model.

258. There may be a variety of circumstances that consumers find themselves in when they first approach the RHI (for example, relating to financial means, characteristics of their property, etc) which could affect their decisions.
259. The outline customer journey table has been developed on the basis of certain key principles:
- The journey depicted begins from the point where the consumer is already interested in renewable heat technologies or energy efficiency.
 - The consumer is looking to retrofit a renewable heating system into their home (i.e. they are not a legacy applicant, new-build developer or social landlord).

Stages in the Customer Journey

Stage	Events
Pre-contemplation	The consumer may be aware of and interested in renewable heat but is not aware of the RHI scheme . Alternatively, the consumer may not be aware of renewable heating technologies but may have a wider interest in energy efficiency and potentially in installing energy efficiency measures through the Green Deal.
Contemplation	The consumer becomes aware of the RHI scheme and considers whether it is something that could work for them. They may speak to friends, and/or a plumber/heating specialist about the scheme or research the scheme on the internet or elsewhere. The consumer may already have taken action to install energy efficiency (green tick) measures by this stage (either under the Green Deal or using their own finances) or they may contemplate doing this as a means of accessing the RHI payments.
Preparation	The consumer decides that the RHI scheme could work for them and carries out a more detailed exploration (e.g. getting assessments and quotes from different installers; looking into options for paying the upfront costs).
Action	The consumer takes action to install the energy efficiency (green tick) measures , either under the Green Deal or using their own finances, as a prerequisite for applying for RHI support. The consumer arranges and pays for installation of the renewable heat measures by an MCS (or equivalent scheme) installation business and applies to Ofgem for RHI payments, providing proof of installation of those (and the green tick) measures as part of their application.
Maintenance	The consumer continues to use their technology effectively and submits required annual declarations to Ofgem in order to continue receiving RHI payments.

Issues Affecting the Consumer at Each Stage of the Journey

260. The above stages of the Customer Journey set out our current view of the high level steps a consumer will need to take towards obtaining RHI support. However, in reality we recognise that the journey is likely to be complex, with a number of potential activities and issues occurring at each stage and a number of decisions needing to be made before these steps can be realised.
261. Our aim is to map as many of the issues as possible that might affect the consumer and which could impact on whether they choose to consider the RHI and are able to effectively move through each of the stages outlined above. Some of these issues are likely to relate more broadly to the installation of renewable heat technologies (e.g. the disruption associated with installation). These are addressed in the recently published Heat Strategy³⁰ but are also considered here, where we feel they could have a significant impact on the success of the RHI policy. Once we have identified potential issues we will then look to identify those that we can mitigate or prevent and those that are outside our control.
262. Our work so far has identified several key issues that may impact on the likelihood that the consumer will consider the RHI scheme or, after that point, progress to installing and applying for RHI payments. These are listed below.

Stage	Area	Issues
Pre-contemplation	Awareness of domestic RHI	It will be important that consumers can be made aware of the RHI scheme via a range of trusted sources or messengers, including Green Deal assessors/providers, plumbing and heating specialists, consumer advice organisations and advice lines, etc.
Contemplation	Understanding of domestic RHI	When considering the RHI, consumers may feel insecure if there is not an independent and/or trusted source of information they can turn to for guidance on the RHI. This could affect their willingness to proceed.
	Need for landlord's consent	As we will only pay the owner of the installation, it might be necessary to obtain landlord consent for the installation work to be done. This requirement may be a concern for consumers and might lead them to

³⁰ http://www.decc.gov.uk/en/content/cms/meeting_energy/heat_strategy/heat_strategy.aspx

Stage	Area	Issues
		dismiss renewable heat technology as an option where the installation work would be extensive.
	Space implications of removing old heating systems and installing the renewable heat measures	The size and required positioning within a property of a renewable heating system may be an issue for consumers when looking at the way their pre-existing systems are installed and any space limitations their property might have.
	Costs involved in the RHI customer journey	The upfront costs involved in installing the renewable heat technology are likely to be a concern and could lead them to dismiss the installation and the RHI at the Contemplation stage.
	Disruption/Time involved throughout the RHI process <i>(This could also arise during the Preparation stage)</i>	<p>Consumers' initial investigations into the RHI option may bring up certain concerns relating to:</p> <p>Disruption caused by installation work and the time taken to do such work.</p> <p>The total amount of time the journey takes (e.g. arranging for a Green Deal assessment to be done/waiting for a certified installer to be free/waiting for approvals). This would especially be so if the planned installation of a renewable heating system forms part of a wider property refurbishment project and time is therefore very important.</p>
	Timing/Sequence of installing green tick and RHI measures <i>(This could also arise during the Preparation stage)</i>	Requiring proof that green tick measures have been installed before RHI measures are put in could mean consumers face two periods of disruption, and a longer customer journey overall. This could put some consumers off.
	Speed of processing for the domestic RHI	Consumers may want reassurance that the length of time it takes to go through the RHI application process is not unduly long. This could impact on their willingness to use the scheme.
	Future changes to the RHI tariff	There may be a concern about the possibility of tariff changes in the future,

Stage	Area	Issues
Preparation	levels	when they might occur, the levels of reduction that may be involved and whether and how such changes might impact the individual consumer. This could affect their decision to proceed.
	Understanding of what the RHI offer might be	Consumers may feel that they need assurance about what payments they will receive under the RHI before they proceed to installing measures.
	Organising the funds to pay for upfront costs	<p>The consumer will need to ensure that they have the funds lined up ready to pay for the upfront costs described above and the practicalities of actually doing so may mean that they are unable to continue (for example a customer may not be able to secure a suitable loan to pay for the upfront cost of the technology)</p> <p>For customers who have not already installed green tick measures, the financial and time costs associated with getting a Green Deal assessment (to ascertain which green tick measures need to be installed) and installing the green tick measures may be off-putting.</p>
	Rights of redress in domestic RHI scheme	Consumers may feel concerned that the RHI scheme will not have provisions available should something in the process go wrong (e.g. faulty installation of equipment).
Action	Satisfaction with green tick measures	Where consumers are only made aware of the RHI as a result of pursuing the Green Deal they may feel that the financial benefits derived from green tick energy efficiency measures are sufficient for them. They may therefore decide not to go ahead with an RHI application after the green tick measures have been installed.
	Interaction with the Green Deal	Where consumers use the Green Deal to finance the green tick installations, they may decide not to proceed with that process because, for example, they decide that the repayment terms in all of the Green Deal offers made to

Stage	Area	Issues
		them by Providers are not suitable. Since installing green tick measures is a prerequisite for the RHI, this would mean that an RHI application could not be made.
Maintenance	Ongoing use of the equipment	Consumers may become concerned about how to ensure the effective use of their newly installed equipment (e.g. understanding the instruction manuals, or the possible need for it to be serviced).

Ongoing Work

263. Our consideration of the customer journey so far, especially the identification of key issues, has already highlighted further action that we will need to take to make the customer journey as consumer friendly as possible. As set out above, we are continuing to work to improve this analysis and we welcome views to feed into our work.
264. We recognise that it may not be possible to resolve all the issues that are identified, including those which are brought to our attention as a result of this consultation. We will seek to reduce their impact as much as possible by looking at how we might influence, for example, the availability of loans, the availability of sufficient information at the start of the customer journey and the availability of support throughout the journey. Ensuring that the relationship between the Green Deal and the RHI is as seamless as possible will be a key issue.
265. Other action could include the following:
- To improve consumer awareness of the scheme and its benefits: we will seek to work with relevant parties, including industry, to ensure a coherent and joined-up approach is developed in preparation for the launch of the domestic RHI scheme.
 - To provide consumers with sufficient and reliable information from the start: we will investigate how best to make available guidance on the RHI scheme and customer journey. As part of this, we intend to ascertain the level of support that can be supplied through DECC's Energy Saving Advice Service helpline³¹. We will also investigate the options for providing online guidance on the new single government website (<https://www.gov.uk/>). By providing such resources, we

³¹ This helpline provides advice on renewable technologies and financial incentives.

could avoid some consumers progressing some way through the customer journey before they are made aware of all of the factors involved in the process (eg finance, disruption, time, etc).

- To identify likely costs: we will work with relevant stakeholders to map out where in the journey costs may be incurred, how much they will be and who will bear them. This should help consumers in their decision-making.
- To minimise disruption related to installing measures and the time involved: we may need to reconsider the proposed sequence of events that requires consumers to have installed all their energy efficiency (green tick) measures before they are eligible for the RHI. For example, a process allowing installation of both green tick and RHI measures at the same time, with the consumer providing commitments to do green tick installations rather than proof that they have already been done, might be a better solution. In such a case, some form of mechanism would be required to ensure that the installations were carried out. For example, a sanction under which RHI payments would be stopped should the green tick measures not be installed within a specified amount of time could be put in place.
- To improve understanding of the Green Deal: once the Green Deal is launched, we will be able to gain a better understanding of how the process of installing green tick measures works in practice, in particular the interaction between the Green Deal Assessor and the Green Deal Provider.
- To provide enough assurance to consumers about the RHI subsidy they are likely to receive so that they commit to installing the required measures, we might need to consider, for example, whether consumers should receive an indicative RHI offer before they start their installation work, or whether an online 'RHI calculator' or look-up table can be developed for use by consumers to assess what benefits the scheme might offer. Such a calculator or table might look to mimic as closely as possible the chosen deeming methodology for the RHI and cover a comprehensive set of house types, but would be a guide rather than a guarantee as to what the consumer could get.
- To make clear the consumers' right to redress: we will need to identify where situations that involve something going wrong (e.g. faulty installation of equipment) may occur along the customer journey and ensure appropriate procedures are in place to resolve them.
- To identify roles and responsibilities: we will need to clearly define what each participant in the scheme, in particular the MCS (or equivalent scheme) certificated business and the RHI Administrator, is responsible for. This should provide clarity and further assurance to consumers.

266. Going forward we will also be looking at other variations within the customer journey. In particular, we will consider how it relates to ‘legacy’ applicants, social landlords, consumers who have benefited from the ECO scheme in some way and developers who are building new houses to high efficiency standards.
267. We welcome views on the topics raised in this chapter, in particular as highlighted in the questions below.

Consultation Questions	
63	In terms of communicating the RHI scheme to consumers and other interested parties, what do you consider that the role of government should be?
64	Do you have any comments on how RHI information to support and guide consumers along the journey should be provided? If so, please set them out.
65	Do you have any comments on or additions to the identified events and issues affecting the consumer along the customer journey? If so, please set them out.
66	Are there any specific customer journeys that you feel would be helpful to analyse? If so, please set them out.
67	Do you have any comments on or additions to the actions identified here? If so, please set them out.
68	In particular, do you have any comments on how to make the RHI and Green Deal relationship as seamless as possible in order to minimise disruption to the consumer? If so, please set them out.

Chapter 9: Budget Management

268. The RHI is funded from Government spending and good budget management is an essential element of the scheme. Without a mechanism to control spending we could jeopardise the long-term future of the RHI. It is vital that we promote investment in renewable heat and encourage the up-take of eligible installations, so that we can meet our 2020 renewable energy targets and the Carbon Plan³². But our approach to budget management must ensure that the domestic RHI is financially sustainable and that the deployment of renewable heat continues to be good value for money for the taxpayer.
269. For Government, budgetary controls must enable us to be responsive to what is a demand-led scheme. This is especially the case since we recognise that the costs of domestic renewable heat technologies vary and depend on a wide range of factors, from biomass prices, to the cost of commodities such as copper and steel. The approach must limit the possibility of overspend whilst also providing transparency. There are clearly tensions between these objectives and our intention is to strike an optimal balance between them.
270. We have recently consulted on a longer term strategy for managing the budget for the non-domestic RHI. The consultation “Renewable Heat Incentive: Providing certainty, improving performance” ran from 20 July to 14 September and we are currently considering the responses received. We are proposing that budget management for the domestic scheme takes a similar approach to that proposed for the non-domestic scheme; using a system of degression, which is described in more detail below. It may be appropriate to take into account relevant consultation responses received in relation to budget management for the non-domestic RHI scheme when reaching a decision in relation to budget management following this consultation. The proposals set out in this consultation do not prejudice the outcome of the consultation on the non-domestic scheme.
271. The budget for the RHI covers both the domestic and non-domestic schemes³³. Annual budgets are fixed and are intended to be sufficient to meet the estimated trajectory of growth needed to achieve 12% of heat coming from renewables in 2020. New installations added each year have to be funded for that year and for subsequent years that they are in the scheme.

³² The Renewable Energy Directive set a binding target of 20% of the EU’s energy consumption to come from renewable sources from 2020. The UK share of this commits us to consuming 15% of our energy from renewable sources. In June 2011, the Government enshrined in law a commitment to halve greenhouse emission, on 1990 levels, by the mid 2020’s; the Carbon Plan sets out how we will achieve this.

³³ Total RHI budget for the remaining years of the Comprehensive Spending Review is: 2013-14: £251m; 2014-15:£424m

272. It is our intention that the proposals outlined below would be workable for any future budgetary limits which apply to the RHI scheme beyond the current Spending Review.

Summary of Proposals:

- A system of degression (or lowering) of tariff rates.
- Degression would only occur if deployment (and costs) exceeded pre-set trigger points.
- Tariff rates payable would be reduced by fixed percentages if individual tariff trigger points were met.
- Tariff rates would also be reduced if total domestic deployment hit an overall trigger point.
- We would monitor deployment levels of eligible renewables technologies at regular intervals, and provide advance notice before any reductions in tariff rates took place.
- We are considering whether to build in greater flexibility to the system of degression for each tariff where overall deployment is much lower than expected.
- We would carry out periodic reviews of the RHI scheme.

More detail is provided below on how these proposals could work.

A System of Degression for Budget Control Under the Domestic Scheme

273. On the basis of taking forward an approach similar to that proposed for the non-domestic scheme, budget management for the domestic scheme could work as set out below.

The Use of Trigger Points

274. Our proposed degression-based system of budget management would reduce tariff rates should the forecast RHI domestic spending reach pre-determined triggers. The way in which we might set triggers is discussed below, but these would link in to the projected level and costs of deployment that we want the domestic scheme to contribute towards our overall heat ambition. Projected costs would be based on deemed heat, and, where relevant, the estimated heat load for dwellings where heat is metered. Under this system it is possible that tariff reductions might not occur, but where degression did happen then the reduced tariffs would only apply to new applications which are accredited after the date the tariff rate reduction is made.

275. We are considering whether we would need to give special consideration to applications submitted by legacy applicants³⁴ when assessing whether trigger points have been met. This is discussed in more detail below. We are also considering whether it is appropriate to build in flexibility which would enable us not to degress where a trigger has been hit, but only in circumstances when overall deployment is much lower than expected. We would welcome views both on how we might treat legacy applicants, and how we might build-in greater flexibility to the proposed degression mechanism.

Degression of Individual Tariff Rates for Different Technologies

276. Along the lines of the non-domestic consultation we propose that individual domestic tariff rates would be automatically reduced by a fixed pre-determined amount if trigger points were hit. At this time we envisage that the conditions under which any reductions could take place would need to be set out in regulations which would be subject to full Parliamentary scrutiny before they come into effect, helping to ensure a robust and transparent scheme. Deployment would itself be based on all approved installations and applications for installations which have been received but have yet to be approved.

277. As with the non-domestic RHI, we are proposing that if a trigger point is hit for an individual technology, then the tariff rate payable would be reduced by a fixed percentage, such as 5%. This could be repeated in the next period if the earlier reduction has not been sufficient to bring deployment rates back into line with projections. A larger degression rate of between 10-20% may be needed to control growth if demand does not respond to several earlier reductions in a row.

278. Trigger points for each technology could be set in a variety of ways, such as whether the estimated costs of supporting the technologies go above projected levels. An alternative approach would be to base triggers on whether one technology deploys above its share of the available funding for the domestic scheme as a whole. There may be other ways we could set triggers and we would welcome your views on this.

279. We have asked open questions within this consultation document about what tariffs rates for some technologies should be, and as such cannot provide estimates of what any triggers might be at this stage, as the two areas are clearly interlinked. We will need to ensure that any triggers operate in a fair manner across all technologies, are transparent and provide consumers with some certainty, whilst at the same time delivering value for money.

³⁴ Legacy applicants are those who installed eligible technologies after 15th July 2009 but before the scheme launch and who are able to apply under the RHI scheme for support once it becomes operable.

Air-Source Heat Pumps

280. Air-Source Heat Pumps (ASHPs) are one domestic technology that we recognise may deploy at levels significantly different from our forecasts. As well as there being scope for capital cost reductions, ASHPs are relatively simple to install. In order to better control costs in a situation where deployment of ASHPs is significantly higher than anticipated we could provide for a higher reduction such as 10% for ASHPs if trigger points were met, rather than 5%.

Degression if Overall Trigger Points are Met

281. In addition to individual tariff degression and trigger points, we propose having an overall tariff trigger for the domestic scheme. The overall tariff trigger would be based on the expected costs of the domestic RHI's contribution as a whole to the 2020 renewables targets. If the overall trigger point were met, then any individual tariffs where the technology is deploying at any level above their projected level or share would be reduced by a fixed percentage, such as 5%. This would be in addition to any reduction which might occur as a result of individual tariff triggers being hit (as set out in the preceding section). This combined approach would provide flexibility and recognises that levels of deployment for different technologies may be different, relative to expected levels.

Monitoring Deployment Levels

282. As discussed, we propose using pre-set trigger points to determine when a tariff reduction would occur. Progress towards those triggers would be regularly monitored and made available on the DECC website, so that applicants could plan ahead for any potential changes. We consider that there are two options for making this data available, and for giving advance notice of any future reductions to tariff rates:

- (i) Making an announcement on a quarterly basis if there will be a reduction, with up to a months' notice period before any tariff reduction comes into effect, mirroring the approach in our recent non-domestic consultation.
- (ii) Given that the lead-in times for domestic installations are much shorter than under the non-domestic scheme, then we consider there may be advantages to making an announcement every two months but with a shorter one or two week notice period before any tariff reduction comes into effect. As we expect the number of applications under the domestic scheme to be significantly higher than under the non-domestic scheme, it may make sense to monitor deployment rates on a more frequent basis and make any adjustments based on data which is more recent.

Periodic Reviews of the RHI

283. For both the domestic and non-domestic schemes we propose that we would carry out reviews of the RHI starting in 2014 and again in 2017, with the aim of bringing in any changes in 2015 and 2018 respectively. This mechanism would allow Government to periodically take stock of the evidence on the operation of both schemes and implement changes, in response to the levels of technology that are actually being deployed and the costs to Government of supporting these. These reviews would not necessarily result in tariff reductions, and they could include consideration of other aspects of the schemes such as eligibility or metering for instance.
284. We recognise that there are some disadvantages associated with periodic reviews such as the lead in time needed to put in place any changes, including amending legislation, and the relative infrequency of changes. This is why we consider that this approach would work best in combination with the degression mechanism described above. We expect to monitor deployment in any case, especially if and when tariff degression occur and may undertake a review of tariffs before a scheduled periodic review if it was found to be necessary.
285. If we proceed with the proposal to implement periodic reviews, then this would also provide an opportunity to re-evaluate the deployment trajectory needed in order to meet the 2020 renewables target and contribute to overall carbon reduction targets, alongside the non-domestic RHI.

Legacy Applications

286. We are proposing that installations which were completed and first commissioned on or after 15 July 2009, would be eligible to apply for support under the domestic scheme once it goes live, providing they meet the eligibility criteria.
- We are considering whether, for the purposes of individual tariff degression, we should treat legacy applications differently in our assessment of deployment levels. This approach could reduce the likelihood of trigger points being hit, and tariff rates being reduced, early on in the scheme's operation. In order to do this we would need to be able to identify these legacy applicants clearly, and also ensure that this approach would not add complexity to the scheme.
 - We are also considering whether we should allow legacy applicants to be guaranteed a tariff rate, for example if they applied within a specified period of time. The rate could be that which is applicable to the individual technology on the date the domestic RHI scheme goes live. Doing this would provide assurance to potential applicants; and it would provide us with greater certainty over costs, as we would know exactly how much we would pay out for these legacy applicants in total. We will need to consider whether doing this would provide legacy applicants with unfair preferential treatment.

287. With either of these approaches we might need to encourage legacy applicants to submit their application for RHI support within the first 12 months of the scheme going live, and to let Ofgem know in advance of the policy entering into force if they intend to submit an application.

Making Degression Calculations in Financial Terms

288. We are proposing that the degression calculations and triggers are based on pounds spent. This is because the limits within which we have to manage the scheme are budgetary ones. Different combinations of deployment would cost different amounts for the same heat output.
289. We have considered using alternatives to financial measurements, such as installed capacity and renewable heat produced. Setting triggers in installed capacity (kW) would measure the potential maximum heat production of installations and award tariffs on that basis, and might enable applicants to see relatively easily how much heat capacity could be installed before a tariff reduction is required. However, we would need to estimate future technology mix and levels of heat use for future installations. If those estimates were wrong we might find that the trigger levels were pre-programmed to reduce tariffs either too soon or too late for the amount of renewable heat and levels of expenditure.
290. A trigger combining total deemed heat output and, where relevant, estimated heat produced (kWh) is another potential approach to setting triggers. This has the advantage of linking clearly to the objective of achieving 12% of heat from renewable sources. Unlike the non-domestic scheme where there could be some mismatch between the amount of heat produced and the financial costs due to the two tier tariff for small and medium biomass boilers, we are proposing a single tariff for biomass under the domestic scheme, in which case using renewable heat produced may be more of a possibility. Progress towards triggers would be tracked using the deemed heat data provided at application or heat load estimates for those dwellings using metering.

Alternatives to Degression

291. We believe that a system of degression for the domestic scheme would provide the optimum balance between providing certainty to those who are considering applying for support and ensuring that deployment is able to increase in a way that is sustainable for installers and manufacturers of renewable heat. We have also considered alternative approaches to managing the budget for the domestic scheme. For example, it might be possible to operate a system limiting the number of applications which can be made in any given period - a rationing or quota system – although this could lead to a stop-start rate of take-up that would not support sustainable growth in the renewable heat supply chain.

292. Alternatively, we could operate a fixed annual budget spend which once spent would suspend the RHI scheme for the rest of the year (similar to the Stand-by Mechanism for Budget Management in place for the non-domestic scheme for 2012/13). On its own this approach might not provide the sophistication required to manage the domestic RHI budget, but it could be used to provide a backstop in case the depression mechanism was not adequate.

Enhanced Preliminary Accreditation

293. In the non-domestic consultation we asked for evidence as to whether tariff uncertainty caused by a system of depression could reduce deployment of renewables technology, and invited views on a system of enhanced preliminary accreditation (EPA) as a means of helping deal with any uncertainty for projects that take a long time to install. EPA would enable consumers to apply for a guaranteed tariff rate, which would then become payable once an installation was finally commissioned. We are in the process of considering the responses received in respect of this proposal. At this time we are not proposing to apply a similar option to the domestic RHI scheme. This is because the lead times to installation are generally much shorter than those in the non-domestic environment, and installation costs are considerably lower. As a result, domestic consumers would be less likely to be affected by uncertainty arising from potential tariff depression.

Consultation Questions	
69	Do you agree that the system of depression described would provide us with a sufficient means of controlling the costs of supporting the domestic RHI scheme? If you would prefer a different approach to budget control then please set out what that might be and how it might operate.
70	Do you agree that we should build in greater flexibility to the system such that depression might not occur if overall deployment levels are low? If yes, how do you think this could be achieved?
71	How do you think we should set triggers which would result in tariff reductions to ensure fairness, value for money and certainty? Do you agree with the options presented, or would you prefer we took an alternate approach?
72	Would you prefer a system which announces any tariff rate reductions every two months (with up to a one or two week notice period before the reduced rate comes into effect), or on a quarterly basis (with up to a

	<p>months' notice period)? If you would prefer a different period please set this out and explain why.</p>
73	<p>Do you agree that the system should specifically recognise legacy applicants when calculating whether trigger points have been met? Do you agree with the options presented, or would you prefer we took an alternate approach? If yes, then please provide details.</p>
74	<p>Do you agree that we should base degression calculations and triggers on pounds spent, or do you consider it would be more appropriate to use an alternative approach, such as installed capacity and renewable heat produced? Please provide reasons for your preferred approach?</p>
75	<p>Do you agree that we should not apply EPA or a similar option to the domestic scheme? If not, why not? How could this work?</p>

List of Consultation Questions

Consultation Question	
Objectives and Approach	
1	What are your views about the proposed approach of a universally available tariff scheme? Is a tariff scheme the most efficient way to drive down technology costs, increase innovation and value for money, together with developing a home grown supply chain? Please include reasoning for your response.
2	Do you think that there would be advantages in phasing or piloting roll-out of the scheme? On what basis do you think it might make sense to phase or pilot the scheme?
3	Do you think that there may be alternative or additional approaches to incentivising renewable heat deployment that we should pursue? What approaches do you think might add most value?
Eligible Properties	
4	Do you have any comments on the proposed exclusion of second homes from the RHI?
5	Do you have any comments on the proposed approach to private landlords and their tenants under the RHI? Have you any suggestions about how to ensure that the RHI incentivises the installation of renewable heat in the private rented sector and does not disadvantage tenants?
6	What are your views on our proposals for the treatment of legacy applications for installations between July 2009 and the opening of the scheme?

7	<p>Are there any other legacy applicants (aside from those that have received RHPP, a Home Renewables Loan, or installed renewable heating systems since 15 July 2009) that you think we need to consider?</p>
8	<p>What are your views on phasing legacy applications over the first year and the option of setting a cut off date for legacy applications?</p>
<p>Eligible Technologies</p>	
9	<p>Do you agree with the proposed approach to the selection of eligible technologies for the domestic RHI scheme? Please include reasoning for your response.</p>
10	<p>Do you agree with the proposed eligible technologies set out above? Are there others that should be considered for inclusion?</p>
11	<p>Do you agree that an approved suppliers scheme is the best option for domestic biomass heat installations to demonstrate their use of sustainable fuel? Please provide reasoning with your response.</p>
12	<p>Do you agree that as part of the approved biomass supplier list we should assume a level of boiler efficiency? Please provide evidence to back up your response.</p>
13	<p>Do you agree that April 2014 is an appropriate date from which to start requiring users of domestic biomass heat installations to provide proof of meeting the sustainability criteria? Please provide reasoning with your response.</p>
14	<p>Is the air quality approach set out above appropriate for the domestic RHI sector? Please provide your reasoning with your response</p>
<p>Excluded Technologies</p>	
15	<p>Do you have any views on our proposals for excluding certain technologies? If you would like to suggest changes, please provide evidence to support your view.</p>

Heat Pump Standards	
16	Do you agree with our proposed approach to efficiency requirements for heat pumps?
17	Do you agree with our assumption that heat pump systems, using technology that meets MCS efficiency specifications, should meet an SPF requirement of 2.5 providing they are designed, installed and used appropriately?
Energy Efficiency Requirements	
18	Do you think that the ‘Green Ticks approach’ to an energy efficiency requirement is appropriate to the RHI? Please provide reasoning for your response and further information on any exceptional cases you think might arise
19	What are your views on our proposal to require consumers to have installed energy efficiency measures and provided proof to Ofgem before they become eligible for the RHI? Can you suggest an alternative approach that guarantees the installation of the green tick measures, but provides RHI subsidy at an earlier point ?
20	Do you think that solid wall insulation should be excluded from the energy efficiency requirements or be introduced in a phased way? Please provide evidence for your response.
Tariff Design	
21	Do you think that 7 years is a suitable time period for tariff payments under the RHI to be made? Would a different time period for tariff payments suit different technologies? Please provide evidence to support your view.
22	Please provide evidence on the potential lifetimes for the different renewable heating technologies, particularly where they are expected to last less than the 20 year period that we are assuming.

23	What is the risk of switchback after the period over which tariff payments are made? Do you think this applies solely to biomass?
24	Do you think that either of the proposed solutions would mitigate the risk of switchback? Which approach would be better? Is there any other action we could take to ensure the continued use of biomass in this way?
25	What do you think are the other risks associated with paying a tariff over a shorter period, say 7 years, but assuming heat delivered for 20 years? How do you think we should mitigate these risks?
26	Do the tariff ranges above accurately reflect the costs faced by consumers installing renewable technologies? Where possible we would welcome cost-based evidence that supports your views.
Solar Thermal Tariff	
27	What are your views on the support for solar thermal as set out? What evidence is there to support a tariff higher than the renewable energy cap? Do you have any suggestions / views on other ways in which a subsidy for solar thermal could be paid, for example, through a capital grant or through increasing the tariff beyond the cap?
GSHP Thermal Tariff	
28	What are your views on the support for GSHPs as set out? What evidence is there to support a tariff higher than the renewable energy cap?
29	What are your views on differentiated tariffs for GSHPs?
30	Do you have any data that you can share on the current market split between borehole and ground array GSHPs, associated costs and the likely future demand of these?
31	Are there other factors which should be taken into account when calibrating the tariff levels for either air source heat pumps or biomass boilers if the value for money cap were to become applicable to those technologies?

New Build	
32	Do you believe that the introduction of a domestic RHI tariff for new build is appropriate? If so, what additional costs and/or savings should DECC take into account if setting a new build tariff?
33	Do you have any evidence on the percentage cost reductions associated with fitting a renewable heating system into a new building, compared with retrofitting it?
34	If you do not agree with a domestic tariff for new build along the lines proposed, can you propose alternative ways to incentivise the uptake of renewable heating in the sector?
Social Landlords	
35	In light of the above, do you think we should introduce a domestic RHI tariff for social landlords? Why/why not?
36	Do you think that the proposed 7 year period for tariff payments would be appropriate for social landlords too or would another timeframe within the assumed 20 year life of equipment be more appropriate?
37	Do you have any evidence on the percentage differences to costs/benefits of fitting individual renewable heating systems into social housing?
38	Is there an alternative way in which you think we should incentivise renewable heat in the sector?
Metering versus Deeming	
39	Do you agree that deeming, as opposed to metering, is the most appropriate approach on which to base the calculation of RHI payments? If not, why not?
40	Do you agree that a calculation by the MCS installer, or equivalent, is the best approach and that the above criteria are adequate for developing an

	effective calculation?
41	Do you have any views on which calculation would be most appropriate for deeming heat? Please provide evidence to support your claim.
Bivalency	
42	Do you agree with the approach outlined here for the treatment of bivalent systems?
Financing	
43	Do you anticipate that financing offers will come forward from the market to provide support for renewable heat in conjunction with the RHI? If not, is there anything DECC could do to support this?
44	To what extent do you believe the ability for some consumers to fund their renewable heat installations through Green Deal and the RHI will improve deployment of renewable heat ?
Raising Performance	
45	Do you agree that a metering and monitoring service package like the one we have outlined would be effective at driving long-term system performance improvements?
46	Do you think that the additional financial support in option 1 should be distributed as a flat-rate increase to the RHI tariff, a one-off upfront payment or in some other way?
47	Do you offer a system that already provides some of the requirements outlined in option 1? If so, please can you provide details of how your system works and whether you would be interested in helping us develop this proposal further.
48	Should consumers' RHI tariffs for heat pumps vary according to the measured or estimated performance of the system? Do you think installers would offer performance guarantees if this was offered in the RHI? Please comment on the method we have described in option 2.

49	Do you think that setting a minimum SPF higher than the EU minimum for air source and ground source heat pumps could be an effective driver of performance? What figure do you think might be suitable?
50	If we took this approach, should the minimum SPF required increase over time? Please comment on how quickly you think the required SPF should rise and to what level it should rise.
51	What are your views on the use of the RHI budget to pay for metering equipment to be installed for the purpose of policy evaluation?
52	What are your views on the proposal that we should share data with MCS Certification Bodies so that it can be used to improve MCS installer surveillance?
53	What are your views on the requirement to make all installations 'meter ready' and the use of an Installer Checklist?
54	Do you agree that there should be a financial penalty for consumers who do not ensure their installation is 'meter ready'?
55	Should the penalty for consumers who do not make their installation 'meter ready' be the loss of the first year of their RHI payments or a reduction of all of their payments? What other penalty might be appropriate?
56	What are your views on providing a tariff uplift for systems where solar thermal is installed alongside other renewable technologies
57	Do you have any evidence on the size of tariff that should be provided in order to encourage the deployment of these systems.
58	Are there any other approaches that you think could drive continued improved performance of renewable heating systems?
Delivery	
59	What are your views on the above options for the proposed pattern of payments?

Consumer Protection	
60	Do you think that MCS (or equivalent schemes) will provide sufficient consumer protection for the RHI or should additional consumer protection be built into the scheme? If you think more is necessary, please explain what you think is required.
Maintenance	
61	Do you agree that our proposed approach of an annual consumer self-declaration, supported by supplementary spot checks is the best way to ensure that equipment installed under the RHI continues to be operational and generate heat optimally over time? What should the penalties for non compliance be? If you think that the proposed approach is not the best or could be improved, please set out your reasoning and any evidence to support that.
Fraud	
62	Are there other risks of fraud or gaming that we have not identified in the table above?
Consumer Journey	
63	In terms of communicating the RHI scheme to consumers and other interested parties, what do you consider that the role of government should be?
64	Do you have any comments on how RHI information to support and guide consumers along the journey should be provided? If so, please set them out.
65	Do you have any comments on or additions to the identified events and issues affecting the consumer along the customer journey? If so, please set them out.
66	Are there any specific customer journeys that you feel would be helpful to analyse? If so, please set them out.
67	Do you have any comments on or additions to the actions identified here? If so, please set them out.

68	In particular, do you have any comments on how to make the RHI and Green Deal relationship as seamless as possible in order to minimise disruption to the consumer? If so, please set them out.
Budget Management	
69	Do you agree that the system of degression described would provide us with a sufficient means of controlling the costs of supporting the domestic RHI scheme? If you would prefer a different approach to budget control then please set out what that might be and how it might operate.
70	Do you agree that we should build in greater flexibility to the system such that degression might not occur if overall deployment levels are low? If yes, how do you think this could be achieved?
71	How do you think we should set triggers which would result in tariff reductions to ensure fairness, value for money and certainty? Do you agree with the options presented, or would you prefer we took an alternate approach?
72	Would you prefer a system which announces any tariff rate reductions every two months (with up to a one or two week notice period before the reduced rate comes into effect), or on a quarterly basis (with up to a months' notice period)? If you would prefer a different period please set this out and explain why.
73	Do you agree that the system should specifically recognise legacy applicants when calculating whether trigger points have been met? Do you agree with the options presented, or would you prefer we took an alternate approach? If yes, then please provide details.
74	Do you agree that we should base degression calculations and triggers on pounds spent, or do you consider it would be more appropriate to use an alternative approach, such as installed capacity and renewable heat produced? Please provide reasons for your preferred approach?
75	Do you agree that we should not apply EPA or a similar option to the domestic scheme? If not, why not? How could this work?



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