



Department
of Energy &
Climate Change

Evaluation of the Renewable Heat Incentive

Technical Report

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1. Introduction

This Technical Report provides additional information to the RHI Evaluation Interim Report. It includes further details on the methodologies employed for each individual research project.

• Research Objectives

The aim of the evaluation is to understand the administration, delivery and performance of the non-domestic RHI and explore its effect on the renewable heat supply chain. In this way it seeks to assess how the current operation of RHI is delivering relative to its objective of stimulating and supporting a market for renewable heat and identify the factors affecting its delivery. It aims to contribute to DECC's thinking in three main areas:

- **Provide evidence to inform potential changes to the scheme, or to wider renewable heat policy.** The non-domestic RHI is an innovative scheme, described by DECC as the first long-term financial support programme for renewable heat. The RHI needs to adjust and evolve as new information becomes available and this project must provide DECC with scheme-specific evidence on impact and effectiveness for key groups of potential and actual customers. In providing a thorough understanding of the market for renewable heat and drivers of customer uptake, the evaluation will also provide DECC with evidence relevant to wider renewable heat policy.
- **Add to DECC's understanding of interventions of this type and contribute to longer term institutional learning.** Moving to a low-carbon economy will require the roll out of a range of new technologies to energy consumers. Renewable heat has economic and technical characteristics in common with many of these technologies. For example, like much low-carbon distributed generation and energy efficiency investments, some renewable heat technologies entail higher up-front capital costs and lower running costs than conventional alternatives (in the absence of policy support). In addition, RHTs are relatively unfamiliar to non-domestic energy consumers. Therefore, a greater understanding of the drivers of take up of renewable heat under the RHI will have broad relevance to DECC's wider policy objectives. In considering wider policy objectives, it will be important to review impacts on other policy areas, such as fuel poverty, house building and energy efficiency.
- **Help ensure that DECC policy can conform to the important principles of accountability, transparency and openness to scrutiny.** The RHI will entail a cost to taxpayers. It is important that DECC can make information on its effectiveness available to the public.

• Mapping of Methodologies to Research Questions

To achieve these aims a list of evaluation research questions have been developed by DECC. As part of designing the evaluation we have organised this into six key areas covering eleven high-level research questions. The list of 11 high level research questions in Table 1 represents a more detailed list comprising in excess of 100 questions.

Table 1.1: High Level Research Questions

| Area | High level research questions |
|--------------------------------------|---|
| How the scheme is being administered | 1. How effectively and efficiently has the scheme been administered and delivered? |
| The customer journey/experience | 2. What factors (for example confidence, awareness, cost, or environmental concerns) have enabled or prevented uptake of renewable heat technology (RHT) through RHI? 3. What has the impact of installing RHT been for customers? |
| The market and supply side | 4. How is the installer market adapting to the introduction of the RHI? 5. What has been the impact of the RHI on the RHT industry, supply chain and investment community? 6. What has been the impact of the RHI on the development of RHTs? |
| High level outcomes | 7. How much renewable heat has been produced (TWh) under the RHI? 8. How many, and what type of, renewable heating systems have been installed? |
| Applicants to the scheme | 11. What are the characteristic of the applicants entered in to the RHI scheme |
| <i>Beyond scope of this report</i> | |
| Impact evaluation | 9. What has been the impact of the RHI on CO2 and other greenhouse gas emissions 10. What are the other (wider) impacts of the RHI? |

In response to the research objectives, the evaluation consortium, in collaboration with DECC, has designed a coherent series of research activities. Each project aims to address one or more of the specific research questions.

Table 1.2 lists the seven areas of activity that this report is based on and identifies which of the research questions each activity addresses.

Table 1.2: Summary of research activities mapped against research questions

| Activity | Summary | Research Question | N= | Sample frame | Mode | Respondent |
|--|---|-------------------|-----|---|------------------------------|---|
| Applicant survey | A telephone survey with a representative sample of RHI applicants | 1,2,3,11 | 620 | All full applications to the scheme as of December 2013 | Telephone survey | Applicant registered with scheme |
| Multiple applicants qualitative study | Qualitative telephone interviews with a range of applicants that have made more than one application to the RHI | 1,2,3 | 20 | Respondents to the applicant survey identified as having made multiple applications | In depth telephone interview | Applicant registered with scheme |
| Investors qualitative study | Qualitative telephone interviews with a diverse range of possible investors in RHTs | 2,4,5 | 28 | Bespoke sample frame of key investor groups | In depth telephone interview | Representative of organisation |
| Wider awareness survey | An online survey of a representative sample of organisation across Britain | 2 | 623 | Online panel of business and public sector organisations | Online survey | Individuals who are part of organisation's decision making process for heating |
| Possible applicants qualitative study | Qualitative telephone interviews with organisations that are possible RHI applicants | 2 | 23 | Bespoke sample frame drawn from business registers | In depth telephone interview | Aware of renewable heat/RHI and reported their organisation as considered installing a renewable heating system/applying to the RHI |
| Workshop with Ofgem | A findings workshop with Ofgem staff to provide feedback on initial findings | 1,11 | N/A | N/A | N/A | N/A |

- **Interpreting findings in this report**

Findings from the **applicant survey** can be treated with a high degree of confidence. The response rate (36 per cent) is high considering the target population of businesses and non-domestic organisations. The questionnaire was developed through detailed consultation and piloted before finalising. As the survey samples from scheme administrative data, we had a range of variables available both to stratify our original sample by, and to assess and weight the achieved sample for non-response bias. Although the response rate is high, there is the potential for non-response bias that cannot be weighted for. Despite this we believe the resulting estimates provide an accurate representation of the view of applicants. The sampling strategy deliberately over sampled non-biomass technologies to allow robust analysis of these groups; the sample composition (and therefore findings) do, however, reflect scheme uptake, which is predominantly small and medium biomass. Throughout the main report, whenever the text comments on differences between sub-groups of the sample, these differences have been tested for significance using the survey commands in SPSS 18.0 and found to be statistically significant at the 95% confidence interval or above.

The **multiple applicant qualitative study** was carried out in response to an emerging issue in the design process for the applicant survey. As we were able to sample these interviews from applicant survey responses they are group that we have detailed information about and the sample design reflects this by covering a diverse range of situations. Data collected from these interviews represent a comprehensive assessment of the views of this group.

The **wider awareness survey** was conducted with an online business panel. Quotas were set for responses by industrial sector and high-level geography (Scotland and rest of UK) to ensure robust estimates could be made for these groups. New cases were not issued once these quotas had been met. Findings from this survey therefore provide a good indication of overall trends and relative levels in the non-domestic population rather than precise estimates. We mitigated potential bias from this in the design and analysis stages – although we cannot correct for any self-selection bias onto the panel or in choosing to complete the survey. The quotas ensured robust estimates could be made for a range of key characteristics. We also introduced a stage of screening in the survey to limit the variation in respondents, only carrying out interviews with individuals with some involvement in their companies' decision making process for heating systems. The questionnaire was developed through detailed consultation and piloted before finalising. Final estimates were weighted to the ONS distribution of UK businesses by industrial sector (including public sector). Throughout the main report, whenever the text comments on differences between sub-groups of the sample, these differences have been tested for significance using the survey commands in SPSS 18.0 and found to be statistically significant at the 95% confidence interval or above.

A bespoke sample frame for the **investor qualitative study** was created covering six key groups for the evaluation. Given the relatively low number of organisations providing finance for renewable heat installations, the organisations interviewed included both those already investing in renewable heat, and those which were already investing in renewable electricity installation and were considering investment in renewable heat. This approach was sufficient to provide a range of organisations and views. An even distribution of interviews was achieved across the main sampling criteria, and we are confident these data provide a comprehensive picture of these groups.

The **possible applicant qualitative study** faced two key methodological challenges; the need to identify organisations for whom renewable heat technologies or the RHI had been a genuine consideration, and finding the right respondent within an organisation to conduct the interview with. As a result of these factors we were unable to recruit as large (and therefore diverse) a sample as we intended despite screening a large number of organisations. The achieved 23 interviews however do provide a range of views across our main sampling criteria; organisations

who have installed RHT but not applied to RHI and organisations that have considered RHTs but not installed. Recruitment was successful in public sector and educational organisations and the data we have is particularly strong in these areas.

The research projects above took place over the first five months of 2014 and target a selection of the research questions. Further research activities are planned for autumn 2014 and early 2015 to address the other research questions and to conduct an evaluation of the domestic RHI scheme. More information on the methodology of each project is provided in Chapter 7 with a full account of the methodology of each project in the Technical Report.

2. Non Domestic RHI Applicant Survey

Objectives of the research project

DECC's original requirement for the evaluation of the RHI included quantitative research with scheme applicants. This research aimed to provide insights into applicants' motivations and barriers to the scheme and renewable heat technologies, along with their experiences of installing renewable heat, applying to the RHI, meeting on-going scheme requirements, and using their new heating system.

We aimed to broadly cover the following topic areas:

- Organisation characteristics, heating requirements and application status
- Decision making processes of customers in applying for the RHI
- Applicants' experiences associated with the RHI scheme
- Procuring and installing renewable heat technologies
- Experience of operating renewable heat technologies
- Performance of renewable heat technologies
- Pre and post installation experiences
- Satisfaction with the RHI and renewable heat technologies

Sampling strategy

The sample for the non-domestic applicant survey was designed to:

- i. Provide representative data on non-domestic applications to the RHI.
- ii. Provide representative data (where possible) on applications for each of the main technologies currently accredited in the scheme.

In order to receive the RHI an organisation needs to apply separately for each renewable heat technology installed and therefore a number of organisations make multiple applications. However, we decided that these organisations, if included in the survey sample, would be interviewed about one of their applications only, in order to keep respondent burden to a reasonable level whilst still collecting a representative sample of views.

In total there were 4,307 applications in the data set provided, current as of December 2013. The data included preliminary applications but it was decided that these were out of scope as these respondents would be unable to comment on the majority of the survey. After removal of preliminary applications, the data consisted of 4,214 applications. We then used the telephone number associated with each application to create a list of unique applicants to the scheme. Although this is a proxy, in the absence of an applicant ID (the RHI application process does not currently facilitate this) it represented the best alternative available. Using this method we

identified 3,149 organisations that had submitted at least one full application and 408 organisations that had submitted multiple applications.¹

The 'application status' and 'accreditation status' fields in the data showed that at the time the data were provided, there were:

- 2,862 applications currently approved to receive the RHI;
- 1,269 applications in the process of applying for the RHI;
- 83 applications that had been withdrawn, rejected, cancelled, or which had been excluded.

First, a pilot sample of 50 applications was drawn from organisations with single (as opposed to multiple) applications where the application was for a Solid Biomass Boiler and had already been approved. These applicants were selected for the pilot because they existed in such large numbers and could afford to be used up; this allowed all the lower prevalence technologies to be included in the sample for the main survey.

Following this, a total of 1,735 applications were sampled (from the remaining applications) for the main survey with the aim of achieving 520 telephone interviews (assuming a response rate of 30 per cent).

As many organisations had multiple applications, the first stage of the sampling procedure was to randomly select one application per organisation. A systematic sample was then drawn from the selected applications; those from organisations with three or more applications were selected with certainty (with the result that all organisations with three or more applications were included in the sample).

In drawing the sample, the sampling frame was stratified by the following variables:

- Type of technology applied for;
- Application status (grouped into three categories as above);
- Applicant sector (grouped into four categories);
- Government Office Region;
- Whether on/off the gas grid.

To ensure the issued sample included applications for a range of technology types and application statuses, a census was taken of the following applications from organisations with single applications:

- any application where the technology differs from Solid Biomass Boilers (across all application statuses)
- any application that was rejected, cancelled, withdrawn or excluded (across all technology types).

In total there were 211 such applications that were effectively included as a census (5.1 per cent of the population).

Table 2.1 below shows the numbers of applications in the issued sample for each of the stratification variables and the corresponding numbers in the population. (The population figures include the 50 applications sampled for the pilot study).

¹ As telephone number only provided a proxy for identifying multiple applicants we included a question on the survey to identify multiple applicants (this also provided a more up to date estimate). Numbers presented in the main report based on the applicant survey therefore will be different to those included in the technical report.

| Table 2.1: Sample distribution of applications by key characteristics | | | | |
|---|----------------------|--------------|-------------------------|--------------|
| | Number in population | % | Number in issued sample | % |
| Technology type | | | | |
| Bio-Methane | 7 | 0.2 | 5 | 0.3 |
| Biogas | 6 | 0.1 | 4 | 0.2 |
| Ground Source Heat Pump | 182 | 4.3 | 129 | 7.4 |
| Solar Thermal | 172 | 4.1 | 71 | 4.1 |
| Solid Biomass Boiler | 3,832 | 90.9 | 1,515 | 87.3 |
| Water Source Heat Pump | 15 | 0.4 | 11 | 0.6 |
| Application status | | | | |
| Receiving RHI | 2,862 | 67.9 | 1,171 | 67.5 |
| Applying for RHI (or in review) | 1,269 | 30.1 | 512 | 29.5 |
| Application failed (withdrawn/ rejected/ cancelled/ excluded) | 83 | 2.0 | 52 | 3.0 |
| Industry sector | | | | |
| Agriculture | 981 | 23.3 | 353 | 20.3 |
| Industrial | 427 | 10.1 | 160 | 9.2 |
| Commercial & Leisure | 2,392 | 56.8 | 1,073 | 61.8 |
| Public | 414 | 9.8 | 149 | 8.6 |
| Government Office Region | | | | |
| East | 280 | 6.6 | 126 | 7.3 |
| East Midlands | 312 | 7.4 | 127 | 7.3 |
| London | 35 | .8 | 17 | 1.0 |
| North East | 172 | 4.1 | 74 | 4.3 |
| North West | 392 | 9.3 | 168 | 9.7 |
| Scotland | 738 | 17.5 | 275 | 15.9 |
| South East | 336 | 8.0 | 156 | 9.0 |
| South West | 812 | 19.3 | 350 | 20.2 |
| Wales | 270 | 6.4 | 117 | 6.7 |
| West Midlands | 444 | 10.5 | 155 | 8.9 |
| Yorkshire and the Humber | 423 | 10.0 | 170 | 9.8 |
| On/off gas grid² | | | | |
| Off gas | 3,090 | 73.3 | 1,294 | 74.6 |
| On gas | 1,124 | 26.7 | 441 | 25.4 |
| Total | 4,214 | 100.0 | 1,735 | 100.0 |

² Applications were classified as on or off gas through matching administrative data with Centre for Sustainable Energy's list of off-gas postcodes, available from: <http://www.cse.org.uk/news/view/1792>

Fieldwork (including contacting respondents, briefing interviewers, methods, and documentation)

Prior to the start of fieldwork interviewers were verbally briefed by Peak Answers about the survey background and questionnaire, and were provided with briefing documents put together by NatCen and Eunomia. These provided further background information on the survey and questionnaire, the sample, making contact with respondents and the fieldwork timetable. Interviewers then went through the survey in test mode several times prior to interviewing, and any questions were dealt with by Supervisors on an ad hoc basis. Advance letters outlining the background and objectives of the survey, as well as information about the interview and how the findings would be used were sent to potential respondents 3 days prior to the start of fieldwork. No incentives were offered to respondents.

Fieldwork for the main stage of the survey took place from 3rd March 2014 to 31st March 2014. Computer-assisted telephone interviews of approximately 30 minutes were conducted by a team of 9 interviewers at Peak Answers. The interview was electronically programmed and no additional materials were used by way of an aid to interviewing.

The interviews were conducted with the appropriate person responsible for decision-making regarding the application for the RHI. As the sample was drawn from the register held by Ofgem, we assumed that the contact names and details would be for the individual within the organisation who was responsible for the application. However, we anticipated that it would also be necessary to identify the key decision maker within the organisation as this may not necessarily be the named applicant. Advance letters were sent out were to the named authorised signatory in the administrative data. When fieldwork began, interviewers then checked that they were speaking checked whether we were speaking to the right person was as follows:

Hello, my name is ..., I'm calling from Peak Answers. We are calling on behalf of the Department of Energy and Climate Change and would like to talk to you about the renewable heat incentive and renewable heat technology that your company has installed. Are you the best person to speak to about this?

• Interviewer validation methods

Quality assurance procedures for fieldwork were carried out by Peak Answers as below:

- A minimum of five per cent of the interviews were monitored by a Supervisor. This involved the supervisor listening live to the interview as well as to a selection of the interviewer's attempts to recruit respondents.
- A report was compiled for each interviewer based on the monitoring of their work, with feedback to the interviewer as relevant. The monitoring was spread across the interviewers to reflect the proportion of interviews each has completed.
- Open questions were reviewed by the interviewer at the end of the survey, once the respondent was off the line and before the data was submitted to the system.
- Upon completion of fieldwork (and sometimes during it), the open responses were reviewed by the project manager with basic spelling and punctuation errors corrected.

- Closed question data was checked against the questionnaire and the CATI spec to ensure that all questions had been answered and that, for example, multi/single coded questions had been entered correctly

• Response

In total we achieved 620 interviews which equates to a response rate of 36 per cent. The breakdown of response can be seen in Table 2.2 below:

| Table 2.2: Overall fieldwork response | | | |
|---------------------------------------|-------------|------------|-----------------------|
| | N | % of total | % of covered eligible |
| Issued | 1735 | 100 | - |
| Ineligible ³ | 13 | 1 | - |
| Eligible | 1722 | 99 | 100 |
| - Productive | 620 | 36 | 36 |
| - Non-contact | 546 | 31 | 32 |
| - Refusal | 179 | 10 | 10 |
| - Other unproductive ⁴ | 377 | 22 | 22 |

| Table 2.3: Fieldwork response by key characteristics | | | |
|---|-------------------------|---------------------------|------------------------------|
| | Number in issued sample | Number in achieved sample | Response rate % ⁵ |
| Technology type | | | |
| Ground Source Heat Pump | 129 | 50 | 39 |
| Solar Thermal | 71 | 31 | 44 |
| Solid Biomass Boiler | 1515 | 531 | 35 |
| Other ⁶ | 20 | 8 | [40] |
| | | | |
| Application status | | | |
| Receiving RHI | 1171 | 420 | 36 |
| Applying for RHI (or in review) | 512 | 185 | 36 |
| Application failed (withdrawn/ rejected/ cancelled/ excluded) | 52 | 15 | 29 |

³ Ineligible cases included: those where the applicant told us that they were only part way through their application; some where they had applied in relation to a domestic property; and cases that were identified as duplicates within the sample.

⁴ 'Unproductive' includes all other cases which did not result in an interview. This includes the following: 321 'soft' appointments / 'try again' were not called back once fieldwork ended, 42 appointments which were cancelled once the budgetary limit of 620 interviews were reached, 13 were unavailable during the fieldwork period and one could not be completed due to a language difficulties.

⁵ Numbers in square brackets refer to percentages based on 20 cases or fewer.

⁶ The other category combines: bio-methane, biogas, and water source heat pumps because the total number of applications were too small to provide a response figure for these technologies separately.

| | | | |
|---------------------------------|-------------|------------|------------|
| Industry sector | | | |
| Agriculture | 353 | 120 | 34 |
| Industrial | 160 | 49 | 31 |
| Commercial & Leisure | 1073 | 396 | 37 |
| Public | 149 | 55 | 37 |
| | | | |
| Government Office Region | | | |
| East | 126 | 50 | 40 |
| East Midlands | 127 | 41 | 32 |
| London | 17 | 7 | [41] |
| North East | 74 | 25 | 34 |
| North West | 168 | 50 | 30 |
| Scotland | 275 | 89 | 32 |
| South East | 156 | 59 | 38 |
| South West | 350 | 135 | 39 |
| Wales | 117 | 47 | 40 |
| West Midlands | 155 | 52 | 34 |
| Yorkshire and the Humber | 170 | 65 | 38 |
| | | | |
| On/off gas grid | | | |
| Off gas | 1294 | 477 | 37 |
| On gas | 441 | 143 | 32 |
| | | | |
| Total | 1735 | 620 | 100 |

• Weighting

The sampling approach used meant that the probability of selection differed across applications, depending on: whether an application was made by an organisation with multiple applications; one made by a single applicant organisation and did not form part of the census; or one made by a single applicant organisation that did form part of the census. Therefore the first stage of the weighting process was to apply selection weights to the achieved sample to correct for the unequal selection probabilities. Without selection weights, estimates would be skewed towards groups that were over-sampled.

In order to calculate the selection weights, the achieved sample was split into four groups:

- applications from organisations with single applications (in census);
- applications from organisations with single applications (not in census);
- applications from organisations with two applications;
- applications from organisations with three or more applications.

The weights were then calculated separately for each group. The first group were sampled with certainty, therefore the selection weight was equal to one. For the second and third groups the weights were equal to the ratio of the number of applications in the population to the number of applications in the issued sample. For the final group (applications from organisations with three or more applications) the selection weight was equal to the total number of applications made by the organisation but was trimmed at three (therefore all the weights for this group were equal to three) thus avoiding extreme/outlying weights. This is a normal weighting practice as extreme or outlying weights would be undesirable for two reasons: firstly the views of a small number of

organisations with large numbers of applications would have too large an influence on the survey results and secondly the statistical efficiency of the weighted sample would be compromised.

The second stage of the weighting process was to adjust the selection weights using calibration weighting so that the weighted sample of applications matches the population on key characteristics. Calibration weighting is a process which forces the weighted distribution of certain variables to match population totals. The following variables were used in the calibration:

- Type of technology applied for (in two categories: Solid Biomass vs. Other technologies) *interlocked with* Application status;
- Applicant sector;
- Government Office Region;
- Whether on/off the gas grid.

The final weight ensures the achieved sample matches the population as closely as possible and minimises the risk of bias due to differential non-response. This is demonstrated by the table below which shows the distribution of the unweighted and weighted sample by the key variables:

| Table 2.4: Weighted and unweighted sample distribution by key characteristics | | | |
|---|---------------------------|--------------------------------|------------------------------|
| | Population % ⁷ | Achieved sample % (unweighted) | Achieved sample % (weighted) |
| Technology type | | | |
| Bio-Methane | 0.2 | 0.2 | 0.1 |
| Biogas | 0.1 | 0.5 | 0.2 |
| Ground Source Heat Pump | 4.3 | 8.1 | 4.3 |
| Solar Thermal | 4.1 | 5.0 | 4.1 |
| Solid Biomass Boiler | 91.0 | 85.6 | 91.0 |
| Water Source Heat Pump | 0.4 | 0.6 | 0.3 |
| Application status | | | |
| Receiving RHI | 68.3 | 67.7 | 68.3 |
| Applying for RHI (or in review) | 30.1 | 29.8 | 30.1 |
| Application failed (withdrawn/ rejected/ cancelled/ excluded) | 1.6 | 2.4 | 1.6 |
| Industry sector | | | |
| Agriculture | 23.3 | 19.4 | 23.3 |
| Industrial | 10.2 | 7.9 | 10.2 |
| Commercial & Leisure | 56.7 | 63.9 | 56.7 |
| Public | 9.8 | 8.9 | 9.8 |
| Government Office Region | | | |
| East | 6.6 | 8.1 | 6.6 |
| East Midlands | 7.4 | 6.6 | 7.4 |
| London | 0.8 | 1.1 | 0.8 |
| North East | 4.1 | 4.0 | 4.1 |

⁷ A number of duplicate applications were identified subsequent to sampling; these were removed from the population hence the proportions in the first column above do not match exactly the population figures in Table 1.1

| | | | |
|--------------------------|--------------|--------------|--------------|
| North West | 9.2 | 8.1 | 9.2 |
| Scotland | 17.5 | 14.4 | 17.5 |
| South East | 8.0 | 9.5 | 8.0 |
| South West | 19.3 | 21.8 | 19.3 |
| Wales | 6.5 | 7.6 | 6.5 |
| West Midlands | 10.6 | 8.4 | 10.6 |
| Yorkshire and the Humber | 10.1 | 10.5 | 10.1 |
| | | | |
| On/off gas grid | | | |
| Off gas | 73.4 | 76.9 | 73.4 |
| On gas | 26.6 | 23.1 | 26.6 |
| | | | |
| Total | 100.0 | 100.0 | 100.0 |

The project was carried out in accordance with ISO 20252.

• Open Responses

Five questions in the questionnaire were open response questions. Of these, the responses to four were coded by Peak Answers. The final open response question, which gave the respondent the opportunity to provide any other comments, was not coded due to the disparate nature of comments expected in answer to this question. Comments were checked for views not otherwise expressed through either the applicant survey or the qualitative study with multiple applicants.

• Questionnaire

NON-DOMESTIC RHI APPLICANTS QUESTIONNAIRE FINAL

[IF SPEAKING TO A GATEKEEPER WHO WANTS TO KNOW MORE BEFORE PASSING YOU THROUGH: I'm calling from Peak Answers. We are calling on behalf of the Department of Energy and Climate Change and would like to talk to [him/her] about the renewable heat incentive and renewable heat technology that your company has installed.]

INT1: **Hello, please can I talk to [named respondent]?**

- Yes
- No

[IF RESPONDED 'YES' to QUESTION INT1, PROCEED TO QUESTION INT 2].

INT2: **Hello, my name is ..., I'm calling from Peak Answers. We are calling on behalf of the Department of Energy and Climate Change and would like to talk to you about the renewable heat incentive and renewable heat technology that your company has installed. Are you the best person to speak to about this?**

- Yes
- No

[IF RESPONDED 'NO' to QUESTION INT2, PROCEED TO QUESTION INT 3 and 4].

INT3: Who should I speak to instead?

[Text input]

INT4: And could you tell me their telephone number?

[Text input]

[IF RESPONDED 'YES' to QUESTION INT2, PROCEED TO QUESTION INT5]

INT5: OK. I would like to speak to you for about 25 minutes about your experiences of the renewable heat incentive. Would now be a good time to talk?

- Yes
- No [IF NO ATTEMPT TO SET UP INTERVIEW LATER DURING FIELDWORK]

[IF RESPONDED 'YES' to QUESTION INT5, PROCEED TO QUESTION INT6]

INT6: Before we start I'd just like to assure you that all your answers will be treated confidentially and will only be used for research purposes. Are you happy to proceed?

- Yes [CONTINUE TO SURVEY]
- No [THANK THEM FOR THEIR TIME; SAY GOODBYE.]

BAC1: How many RHT installations have you applied for the RHI for in total?

[numeric input]

- Don't know

[ANSWER OF '1' OR 'DON'T KNOW': 'SINGLE APPLICANT' ANSWER OF 2 OR MORE: 'MULTIPLE APPLICANT']

BAC2: Are you currently planning to apply for the RHI for any other RHT installations?

- Yes
- No
- Don't know

| |
|---|
| BAC3: What is your level of responsibility? |
| <ul style="list-style-type: none"> • Owner |
| <ul style="list-style-type: none"> • Executive/Senior Management |
| <ul style="list-style-type: none"> • Middle Management/Line Management/Supervisory |
| <ul style="list-style-type: none"> • Individual Contributor/Non-Management |

[IF NOT RESPONDED 'OWNER' to QUESTION BCA3, PROCEED TO QUESTION BCA4]

| |
|--|
| BAC4: What is your area of work, your department or functional role? |
| <ul style="list-style-type: none"> • Accounting or Finance |
| <ul style="list-style-type: none"> • Administration or Management |
| <ul style="list-style-type: none"> • Sales, marketing or communications |
| <ul style="list-style-type: none"> • Operations, including estates, logistics and engineering |
| <ul style="list-style-type: none"> • Other: [text input] |

[MULTIPLE APPLICANTS AND NOT BIO-METHANE ONLY]

| |
|--|
| <p>BAC5A: The installation we will be focusing on in this questionnaire is the one mentioned in the letter we sent to you a little while ago, which is the following: A [text fill: size of installation] kilowatt [text fill: technology type] applied for on [text fill: application submission date], whose reference name is [text fill: technology reference name].</p> <p>What is your role in respect of the RHI and the RHT you have installed? By 'your', we now mean the organisation or company you represent.</p> <p>Are you the...</p> <ul style="list-style-type: none"> • RHI applicant • Owner of the RHT installation • Operator of the RHT installation • Meter data provider • Other: [text input] • (SPONTANEOUS ONLY) Don't know |
|--|

[MULTIPLE APPLICANTS AND NOT BIO-METHANE ONLY]

| |
|---|
| <p>BAC5B: We will now continue with questions about your organisation or business and your RHT installation. The installation we will be focusing on in this questionnaire is the one mentioned in the letter we sent to you a little while ago, which is the following: A bio-methane injection installation applied for on [text fill: application submission date], whose reference name is [text fill: technology reference name].</p> <p>What is your role in respect of the RHI and the RHT you have installed? By 'your', we now mean the organisation or company you represent.</p> <p>Are you the....</p> |
|---|

| |
|------------------------------------|
| • RHI applicant |
| • Owner of the RHT installation |
| • Operator of the RHT installation |
| • Meter data provider |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[SINGLE APPLICANTS ONLY]

BAC5C: We will now continue with questions about your organisation or business and your RHT installation. What is your role in respect of the RHI and the RHT you have installed? By 'your', we now mean the business or organisation you represent.

| |
|------------------------------------|
| • RHI applicant |
| • Owner of the RHT installation |
| • Operator of the RHT installation |
| • Meter data provider |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[F NOT BIO-METHANE AND IF NOT 'RECIPIENT OF THE HEAT...' TO QUESTION BAC5A or BAC5C]

BAC6: Who is the recipient of the heat produced by the RHT installation? Please identify their primary business activity.

| |
|----------------|
| • [text input] |
| • Don't know |

[IF NOT BIO-METHANE AND IF NOT 'RECIPIENT OF THE HEAT...' TO QUESTION BAC5A or BAC5C]

BAC7 How many employees does the heat recipient's organisation have?

| |
|---------------------------------|
| • Fewer than 10 |
| • 10 - 49 |
| • 50 - 249 |
| • More than 250 |
| • (SPONTANEOUS ONLY) Don't know |

[ACCOMODATION SECTOR ONLY]

BAC8: Which of the following best describes your organisation?

| |
|------------------|
| • Hotel |
| • Holiday centre |
| • Youth hostel |
| • Camping ground |

- | |
|---|
| <ul style="list-style-type: none"> • Bed & Breakfast |
| <ul style="list-style-type: none"> • Other: [text input] |

- | |
|---|
| BAC9: How many employees does your organisation have? |
| <ul style="list-style-type: none"> • Fewer than 10 |
| <ul style="list-style-type: none"> • 10 - 49 |
| <ul style="list-style-type: none"> • 50 - 249 |
| <ul style="list-style-type: none"> • More than 250 |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

- | |
|--|
| BAC10: Do any of the following government schemes apply to you? |
| <ul style="list-style-type: none"> • Climate Change Agreements |
| <ul style="list-style-type: none"> • The CRC Energy Efficiency Scheme, formerly the Carbon Reduction Commitment |
| <ul style="list-style-type: none"> • The EU Emissions Trading Scheme |
| <ul style="list-style-type: none"> • The Climate Change Levy |
| <ul style="list-style-type: none"> • The Renewables Obligation |
| <ul style="list-style-type: none"> • Greenhouse Gas (GHG) Reporting |
| <ul style="list-style-type: none"> • None of the above |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

- | |
|---|
| BAC11: Do you claim a Feed in Tariff? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

- | |
|---|
| BAC12: Is it correct that your installation is a [text fill: technology type]? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |

[IF RESPONDED 'NO' to QUESTION BAC12, PROCEED TO QUESTION BAC13]

- | |
|---|
| BAC13: What technology did you install? |
| <ul style="list-style-type: none"> • Biomass boiler |
| <ul style="list-style-type: none"> • Solar thermal |
| <ul style="list-style-type: none"> • Municipal Solid Waste |
| <ul style="list-style-type: none"> • Ground source heat pump |
| <ul style="list-style-type: none"> • Water source heat pump |
| <ul style="list-style-type: none"> • Biomethane injection |
| <ul style="list-style-type: none"> • Biogas plant |

[IF NOT BIO-METHANE]

| |
|---|
| BAC14: What is your installation used for? |
| <ul style="list-style-type: none"> • Space heating |
| <ul style="list-style-type: none"> • Water heating |
| <ul style="list-style-type: none"> • Process heating or cooling |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| BAC15: Was your RHT installed into a new building or as a retro-fit? |
| <ul style="list-style-type: none"> • New building |
| <ul style="list-style-type: none"> • Retro-fit |
| <ul style="list-style-type: none"> • Don't know |

| |
|--|
| BAC16: How many years do you expect your RHT to be operational for? |
| [Numeric input] |

| |
|---|
| BAC17: What is the current status of your application? |
| <ul style="list-style-type: none"> • It is currently approved |
| <ul style="list-style-type: none"> • It was initially approved, but has now been rejected |
| <ul style="list-style-type: none"> • It was initially approved, but is now being reviewed again by Ofgem |
| <ul style="list-style-type: none"> • It is being reviewed by Ofgem |
| <ul style="list-style-type: none"> • It is with us (IF NECESSARY: 'With us' means that the application has been returned to the applicant for amendments and/or corrections, prior to being approved.) |
| <ul style="list-style-type: none"> • It has been rejected |
| <ul style="list-style-type: none"> • It has been withdrawn |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[IF NOT BIO-METHANE]

| |
|---|
| BAC18: Is your installation part of a district heating network? |
| <ul style="list-style-type: none"> • Yes [IF RESPONDED 'YES' to QUESTION BAC18, PROCEED TO QUESTION BAC19 and BCA20] |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

| |
|---|
| BAC19: Who sells the heat generated by the RHT? |
| <ul style="list-style-type: none"> • A private sector ESCO (IF NECESSARY: ESCO stands for Energy Services Company) |
| <ul style="list-style-type: none"> • A public sector ESCO (IF NECESSARY: ESCO stands for Energy |

| |
|--|
| Services Company) |
| • A housing association |
| • A co-operative |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |
| • (SPONTANEOUS ONLY) prefer not to say |

| |
|--|
| BAC20: ENTER THE WHOLE NUMBER OF PROPERTIES SERVED BY THE NETWORK |
| • [numeric input] |
| • (SPONTANEOUS ONLY) Don't know |

[IF NOT BIO-METHANE]

| |
|---|
| BAC21: How many buildings does the RHT provide heat for? |
| • [numeric input] |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO1: what was the lead time, in number of months, between the decision to install the RHT and the actual installation? |
| • [numeric input] |
| • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| PRO2: Who was involved in the decision to install the RHT? |
| • Owner or Managing Director |
| • Board of Directors |
| • Chief Executive Officer, Chief Operating Officer or similar |
| • Finance Manager |
| • Facilities or Estates Manager |
| • Energy Manager |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[RETRO-FIT ONLY]

| |
|--|
| PRO3: Was the RHT installed as a replacement, expansion or both of the previous heating capacity? |
| • Replacement |
| • Expansion |
| • Don't know |

[IF RESPONDED 'REPLACEMENT' to QUESTION PRO3, PROCEED TO QUESTION PRO4,PRO5, and PRO6]

| |
|--|
| PRO4: Why was the old system replaced? Was it because... |
| • ... the old system broke down? |
| • ... it was part of a capital replacement programme? |
| • ... environmental regulations? |
| • ... corporate social responsibility program or for reputational reasons? |
| • ... recommendation from an energy audit or assessment? |
| • ... provide an income stream by taking advantage of the RHI? |
| • ... financial risks associated with the old system? |
| • ... other reasons: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| PRO5: What type of system was the old one? |
| • Gas boiler |
| • Oil boiler |
| • Electric heating |
| • Direct combustion of fossil fuels |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO6: How many years old was the old system when it was replaced? |
| • [numeric input] |
| • Don't know |

| |
|---|
| PRO7: Were any of the following a factor when choosing the type of technology you installed? |
| • Familiarity with the technology |
| • [NOT BIO-METHANE] Ability to 'plug in' to current heating system |
| • Physical constraints |
| • Availability of feedstock |
| • [GSHP and WSHP ONLY]: Requirement for both heating and cooling |
| • The financial return from the RHI tariff |
| • Cost of the equipment and installation |
| • Running costs |
| • Stability of government policy |
| • The RHI application process |
| • Environmental considerations |
| • Proximity to the gas grid |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[IF NOT RESPONDED 'DON'T KNOW' to QUESTION PRO7, PROCEED TO QUESTION PRO8]

| |
|--|
| PRO8: Which one of these was most important? |
| <ul style="list-style-type: none"> [LIST ANSWERS SELECTED IN PREVIOUS QUESTION] |
| <ul style="list-style-type: none"> (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO9: Before installing your RHT, were you uncertain about any of the following aspects of RHTs in general? |
| <ul style="list-style-type: none"> The suitability of RHTs for your requirements |
| <ul style="list-style-type: none"> (IF NECESSARY: for example whether it would be able to 'plug in' to the current heating system, whether the appropriate size would be available, etc.) |
| <ul style="list-style-type: none"> Whether systems or procedures would need to change |
| <ul style="list-style-type: none"> (IF NECESSARY: for example day-to-day operational procedures, changes to hours heating would be switched on, etc.) |
| <ul style="list-style-type: none"> [NOT BIO-METHANE] The performance of RHTs, in terms of heat output |
| <ul style="list-style-type: none"> The reliability of RHTs |
| <ul style="list-style-type: none"> How to fix a broken RHT |
| <ul style="list-style-type: none"> The availability of installers or maintenance people in your area |
| <ul style="list-style-type: none"> [BIOMASS, BIOGAS, BIO-METHANE ONLY] The availability of feedstocks for RHTs |
| <ul style="list-style-type: none"> [BIOGAS AND BIO-METHANE ONLY] The availability of a market for digestate |
| <ul style="list-style-type: none"> Other: [text input] |
| <ul style="list-style-type: none"> None |

[IF RESPONDED 'NONE' or 'DON'T KNOW' to QUESTION PRO9, PROCEED TO QUESTION PRO10 and PRO11]

| |
|--|
| PRO10: Which one of these was most important? |
| <ul style="list-style-type: none"> [LIST ANSWERS SELECTED IN PREVIOUS QUESTION] |
| <ul style="list-style-type: none"> (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO11: To what degree did these uncertainties impact upon your decision to install RHT? |
| <ul style="list-style-type: none"> Very much |
| <ul style="list-style-type: none"> Somewhat |
| <ul style="list-style-type: none"> A little |
| <ul style="list-style-type: none"> Not at all |
| <ul style="list-style-type: none"> (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO12: Where did you obtain financing to install the RHT? |
|--|

| |
|--|
| <ul style="list-style-type: none">• Your own finances or balance sheet |
| <ul style="list-style-type: none">• Grant |
| <ul style="list-style-type: none">• External Private Equity |
| <ul style="list-style-type: none">• Bank loan specific to RHT |
| <ul style="list-style-type: none">• General bank loan |
| <ul style="list-style-type: none">• Asset Finance Package |
| <ul style="list-style-type: none">• Dedicated Energy Supply Company (ESCO) |
| <ul style="list-style-type: none">• Other: [text input] |
| <ul style="list-style-type: none">• (SPONTANEOUS ONLY) Don't know |
| <ul style="list-style-type: none">• (SPONTANEOUS ONLY) Prefer not to say |

[IF RESPONDED 'GRANT' to QUESTION PRO12, PROCEED TO QUESTION PRO10 and PRO13]

| |
|---|
| PRO13: What grant did you receive? |
| <ul style="list-style-type: none">• [text input] |
| <ul style="list-style-type: none">• Prefer not to say |

| |
|--|
| PRO14: Which financing did you initially want to use? |
| <ul style="list-style-type: none">• The same one(s) you used |
| <ul style="list-style-type: none">• Your own finances or balance sheet |
| <ul style="list-style-type: none">• Grant |
| <ul style="list-style-type: none">• External Private Equity |
| <ul style="list-style-type: none">• Bank loan specific to RHT |
| <ul style="list-style-type: none">• General bank loan |
| <ul style="list-style-type: none">• Asset Finance Package |
| <ul style="list-style-type: none">• Dedicated Energy Supply Company (ESCO) |
| <ul style="list-style-type: none">• Other: [text input] |
| <ul style="list-style-type: none">• (SPONTANEOUS ONLY) Don't know |
| <ul style="list-style-type: none">• (SPONTANEOUS ONLY) Prefer not to say |

[IF NOT RESPONDED 'THE SAME ONE(S) YOU USED' OR 'DON'T KNOW' OR 'PREFER NOT TO SAY'). PROCEED TO QUESTION PRO14]

| |
|--|
| PRO15: Why couldn't you use the finance you initially wanted? |
| <ul style="list-style-type: none">• [text input] |
| <ul style="list-style-type: none">• Prefer not to say |

| |
|---|
| PRO16: Comparing your chosen RHT with an alternative heating solution, what financial criteria did you use to make your investment decision? |
| <ul style="list-style-type: none">• Internal Rate of Return |
| <ul style="list-style-type: none">• Pay-back period |
| <ul style="list-style-type: none">• Return on Investment |
| <ul style="list-style-type: none">• Basic comparison of capital and operating costs |

- | |
|--|
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Prefer not to say |

[IF RESPONDED 'INTERNAL RATE OF RETURN' TO PRO16 PROCEED TO QUESTION PRO17,]

- | |
|--|
| PRO17: What rate of return did you expect over the lifetime of your installation? |
| <ul style="list-style-type: none"> • [numeric input] |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

[IF RESPONDED 'RETURN ON INVESTMENT' TO QUESTION PRO16 PROCEED TO QUESTION PRO18]

- | |
|--|
| PRO18: What rate did you expect over the lifetime of your installation? |
| <ul style="list-style-type: none"> • [numeric input] |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

[IF RESPONDED 'INTERNAL RATE OF RETURN' OR 'RETURN ON INVESTMENT' TO QUESTION PRO16 PROCEED TO QUESTION PRO19]

- | |
|---|
| PRO19: What is the hurdle rate you expected for this type of investment? |
| <ul style="list-style-type: none"> • [numeric input] |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

[IF RESPONDED 'PAY-BACK PERIOD' TO QUESTION PRO16 PROCEED TO QUESTION PRO20]

- | |
|---|
| PRO20: What pay-back period did you expect for your RHT? |
| <ul style="list-style-type: none"> • [numeric input] |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

[IF RESPONDED 'BASIC COMPARISON OF CAPITAL AND OPERATING COSTS' OR 'OTHER' TO QUESTION PRO16 PROCEED TO QUESTION PRO21]

- | |
|---|
| PRO21: How long do you expect it to take to make back your investment? |
| <ul style="list-style-type: none"> • [numeric input] |
| <ul style="list-style-type: none"> • Don't know |
| <ul style="list-style-type: none"> • Prefer not to say |

PRO22: Did you have to seek planning permission in order to install your RHT?

- Yes
- No
- Don't know

PRO23: Without the RHI, would you have installed ANY new heating installation?

- Yes
- No
- Don't know

[IF RESPONDED YES TO QUESTION PRO23 PROCEED TO QUESTION PRO24A]

PRO24A: Without the RHI, would the technology type of your new installation have been different?

- Yes
- No
- Don't know

[NEW BUILD ONLY]

PRO24B: Without the RHI, would the technology type of your new installation have been different?

- Yes
- No
- Don't know

[IF RESPONDED YES TO EITHER QUESTION PRO24A or PRO24B PROCEED TO QUESTION PRO25]

PRO25: What technology type would you have chosen instead?

- Gas boiler
- Oil boiler
- Electric heating
- Biomass boiler
- Ground source heat pump
- Solar thermal
- Combined heat and power boiler
- Deep geothermal power
- Other: [text input]
- (SPONTANEOUS ONLY) Don't know

[IF RESPONDED 'YES' TO QUESTION PRO23 OR NEW BUILDPROCEED TO QUESTION PRO26]

PRO26: Without the RHI, would the commissioning date of your new heating installation have been different?

- Yes
- No
- Don't know

[IF RESPONDED 'YES' TO QUESTION PRO26 OR NEW BUILDPROCEED TO QUESTION PRO27]

PRO27: Would you have commissioned the installation earlier or later?

- Earlier
- Later

[FOR BIOMASS, GSHP, WSHP, BIOGAS ONLY]

PRO28: Did the banding or tiering of tariffs affect your decision about the size of installation to install?

- Yes, the tiering affected our choice
- Yes, the banding affected our choice
- No, neither affected our choice
- (SPONTANEOUS ONLY) Don't know

[IF NOT RESPONDED 'NO, NEITHER AFFECTED OUR CHOICE' OR 'DON'T KNOW' TO QUESTION PRO28 PROCEED TO QUESTION PRO29]

PRO29: In what way did the banding and/or tiering affect the size of the installation? Did you...

- ... select a larger installation
- ... select a smaller installation

PRO30: Did you make the decision on the size of the installation on your own or after receiving advice?

- On our own
- After receiving advice from our installer
- After receiving advice from someone else
- (SPONTANEOUS ONLY) Don't know

PRO31: How easy was the process of installation?

- Very easy

| |
|---------------------------------|
| • Fairly easy |
| • Neither easy nor difficult |
| • Fairly difficult |
| • Very difficult |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO32: How did this compare to your expectations? Was it... |
| • ...much easier |
| •a little easier |
| • ...neither easier nor more difficult |
| • ...little more difficult |
| • ...much more difficult |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO33: Did you encounter any of the following problems during the installation process? |
| • Getting suitable advice |
| • Finding a suitable installer |
| • Finding a building services/systems designer |
| • Getting the equipment commissioned (IF NECESSARY: Commissioning refers to the procedure of testing the equipment after it has been installed, including to make sure it conforms to legal requirements.) |
| • Unexpected costs |
| • Delays in installation process |
| • Any other problems: [text input] |
| • (SPONTANEOUS ONLY) I had no problems with the installation process. |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| PRO34: How did you choose a manufacturer of your RHT? Did you... |
| • ... base it on your own research before selecting an installer? |
| • ... use the manufacturer recommended by your installer? |
| • ... use the manufacturer recommended by someone other than your installer? |
| • ... use other methods to find a manufacturer: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| PRO35: Who was the manufacturer of your RHT? |
| • [text input] |
| • Don't know |
| • Prefer not to say |

| |
|--|
| PRO36: Would you recommend your manufacturer to others installing the same RHT? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

| |
|---|
| PRO37: Where did you find your installer? Was it... |
| <ul style="list-style-type: none"> • ... through a web search or similar? |
| <ul style="list-style-type: none"> • ... at an event? |
| <ul style="list-style-type: none"> • ... a recommendation from someone else? |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| PRO38: Would you recommend your installer to others installing the same RHT? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

| |
|--|
| RHI1: How many full time equivalent days did it take to complete the application for the RHI? |
| <ul style="list-style-type: none"> • 0-4 days |
| <ul style="list-style-type: none"> • 5-9 days |
| <ul style="list-style-type: none"> • 10-14 days |
| <ul style="list-style-type: none"> • 15 days or longer |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| RHI2: Did you have any problems completing the application? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[IF RESPONDED 'YES' TO QUESTION RHI2 PROCEED TO QUESTION RHI3]

| |
|--|
| RHI3: What problems were these? |
| <ul style="list-style-type: none"> • The application questions were not appropriate for my installation |
| <ul style="list-style-type: none"> • It was not clear what information I needed to provide |
| <ul style="list-style-type: none"> • Official guidance on the RHI was overly complex |
| <ul style="list-style-type: none"> • I found it difficult to find and supply all the information required about my installation |

| |
|---|
| <ul style="list-style-type: none"> • I had technical problems, such as with uploading supporting information |
| <ul style="list-style-type: none"> • The application form was returned to us by Ofgem |
| <ul style="list-style-type: none"> • The application took too long to complete |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[IF RESPONDED 'THE APPLICATION FORM WAS RETURNED TO US BY OFGEM' TO QUESTION RHI3 PROCEED TO QUESTION RHI4]

| |
|---|
| RHI4: Why was it returned to you? |
| <ul style="list-style-type: none"> • Problems with meters or metering arrangements |
| <ul style="list-style-type: none"> • Problems with correct authorisation letters or verification of the company |
| <ul style="list-style-type: none"> • Problems with the type of premise (IF NECESSARY: whether it is domestic or not) |
| <ul style="list-style-type: none"> • Problems with details of the installation, such as heat use, emission certificate, description, capacity or commissioning date. |
| <ul style="list-style-type: none"> • Problems with heat loss assessments |
| <ul style="list-style-type: none"> • Problems with the accuracy of the submitted schematic |
| <ul style="list-style-type: none"> • Problems related to other heating plants or systems, including those replaced |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[MULTIPLE APPLICANTS ONLY]

| |
|--|
| RHI5: Was the RHI application process similar for all of your applications? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[ACCREDITED APPLICANTS ONLY]

| |
|---|
| RHI6: What is your overall impression of the requirement to collect meter readings regularly? Has it been... |
| <ul style="list-style-type: none"> • ... very easy? |
| <ul style="list-style-type: none"> • ... fairly easy? |
| <ul style="list-style-type: none"> • ... neither easy nor difficult? |
| <ul style="list-style-type: none"> • ... fairly difficult? |
| <ul style="list-style-type: none"> • ... very difficult? |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been accredited very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| RHI7: Have you had any problems collecting and submitting your meter |
|---|

| |
|--|
| data? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[IF RESPONDED 'YES" TO QUESTION RHI7 PROCEED TO QUESTION RHI8]

| |
|---|
| RHI8: What problems were these? |
| <ul style="list-style-type: none"> • A small window available for taking readings |
| <ul style="list-style-type: none"> • A small window available for submitting readings |
| <ul style="list-style-type: none"> • The resource required to read the meter on time |
| <ul style="list-style-type: none"> • The capability required to read the meter on time |
| <ul style="list-style-type: none"> • We didn't know where to find the meter |
| <ul style="list-style-type: none"> • We didn't know how to read the meter |
| <ul style="list-style-type: none"> • We didn't know how to do the calculation |
| <ul style="list-style-type: none"> • Other: [text input] |

[ACCREDITED APPLICANTS ONLY]

| |
|---|
| RHI9: Have you had to provide estimated data at any point? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[IF RESPONDED 'YES" TO QUESTION RHI9 PROCEED TO QUESTION RHI10]

| |
|---|
| RHI10: Why did you need to do this? Was it because... |
| <ul style="list-style-type: none"> • ... of a fault with the metering equipment? |
| <ul style="list-style-type: none"> • ... the meter wasn't installed correctly? |
| <ul style="list-style-type: none"> • ... you could not access the meter to read it? |
| <ul style="list-style-type: none"> • ... you were delayed taking your meter reading? |
| <ul style="list-style-type: none"> • ... very difficult? |
| <ul style="list-style-type: none"> • ... or was it because of other reasons: [text input]? |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[ACCREDITED APPLICANTS ONLY]

| |
|--|
| RHI11: How satisfied are you overall with the meter data system? |
| <ul style="list-style-type: none"> • Very satisfied |
| <ul style="list-style-type: none"> • Fairly satisfied |
| <ul style="list-style-type: none"> • Neither satisfied nor dissatisfied |
| <ul style="list-style-type: none"> • Fairly dissatisfied |
| <ul style="list-style-type: none"> • Very dissatisfied |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |

- (SPONTANEOUS ONLY) Don't know

[ACCREDITED APPLICANTS ONLY]

| |
|--|
| RHI12: Have you ever received an RHI payment? |
| • Yes |
| • No |
| • Don't know |

[IF RESPONDED 'YES' OR 'DON'T KNOW' TO QUESTION RHI12 PROCEED TO QUESTION RHI13A]

| |
|---|
| RHI13A: Have you had any problems with receiving RHI payments? |
| • Yes |
| • No |
| • Don't know |

[IF RESPONDED 'NO' TO QUESTION RHI12 PROCEED TO QUESTION RHI13B]

| |
|---|
| RHI13B: Why have you never received an RHI payment? |
| • Our installation was only recently accredited and we have not yet been required to submit meter data. |
| • We have not yet chosen to submit meter data. |
| • We have experienced problems receiving RHI payments. |
| • (SPONTANEOUS ONLY) Don't know |

[IF RESPONDED 'YES' TO QUESTION RHI13A OR 'WE HAVE EXPERIENCED PROBLEMS TO RHI13B...' PROCCEED TO QUESTION RHI14]

| |
|--|
| RHI14: Which of the following problems have you had? |
| • Our bank details were incorrect. |
| • We were not able to submit meter data. |
| • We received an over payment. |
| • We received an under payment. |
| • We submitted meter data but they were not accepted by Ofgem. |
| • Other: [text input] |

[ACCREDITED APPLICANTS ONLY]

| |
|--|
| RHI15: What was your experience of the requirement to complete an annual declaration? Was it... |
| • ... very easy? |
| • ... fairly easy? |
| • ... neither easy nor difficult? |

| |
|---|
| <ul style="list-style-type: none"> • ... fairly difficult? |
| <ul style="list-style-type: none"> • ... very difficult? |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as I have not had to submit an annual declaration yet. |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE1: First of all, how satisfied are you overall with your RHT? |
| <ul style="list-style-type: none"> • Very satisfied |
| <ul style="list-style-type: none"> • Fairly satisfied |
| <ul style="list-style-type: none"> • Neither satisfied nor dissatisfied |
| <ul style="list-style-type: none"> • Fairly dissatisfied |
| <ul style="list-style-type: none"> • Very dissatisfied |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[IF RESPONDED 'DON'T KNOW' OR 'DON'T KNOW, AS THE INSTALLATION HASN'T BEEN OPERATIONAL FOR VERY LONG' TO QUESTION OPE1..." PROCCEED TO QUESTION OPE2]

| |
|---|
| OPE2: How satisfied are you with the ease of operation of your RHT? |
| <ul style="list-style-type: none"> • much better |
| <ul style="list-style-type: none"> • a little better |
| <ul style="list-style-type: none"> • neither better nor worse |
| <ul style="list-style-type: none"> • a little worse |
| <ul style="list-style-type: none"> • much worse |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE3: How satisfied are you with the ease of operation of your RHT? |
| <ul style="list-style-type: none"> • Very satisfied |
| <ul style="list-style-type: none"> • Fairly satisfied |
| <ul style="list-style-type: none"> • Neither satisfied nor dissatisfied |
| <ul style="list-style-type: none"> • Fairly dissatisfied |
| <ul style="list-style-type: none"> • Very dissatisfied |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE4: How satisfied are you with the operating costs of your RHT? |
| <ul style="list-style-type: none"> • Very satisfied |
| <ul style="list-style-type: none"> • Fairly satisfied |
| <ul style="list-style-type: none"> • Neither satisfied nor dissatisfied |
| <ul style="list-style-type: none"> • Fairly dissatisfied |
| <ul style="list-style-type: none"> • Very dissatisfied |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[SPACE HEATING + RETRO-FIT ONLY]

| |
|--|
| OPE5: Do you use your RHT to heat your space to a different temperature than you did with your previous system? |
| <ul style="list-style-type: none"> • Yes, to a higher temperature |
| <ul style="list-style-type: none"> • Yes, to a lower temperature |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[GROUND SOURCE HEAT PUMP OR WATER SOURCE HEAT PUMP ONLY]

| |
|---|
| OPE6: How are you deploying your heat? Is it through... |
| <ul style="list-style-type: none"> • Underfloor Heating |
| <ul style="list-style-type: none"> • Radiators |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Unsure |

[NOT BIO-METHANE]

| |
|--|
| OPE7: Does your RHT meets your heating needs... |
| <ul style="list-style-type: none"> • ... all the time? |
| <ul style="list-style-type: none"> • ... most of the time? |
| <ul style="list-style-type: none"> • ... some of the time? |
| <ul style="list-style-type: none"> • ... none of the time? |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[IF NOT RESPONDED 'ALL OF THE TIME' OR 'DON'T KNOW AS THE INSTALLATION HASN'T BEEN OPERATIONAL FOR VERY LONG' OR 'DON'T KNOW' TO QUESTION OPE7PROCCEED TO QUESTION OPE8]

| |
|---|
| OPE8: Why does it not meet your needs all of the time? |
| <ul style="list-style-type: none"> • It is not reliable |
| <ul style="list-style-type: none"> • It can't generate sufficient heat |
| <ul style="list-style-type: none"> • It is too expensive |
| <ul style="list-style-type: none"> • It is difficult to control |
| <ul style="list-style-type: none"> • It is not responsive enough |
| <ul style="list-style-type: none"> • Any other reasons: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[NOT BIO-METHANE]

| |
|--|
| OPE9: Do you have an alternative or back-up heating system installed? |
|--|

- | |
|--------------|
| • Yes |
| • No |
| • Don't know |

[IF RESPONDED 'YES' TO QUESTION OPE9 PROCCEED TO QUESTION OPE10]

- | |
|--|
| OPE10: How often do you use your alternative system? |
| • Daily |
| • Weekly |
| • Monthly |
| • Seasonally |
| • Almost never |
| • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| • (SPONTANEOUS ONLY) Don't know |

[IF RESPONDED 'DAILY', 'WEEKLY', 'MONTHLY' OR SEASONALLY' TO QUESTION OPE10 PROCCEED TO QUESTION OPE11]

- | |
|---|
| OPE11: What is your alternative system used for? Do you use it... |
| • ... when the RHT is out of service |
| • ... when insufficient temperature is provided by the RHT |
| • ... to provide extra heat during extreme weather conditions |
| • [GSHP AND WSHP ONLY]... when the cost of electricity to run the RHT is high |
| • [BIOMASS, BIOGAS, BIO-METHANE ONLY]... when feedstocks are limited |
| • [SOLAR THERMAL ONLY]... when there is limited sunshine (IF NECESSARY: In cloudy weather, at night, in winter) |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

- | |
|--|
| OPE12: Have you adjusted the operation of your biomass system to take account of the two tiers for the RHI payment? |
| • Yes |
| • No |
| • Don't know, as the installation hasn't been operational for very long |
| • Don't know |

[IF RESPONDED YES' TO QUESTION OPE11PROCCEED TO QUESTION OPE13]

| |
|--|
| OPE13: In what way have you adjusted it? Do you... |
| <ul style="list-style-type: none"> • ... only run the biomass plant when receiving the first tier payment (IF NECESSARY: that is, you always switch to an alternative heat supply when receiving the second tier payment) |
| <ul style="list-style-type: none"> • ... sometimes switch to an alternative heat supply when receiving the second tier payment |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE14: How reliable is your RHT? Is it... |
| <ul style="list-style-type: none"> • ... very reliable |
| <ul style="list-style-type: none"> • ... fairly reliable |
| <ul style="list-style-type: none"> • ... neither reliable nor unreliable |
| <ul style="list-style-type: none"> • ... fairly unreliable |
| <ul style="list-style-type: none"> • ... very unreliable |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE15: How has this changed over time? Is the performance of your RHT... |
| <ul style="list-style-type: none"> • ... getting better |
| <ul style="list-style-type: none"> • ... getting worse |
| <ul style="list-style-type: none"> • ... not changing |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE16: How does the maintenance requirement of your RHT compare to your expectations? |
| <ul style="list-style-type: none"> • Requires significantly less maintenance than expected |
| <ul style="list-style-type: none"> • Requires slightly less maintenance than expected |
| <ul style="list-style-type: none"> • Is about the same as expected |
| <ul style="list-style-type: none"> • Requires slightly more maintenance than expected |
| <ul style="list-style-type: none"> • Requires significantly more maintenance than expected |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know, as the installation hasn't been operational for very long |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| OPE17: Do you have a service contract for your installation? |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |

- Don't know

[IF RESPONDED NO' OR 'DON'T KNOW' TO QUESTION OPE17 PROCCEED TO QUESTION OPE18]

| |
|--|
| OPE18: Who do you contact if you have a problem with the performance of your RHT? |
| • Service company |
| • Manufacturer |
| • Supplier |
| • Installer |
| • Not sure who to contact |
| • No-one, as we maintain the system ourselves |
| • (SPONTANEOUS ONLY) Don't know |

| |
|---|
| OPE19: Over the RHT's life-time, how many times have you sought external help due to poor performance? |
| • Never |
| • 1-2 times |
| • 3-5 times |
| • More than 5 times |
| • (SPONTANEOUS ONLY) Don't know |

[IF NOT RESPONDED 'NEVER' TO QUESTION OPE19 PROCCEED TO QUESTION OPE20]

| |
|---|
| OPE20: In those cases, what was the nature of the problem? |
| • Poorly designed or specified equipment (IF NECESSARY: including under-sizing) |
| • A technical problem caused by errors during installation |
| • A technical problem which occurred during operation |
| • The meter wasn't working |
| • Didn't know how to operate the installation properly |
| • [BIOMASS ONLY] Use of fuel which is outside design specification |
| • Other: [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[IF NOT RESPONDED 'NEVER' TO QUESTION OPE20 PROCCEED TO QUESTION OPE21]

| |
|---|
| OPE21: How long did it take on average for the issue to be resolved? |
| • Less than 24 hours |
| • 24-47 hours |
| • 2-6 days |
| • A week to a month |
| • More than a month |
| • Never resolved |

- (SPONTANEOUS ONLY) Don't know

| |
|---|
| OPE22: What is the length of warranty you have for your RHT? |
| • [numeric inputs - years and months] |
| • (SPONTANEOUS ONLY) No warranty |
| • (SPONTANEOUS ONLY) Don't know |

| |
|--|
| OPE23: Overall, how satisfied are you with the customer service you have received since your RHT was installed? |
| • Very satisfied |
| • Fairly satisfied |
| • Neither satisfied nor dissatisfied |
| • Fairly dissatisfied |
| • Very dissatisfied |
| • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

| |
|--|
| OPE24: First of all, in what form does the fuel enter your boiler? |
| • Pellets |
| • Chips |
| • Logs |
| • Off-cuts |
| • Sawdust |
| • Wood waste |
| • Arboricultural arisings (IF NECESSARY: This means residues from parks and gardens maintenance) |
| • Other [text input] |
| • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

| |
|--|
| OPE25: How do you source your fuel? Do you... |
| • ... buy it? |
| • ... acquire it for free or produce it yourself? |
| • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

[IF RESPONDED 'BUY IT..' TO QUESTION OPE25 PROCEED TO QUESTION OPE26A]

| |
|--|
| OPE26A: Where do you source your purchased fuel from? Is it from... |
| • ... a dedicated fuel broker or merchant? |
| • ... your boiler provider or a service company? |

- | |
|---|
| <ul style="list-style-type: none"> • ... a producer, such as a forestry manager or saw-mill? |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

[IF RESPONDED 'ACQUIRE IT FOR FREE..' TO QUESTION OPE25 PROCEED TO QUESTION OPE26B]

- | |
|--|
| <p>OPE26B: Where do you source your free fuel from? Do you...</p> |
| <ul style="list-style-type: none"> • ... produce it yourselves, such as from own forestry, woodlands or saw-mill? |
| <ul style="list-style-type: none"> • ... gather it yourselves, such as forestry residues? |
| <ul style="list-style-type: none"> • ... acquire it free from elsewhere, for example a saw-mill? |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

[IF RESPONDED PELLETS..' TO QUESTION OPE24 PROCEED TO QUESTION OPE27]

- | |
|---|
| <p>OPE27: How does the fuel get delivered?</p> |
| <ul style="list-style-type: none"> • In bags |
| <ul style="list-style-type: none"> • Baled |
| <ul style="list-style-type: none"> • By tanker |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

- | |
|--|
| <p>OPE28: Are you aware of the forthcoming sustainability criteria your fuel will need to meet to continue to be eligible for RHI payments?</p> |
| <ul style="list-style-type: none"> • Yes, and I have plans in place to meet them |
| <ul style="list-style-type: none"> • Yes, but I am not yet sure what this means for my installation |
| <ul style="list-style-type: none"> • No, I am not aware of these criteria |
| <ul style="list-style-type: none"> • (SPONTANEOUS ONLY) Don't know |

[BIOMASS ONLY]

- | |
|---|
| <p>OPE29: Have you ever switched your supplier of biomass?</p> |
| <ul style="list-style-type: none"> • Yes |
| <ul style="list-style-type: none"> • No |
| <ul style="list-style-type: none"> • Don't know |

[BIOMASS ONLY]

[IF RESPONDED 'BUY IT..' TO QUESTION OPE25 PROCEED TO QUESTION OPE30]

OPE30: Do you have a supply contract?

- Yes
- No
- Don't know

[BIOMASS ONLY]

[IF RESPONDED YES..' TO QUESTION OPE30 PROCEED TO QUESTION OPE31]

OPE31: How long is this supply contract for?

- 0-1 month
- 2-6 months
- 7-11 months
- 1-2 years
- Longer than 2 years
- (SPONTANEOUS ONLY) Don't know

[BIOMASS ONLY]

[IF RESPONDED 'BUY IT..' TO QUESTION OPE25 PROCEED TO QUESTION OPE32]

OPE32: How much do you pay for your biomass fuel per tonne, including transport?

- Less than £50 per tonne
- £50-£99 per tonne
- £100-£149 per tonne
- £150-£199 per tonne
- £200-£249 per tonne
- £250 or more per tonne
- (SPONTANEOUS ONLY) Don't know
- (SPONTANEOUS ONLY) Prefer not to say

OPE33: What, if any, are the benefits of your renewable heating system?

- Space requirements
- [GSHP AND WSHP ONLY]: Ability to both heat and cool
- [BIOMASS, BIOGAS, BIO-METHANE ONLY]: Availability of feedstock
- Cost of the installation
- Reliability of the installation
- Ease of operation of the installation
- Ability to 'plug in' to current heating system
- The amount of heat it generates
- Responsiveness of the installation
- Environmental considerations
- Running costs, in terms of fuel or energy
- Maintenance costs
- The amount of income it generates under the RHI

- Other: [text input]
- None
- (SPONTANEOUS ONLY) Don't know

OPE34: Would you recommend your RHT to others?

- Yes
- No
- Don't know

OPE35: Why would you not recommend it?

- Space requirements
- [GSHP AND WSHP ONLY]: Ability to both heat and cool
- [BIOMASS, BIOGAS, BIO-METHANE ONLY]: Availability of feedstock
- Cost of the installation
- Reliability of the installation
- Ease of operation of the installation
- Ability to 'plug in' to current heating system
- The amount of heat it generates
- Responsiveness of the installation
- Environmental considerations
- Running costs, in terms of fuel or energy
- Maintenance costs
- The amount of income it generates under the RHI
- Other: [text input]
- None
- (SPONTANEOUS ONLY) Don't know

[NOT BIO-METHANE]

PRE1: Have any energy efficiency improvements been made to the building or buildings which the RHT provides heat for?

- Yes
- No
- No, because no energy efficiency improvements are possible or necessary (for example, the building is new and/or has good energy efficiency ratings and/or is listed)
- Don't know

[IF RESPONDED 'YES..' TO QUESTION PRE1 PROCEED TO QUESTION PRE2]

PRE2: When were these improvements made?

- Before installing the RHT and applying for the RHI
- At the same time as installing the RHT
- After installing the RHT and before applying for the RHI

- After applying for the RHI
- (SPONTANEOUS ONLY) Don't know

PRE3: Do you have any other comments on either RHTs or the RHI?

[open ended]

PRE4: Would it be acceptable for us to contact you again in the future?

- Yes
- No

PRE5: Could we confirm your name and telephone number please?

- Name: [text input]
- Telephone number: [numeric input]

3. Wider awareness survey

Objectives of the research project

The aim of this strand of the evaluation was to provide wider context to the non-domestic strand by measuring the awareness of and attitudes towards Renewable Heat Technologies (RHTs) and RHI among UK businesses as a whole regardless of their previous engagement with either. It also aimed to provide broader measures of energy use and attitudes towards energy saving.

The survey covered the following topic areas:

- Organisation's characteristics;
- Take-up of RHTs;
- Concern with energy saving;
- Spending on heating;
- Awareness of and attitudes towards RHTs;
- Awareness of RHI;
- Information sources for RHTs and RHI; and
- Smart meters.

Questionnaire design

The questionnaire was developed by Eunomia with input from NatCen and sign-off from DECC. A pilot survey was conducted to test the questionnaire and some questions were amended as a result.

Sampling strategy

The target population of the survey were all businesses in the UK. The sample was selected from Research Now's Business Panel. This is an opt-in panel of professionals who are recruited via different means and who are rewarded for the completion of surveys they are sent. Research Now's panel was chosen over others because of its size and its ability to identify professionals who were decision makers in facilities. The latter was important, because the aim of the survey was to find respondents who could describe their company's position on renewable heat.

The panel is not designed to be representative of the non-domestic population, and may as a result be subject to some self-selection bias either in panel membership or through non-response. We mitigate this partially through weighting to ONS business population estimates, however acknowledge that some bias may remain. Options to assess the effect of this were explored, for example comparisons of environmental attitudes estimated from a representative survey with a similar population, however no comparators were available. Although this methodology does have some limitations therefore, we feel the opportunity it affords to identify decision makers in the relevant area, across a range of organisations, made it a viable choice for the evaluation.

Research now carry out a range of quality checks on their panel. Panel registrations are automatically checked at the time of registration for duplicate email address. Following initial registration, there are additional checks to identify potentially fraudulent or duplicate panellists including a check for matches across several demographic variables. On entry to each survey Research Now uses “digital fingerprinting” as a further precautionary measure to avoid duplicate entries from respondents using the same computer. These measures ensure that the Business Panel and its members are who they say they are.

Only panel members who had decision making powers in facilities were selected for the survey. The number of business panel members with decision making responsibilities in relation to facilities was 50,000.

The Business Panel includes detailed information on the industry sector of the organisation that decision makers worked in. These detailed categories were grouped into five high level sectors:

- Agriculture;
- Industrial;
- Commercial;
- Leisure; and
- Public.

There was also a high proportion of decision makers whose sector was not recorded on the Business Panel. A separate target sample size was agreed for this group to ensure that they were included in the sample.

Target sample size was set for six sector groupings (five industries and unknown) and two geographical areas (Scotland and the rest of the UK).

• Pilot sample

Both the pilot and mainstage sample were quota samples with only the target number of achieved cases specified.

For the pilot sample, the target sample size was set at 60 cases, with 15 to be achieved in each of industrial, commercial, leisure and public sectors. Agriculture was not included due to its small size. While the sector information was available from the sample, the respondents were asked to confirm their sector in the survey and this information was used to allocate cases into quotas.

At the start of the online interview respondents were asked whether they had decision making responsibilities in facilities. Respondents who indicated that they no longer had these responsibilities were screened out of the survey, as they would not have had the knowledge to answer many of the questions.

• Main stage sample

The target sample size for the main stage survey was set at 600 cases. The targets were set for the industry sectors and geographical area (only targets for Scotland and the rest of the UK were set; given the overall sample size, setting additional quotas for Wales would have meant the accuracy of the estimates for available from the sample for other sub-groups would have been reduced).

The sample was stratified by data already held by Research Now about panel members, to allow for instances where these data were out of date, or incomplete stratification variables were verified in the survey. Achieved sample counts are based on information collected through the survey.

Table 3.1 shows the total panel members on Research Now's database, the target sample size by industry and geographical area and ONS estimates of the non-domestic population by sector and geography.

Table 3.1: Available sample and target sample size by industry and geographical area

| | Available | Quotas (% of sample) | ONS distribution |
|--------------------------|-----------|--------------------------------|---------------------|
| Industry | | | |
| Agriculture | 171 | 20 (add per cent value) | 6% |
| Industrial | 3,647 | 92 | 19% |
| Commercial | 9,557 | 164 | 53% |
| Leisure | 2,791 | 92 | 13% |
| Public | 1,627 | 92 | 10% |
| Unknown | 32,207 | 92 | N/A |
| Other | N/A | 40 | N/A |
| Overall total | 50,000 | 600 | |
| | | | |
| Geographical area | | | |
| Scotland | 1,535 | 100 | 8% |
| Rest of the UK | 20,352 | 500 | 92% |
| Total | 50,000 | 600 | |

Two sample criteria were built into the sampling strategy to accommodate panel members that couldn't be assigned to an industrial sector either in advance of fieldwork (classified as 'unknown') or during field work (respondents who selected 'other' as their industrial sector). Including a quota for Unknown sector organisations, mitigates the potential for bias if they were systematically excluded. Respondents in both categories were allocated to a sector after fieldwork (and are therefore in addition to the minimum quotas for each sector outlined in Table 3.1)

With the exception of agriculture, where the panel did not contain enough members, quotas were set by sector and geography to ensure robust estimates could be created for each group. The commercial quota is set higher to reflect the ONS distribution, achieving a higher quota for this group reduced the size of the weights created when the sample was weighted back to the ONS distribution.

As with the pilot sample respondents who no longer had decision making responsibilities in facilities were screened out of the survey.

Fieldwork

All sample members who were selected for the survey were sent an invitation email by Research Now. The email explained the purpose of the study and provided a unique link to the online questionnaire.

The pilot fieldwork took place on 12 March 2014 and the mainstage fieldwork took place between 20 and 26 March 2014.

Once a quota was full, any additional cases were screened out and not included in the survey. Due to an error in fieldwork quota limits were not initially set for the industrial and commercial

sectors, which resulted in 68 additional cases being achieved across these categories. These were allocated into the 'Unknown' quota (i.e. cases where the industry was unknown on the sample frame) during fieldwork. Although this means that the 'unknown' sector quota was less than intended the effect of this was minimal as the distribution across sector of achieved interviews with organisations classified as unknown was similar to the panel overall. As the industrial and commercial sectors were initially undersampled (relative to the ONS business distribution) the additional sample in these categories increased the precision of the weighted estimates

Overall 623 interviews were achieved during mainstage fieldwork. This represents eight per cent of issued all issued cases (see Table 3.4). The survey received a complete response (either a full interview, or an organisation was screened out) from 16 per cent of the issued surveys. An additional 23 responses were achieved relative to the initial design as Research Now allowed in progress surveys to complete before closing the survey invitation.

Table 3.4: Response

| | |
|---|-------|
| Issued | 7,402 |
| Not eligible (including respondents who were either screened out or responded after their quota was filled) | 586 |
| Partials | 166 |
| Full interviews | 623 |
| Response rate | |
| Full interviews as a percentage of all issued sample | 8% |
| Respondents (full interviews and screened out) as a percentage of all issued sample | 16% |

Table 3.5 shows how the achieved cases were distributed by industry and geographical area.

Table 3.5: Achieved sample by industry and geographical area

| | |
|--|-----|
| Industry | |
| Agriculture | 22 |
| Industrial | 137 |
| Commercial | 252 |
| Leisure | 104 |
| Public | 105 |
| Other (Organisations that could not be coded to an industrial sector) | 3 |
| Total | 623 |

| | |
|--------------------------|-----|
| | |
| Geographical area | |
| Scotland | 103 |
| Rest of the UK | 520 |
| Total | 623 |

• Weighting

The sample was weighted to make the industry of the sample match that of the ONS population distribution. The ONS population figures are based on a snapshot of the Inter Departmental Business Register (IDBR) taken on 12 March 2013. The adjustment was made separately for businesses in Scotland and businesses in the rest of the UK. This was done to weight down Scottish businesses which were over-sampled as part of a Scottish boost. The weights make both the weighted UK sample and the weighted Scottish sample representative of the ONS population by industry.

The weights were then scaled to give a mean of one and to ensure that the weighted sample size matched the unweighted sample size. Table 3.5 shows the distribution of the overall UK sample, Scotland and the rest of the UK.

Table 3.5: Distribution of the overall UK sample, Scotland and the rest of the UK

| Geographical area | Industry | Population total | Achieved sample | Weight |
|-------------------|-----------------------------|------------------|-----------------|--------|
| Rest of UK | Agriculture | 5% | 4% | 5% |
| | Industrial | 19% | 22% | 19% |
| | Commercial - includes other | 53% | 42% | 53% |
| | Leisure | 13% | 16% | 13% |
| | Public | 9% | 17% | 9% |
| | Total | 100% | 100% | 100% |
| Scotland | Agriculture | 9% | 3% | 9% |
| | Industrial | 18% | 20% | 18% |
| | Commercial | 48% | 36% | 48% |
| | Leisure | 15% | 22% | 15% |
| | Public | 10% | 18% | 10% |

| | | | | |
|-------------|-----------------------------|------|------|------|
| | Total | 100% | 100% | 100% |
| Combined UK | Agriculture | 6% | 4% | 6% |
| | Industrial | 19% | 22% | 19% |
| | Commercial - includes other | 53% | 41% | 53% |
| | Leisure | 13% | 17% | 13% |
| | Public | 9% | 17% | 9% |
| | Total | 100% | 100% | 100% |
| Scotland | | 8% | 17% | 8% |
| Rest of UK | | 92% | 83% | 92% |
| Total | | 100% | 100% | 100% |

- **Questionnaire**

2.3 NON-DOMESTIC POSSIBLE APPLICANTS SURVEY

- **Introduction**

This research study is about the Renewable Heat Incentive (RHI) which is a Government funded incentive to encourage the take-up of renewable heat technologies. We want to understand businesses' and organisations' attitudes and awareness, specifically regarding the following aspects:

Energy usage;

Renewable heat technologies; and

Government support for renewable heat.

The study has been commissioned by the Department of Energy and Climate Change (DECC) and will inform a report to DECC which will be made publically available at the end of the evaluation in the summer of 2015. The findings will help inform the future development of the RHI.

We are looking for individuals who are able to provide views on behalf of their organisations to take part in the survey. Your organisation does not need to have heard of the RHI to take part; we are interested in hearing everyone's views.

If you have any questions about the research you can contact [insert name] either via email [insert email address] or by calling [insert phone number].

• Participant Instructions

When answering the questions, it is important that you provide the views of your organisation, rather than your own personal views. If your organisation has multiple branches, at different sites, this should be reflected in your answers. For example, when asked where your organisation is situated, you may select more than one region if appropriate.

After collecting some background information, we will ask questions specifically on:

Attitudes to energy

Awareness of renewable heat technologies; and

The Renewable Heat Incentive

Renewable heating technologies and renewable electricity technologies can often be mistaken for one another. Please note that this survey is specific to heating technologies. This includes, for example, solar thermal (which generates heat), but excludes solar photovoltaic (Solar PV), which generates electricity.

The survey should take approximately 10 minutes to complete.

The findings will be reported anonymously and no individuals or organisations will be identifiable in the final report. This will be available to download on the DECC website at the end of the evaluation in the summer of 2015.

1.2.1 Background Section

| 1. What is your functional role with the organisation for whom you work? |
|--|
| • Accounting/Finance |
| • Administrative/Clerical |
| • Administration/Management |
| • Communications/PR |
| • Compliance/Risk Management |
| • Creative/Media |
| • Customer Service |
| • Design/Engineering |
| • Facilities/Maintenance |
| • Human Resources |
| • Information Technology (IT) |
| • Legal |
| • Logistics/Planning |
| • Marketing/Advertising |
| • Operations/Production |
| • Owner/Partner |
| • Purchasing/Procurement |
| • Quality Assurance/Quality Control |

| |
|---------------------------------------|
| • Research & Development |
| • Sales/Business Development |
| • Security |
| • Training and Education |
| • Warehousing/Shipping/Transportation |
| • Other: [text input] |

| |
|--|
| 2. What is your level of responsibility? – HIGH |
| • Executive/Senior Management |
| • Middle Management/Line Management/Supervisory |
| • Individual Contributor/Non-Management |

| |
|---|
| 3. Are you likely to be involved in the decision making process for the purchase and installation of any heating or hot water system (including process heat)? |
| • Yes |
| • No |
| • Don't know |

[IF RESPONDED 'YES' to QUESTION 3, PROCEED TO QUESTION 4].

[IF RESPONDED 'NO' OR 'DON'T KNOW' TO QUESTION 3, END SURVEY]

| |
|--|
| 4. What is your role within the decision making process? Please select all that apply |
| • Budget holder |
| • Technical expert |
| • Final decision maker |
| • Sustainability manager |
| • Other [text input] |

| |
|--|
| 5. Which industry category does your organisation fall under? |
| • Agriculture/Forestry/Fishing |
| • Chemicals |
| • Manufacturing |
| • Utilities/Water Supply |
| • Mining/Quarrying |
| • Construction |
| • Automotive |
| • Wholesale/Retail Trade |
| • Consumer Products |
| • Transportation/Storage |
| • Catering/Restaurants |

| |
|---|
| <input type="checkbox"/> Travel/Hotel/Hospitality |
| <input type="checkbox"/> Information/Communication |
| <input type="checkbox"/> Banking/Mortgage |
| <input type="checkbox"/> Financial/Insurance |
| <input type="checkbox"/> Legal Services |
| <input type="checkbox"/> Real Estate |
| <input type="checkbox"/> Advertising |
| <input type="checkbox"/> Computer/Software/Electronic Equipment |
| <input type="checkbox"/> Market Research |
| <input type="checkbox"/> Publishing/Printing/Media |
| <input type="checkbox"/> Professional/Scientific/Technical |
| <input type="checkbox"/> Telecommunications |
| <input type="checkbox"/> Administrative/Support Service |
| <input type="checkbox"/> Business Services |
| <input type="checkbox"/> Consulting |
| <input type="checkbox"/> Public Administration/Defence |
| <input type="checkbox"/> Education |
| <input type="checkbox"/> Human Health/Social Work |
| <input type="checkbox"/> Arts/ Entertainment/Recreation |
| <input type="checkbox"/> Other Service Activities |
| <input type="checkbox"/> Other: [text input] |

6. In what region(s)/country(s) is your organisation located? Please select all that apply.

| |
|---|
| <input type="checkbox"/> North East England |
| <input type="checkbox"/> North West England |
| <input type="checkbox"/> Yorkshire & the Humber |
| <input type="checkbox"/> East Midlands |
| <input type="checkbox"/> West Midlands |
| <input type="checkbox"/> East of England |
| <input type="checkbox"/> London |
| <input type="checkbox"/> South East England |
| <input type="checkbox"/> South West England |
| <input type="checkbox"/> Wales |
| <input type="checkbox"/> Scotland |
| <input type="checkbox"/> Northern Ireland |
| <input type="checkbox"/> Channel Islands |

7. How many employees does your organisation have across all sites?

| |
|--|
| <input type="checkbox"/> 1-4 |
| <input type="checkbox"/> 5-10 |
| <input type="checkbox"/> 11 - 50 |
| <input type="checkbox"/> 51 - 250 |
| <input type="checkbox"/> More than 250 |

8. How many sites does your organisation have in England, Scotland and Wales?

- 1
- 2-5
- 6-15
- 16 - 50
- More than 50

9. Is your organisation connected to the gas grid?

- Yes, all sites are connected
- Yes, some sites are connected
- No sites are connected
- Don't know

10. Does your organisation use gas at all the sites where it is connected to the gas grid?

- Yes
- No
- Don't know

11. Do any of the following government schemes apply to your organisation? Please select all that apply.

- Climate Change Agreement
- The CRC Energy Efficiency Scheme (formerly the Carbon Reduction Commitment)
- The EU Emissions Trading Scheme
- The Climate Change Levy
- The Renewables Obligation
- Greenhouse Gas reporting
- None of the above
- Don't know

12. Do you claim Feed in Tariffs?

- Yes - for our own PV systems
- Yes - for our own wind turbines
- No
- Don't know

13. Do you purchase renewable electricity through a Power Purchase Agreement (PPA) or other arrangement?

- | |
|--------------|
| • Yes |
| • No |
| • Don't know |

14. Do you currently have any of the following renewable heating technologies installed? Please select all that apply.

These are heating systems which use energy from biomass or the sun, or which use electricity to draw heat from the ground, water, or air to provide space, hot water, or process heating. It is important to note that this does not include solar photovoltaic (Solar PV) panels as this is not a heating technology.

- | |
|----------------------------|
| • Biomass boilers |
| • Ground source heat pumps |
| • Water source heat pumps |
| • Solar |
| • Biogas plant |
| • Air to water heat pumps |
| • Bioliquid boilers |
| • Other: [text input] |
| • None |
| • Don't know |

15. What other heating technology do you have installed? Please select all that apply.

- | |
|-------------------------------------|
| • Gas boiler |
| • Oil boiler |
| • Coal boiler |
| • Electric heating |
| • Warm air heaters |
| • Direct combustion of fossil fuels |
| • Liquid Petroleum Gas (LPG) boiler |
| • Other: [text input] |
| • None |
| • Don't know |

[IF A TECHNOLOGY TYPE IS SELECTED FROM QUESTIONS 14 OR 15, ANSWER QUESTION 16]

16. What is your [text fill: technology type] used for? Please select all that apply.

- | |
|-----------------------|
| • Space heating |
| • Water heating |
| • Process heating |
| • Other: [text input] |
| • Don't know |

[REPEAT QUESTION 16 FOR EACH TECHNOLOGY TYPE LISTED IN QUESTIONS 14 AND 15]

1.2.2 Attitudes to Energy

| |
|---|
| 17. To what extent would you say that your organisation is concerned with saving energy? |
| <input type="checkbox"/> Very concerned |
| <input type="checkbox"/> Fairly concerned |
| <input type="checkbox"/> Neither concerned nor unconcerned |
| <input type="checkbox"/> Fairly unconcerned |
| <input type="checkbox"/> Very unconcerned |
| <input type="checkbox"/> Don't know |

[IF RESPONSE IS 'VERY CONCERNED' OR 'FAIRLY CONCERNED' TO QUESTION 17, ANSWER QUESTION 18]

| |
|---|
| 18. What are the reasons for your concerns? Please select all that apply. - LOW |
| <input type="checkbox"/> Climate Change |
| <input type="checkbox"/> Concern for fossil fuel depletion/supplies |
| <input type="checkbox"/> General costs |
| <input type="checkbox"/> Regulations |
| <input type="checkbox"/> Corporate Social Responsibility |
| <input type="checkbox"/> Avoidance of costs incurred through emissions reductions schemes (e.g. CRC energy efficiency scheme) |
| <input type="checkbox"/> Other [text input] |

[QUESTIONS 19 & 20 SHOULD ONLY BE ANSWERED IF PARTICIPANT DID NOT SELECT 'ELECTRIC HEATING' IN QUESTION 15]

| |
|---|
| 19. What percentage of your organisation's annual turnover/revenue, is spent on heating? |
| <input type="checkbox"/> 0-5% |
| <input type="checkbox"/> 6-10% |
| <input type="checkbox"/> 11-15% |
| <input type="checkbox"/> 16-20% |
| <input type="checkbox"/> 21-25% |
| <input type="checkbox"/> 26-30% |
| <input type="checkbox"/> Over 31% |
| <input type="checkbox"/> Don't know |

| |
|--|
| 20. As a percentage of your organisation's annual turnover/revenue, how much is spent on electricity? |
| <input type="checkbox"/> 0-5% |
| <input type="checkbox"/> 6-10% |

| |
|--|
| <ul style="list-style-type: none">• 11-15% |
| <ul style="list-style-type: none">• 16-20% |
| <ul style="list-style-type: none">• 21-25% |
| <ul style="list-style-type: none">• 26-30% |
| <ul style="list-style-type: none">• Over 31% |
| <ul style="list-style-type: none">• Don't know |

[QUESTIONS 21 & 22 SHOULD ONLY BE ANSWERED IF PARTICIPANT SELECTED ELECTRIC HEATING IN QUESTION 15]

| |
|---|
| 21. As a percentage of your organisation's annual turnover/revenue, how much is spent on electric heating? |
| <ul style="list-style-type: none">• 0-5% |
| <ul style="list-style-type: none">• 6-10% |
| <ul style="list-style-type: none">• 11-15% |
| <ul style="list-style-type: none">• 16-20% |
| <ul style="list-style-type: none">• 21-25% |
| <ul style="list-style-type: none">• 26-30% |
| <ul style="list-style-type: none">• Over 31% |
| <ul style="list-style-type: none">• Don't know |

| |
|---|
| 22. As a percentage of your organisation's annual turnover/revenue, how much is spent on electricity (excluding electric heating)? |
| <ul style="list-style-type: none">• 0-5% |
| <ul style="list-style-type: none">• 6-10% |
| <ul style="list-style-type: none">• 11-15% |
| <ul style="list-style-type: none">• 16-20% |
| <ul style="list-style-type: none">• 21-25% |
| <ul style="list-style-type: none">• 26-30% |
| <ul style="list-style-type: none">• Over 31% |
| <ul style="list-style-type: none">• Don't know |

| |
|---|
| 23. How often is heating consumption monitored in your organisation? |
| <ul style="list-style-type: none">• Constantly |
| <ul style="list-style-type: none">• Daily |
| <ul style="list-style-type: none">• Weekly |
| <ul style="list-style-type: none">• Monthly |
| <ul style="list-style-type: none">• Quarterly |
| <ul style="list-style-type: none">• Annually |
| <ul style="list-style-type: none">• Never |
| <ul style="list-style-type: none">• Don't know |

| |
|---|
| 24. Has your organisation ever undertaken an energy audit, or an assessment of energy use, that provided recommendations for improving energy efficiency? If Yes, when was this? |
|---|

| |
|-----------------------------------|
| • Yes – within the last 6 months |
| • Yes - within the last 12 months |
| • Yes – within the last 18 months |
| • Yes – over 18 months ago |
| • No |
| • Don't know |

| |
|--|
| 25. What energy efficient improvements, if any, have been made to your building or buildings? Please select all that apply. |
| • Heating controls |
| • Voltage optimisation |
| • Variable Speed drives |
| • LED lighting |
| • Thermostats |
| • Hot or cold water controls |
| • Storage heaters |
| • Fabric improvements (e.g. insulation, glazing) |
| • Other [text input] |
| • None |
| • Don't know |

| |
|--|
| 26. Have you heard of the Green Deal? |
| • Yes |
| • No |
| • Don't know |

[QUESTION 27 SHOULD ONLY BE ANSWERED IF PARTICIPANT SELECTED YES TO QUESTION 26]

| |
|--|
| 27. Have you had a Green Deal Assessment? |
| • Yes |
| • No |
| • Don't know |

| |
|--|
| 28. To what extent would you say that you are concerned about rises in energy prices in the future? |
| • Very concerned |
| • Fairly concerned |
| • Neither concerned nor unconcerned |
| • Fairly unconcerned |
| • Don't know |

[IF RESPONDENT ANSWERED 'VERY CONCERNED' OR 'FAIRLY CONCERNED' TO QUESTION 28, ANSWER QUESTION 29]

29. How would you mitigate against such rises? Please select all that apply.

- Generating electricity ourselves
- Generating heat ourselves
- Move somewhere cheaper
- Changing the fuel source for our heating
- Installing energy efficiency measures
- Changing energy supplier
- Fixing the costs of energy via a long term contract
- Other [text input]
- We would not do anything to mitigate against this impact
- Don't know

30. To what extent will rising costs influence your choice of technology in the future?

- Strongly influence
- Moderately influence
- Will have no influence
- Don't know

31. To what extent would you say that the environment and use of renewable sources of energy is something that is important to your organisation? - LOW

In this instance renewable energy is defined as any naturally occurring, theoretically inexhaustible source of energy, as biomass, solar, wind, tidal, wave, and hydroelectric power that is not derived from fossil or nuclear fuel.

- Very important
- Fairly important
- Neither important nor unimportant
- Fairly unimportant
- Very unimportant
- Don't know

1.2.3 Awareness of Renewable Heat Technologies

32. The next questions are about renewable heat technologies. How much would you say you know about renewable heat and renewable heat technologies? Would you say you...

- ... know a lot about them
- ... know a little about them
- ... are aware of them but don't understand them
- ... have never heard of them?
- Don't know

[IF RESPONDED WITH ANY ANSWER EXCEPT 'HAVE NEVER HEARD OF THEM?' TO QUESTION 32, AND IF 'NONE' OR 'DON'T KNOW' TO QUESTION 14, ANSWER QUESTION 33]

| |
|--|
| 33. How positive or negative would you say you are towards the idea of having a renewable heating system installed in your business or organisation? Would you say you are... |
| <input type="radio"/> ... very positive |
| <input type="radio"/> ... fairly positive |
| <input type="radio"/> ... neither positive nor negative |
| <input type="radio"/> ... fairly negative |
| <input type="radio"/> ... very negative? |
| <input type="radio"/> Don't know |

[IF RESPONDED WITH ANY ANSWER EXCEPT 'HAVE NEVER HEARD OF THEM?' TO QUESTION 32, AND IF NOT 'NONE' OR 'DON'T KNOW' TO QUESTION 14, ANSWER QUESTION 34]

| |
|--|
| 34. How positive or negative would you say you are towards the idea of having an additional renewable heating system or systems installed in your organisation? This would be to replace any non-renewable back-up or additional heating systems you currently have. Would you say you are... |
| <input type="radio"/> ... very positive |
| <input type="radio"/> ... fairly positive |
| <input type="radio"/> ... neither positive nor negative |
| <input type="radio"/> ... fairly negative |
| <input type="radio"/> ... very negative? |
| <input type="radio"/> We don't have any additional or back-up heating systems. |
| <input type="radio"/> Don't know |

| |
|---|
| 35. And, still thinking about renewable heating systems, please tell us to what extent you either agree or disagree with the following statements. Please remember to answer these questions on behalf of your organisation. First of all: Renewable heating systems are expensive to install. Do you... |
| <input type="radio"/> ... strongly agree |
| <input type="radio"/> ... slightly agree |
| <input type="radio"/> ... neither agree nor disagree |
| <input type="radio"/> ... slightly disagree |
| <input type="radio"/> ... strongly disagree? |
| <input type="radio"/> Don't know |

[ANSWER QUESTION 36 IF 'NONE' OR 'DON'T KNOW' TO QUESTION 14, OTHERWISE GO TO QUESTION 37]

36. Renewable heating systems would fulfil our heating requirements better than the heating system we have now. Do you...

- ... strongly agree
- ... slightly agree
- ... neither agree nor disagree
- ... slightly disagree
- ... strongly disagree?
- Don't know

37. Renewable heating systems are cheap to run. Do you...

- ... strongly agree
- ... slightly agree
- ... neither agree nor disagree
- ... slightly disagree
- ... strongly disagree?
- Don't know

38. Renewable heating systems are more reliable than conventional heating systems (for example a gas or oil boiler). Do you...

- ... strongly agree
- ... slightly agree
- ... neither agree nor disagree
- ... slightly disagree
- ... strongly disagree?
- Don't know

IF RHT INSTALLED (NOT 'NONE' OR 'DON'T KNOW' TO QUESTION 14): use [other]

IF RHT NOT INSTALLED ('NONE' OR 'DON'T KNOW' TO QUESTION 14) discard [other]

39. The next set of questions is about [other] specific types of renewable heat technology:

Prior to taking part in this survey, which of the following types had you heard of before? Please select all that apply.

It is important to note that 'solar' does not include solar photovoltaic (Solar PV) panels as this is not a heating technology.

[REMOVE [TECH TYPES] ALREADY INSTALLED FROM ANSWER OPTIONS]

- Biomass boilers
- Ground source heat pumps
- Water source heat pumps
- Solar
- Biogas plant
- Air to water heat pumps
- Bioliquid boilers
- Biomethane injection

- | |
|---|
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • None |
| <ul style="list-style-type: none"> • Don't know |

[IF NO RHT INSTALLED ('NONE' OR 'DON'T KNOW' TO QUESTION 14) THEN ANSWER QUESTIONS 40 AND 41, OTHERWISE GO TO QUESTION 42]

| |
|--|
| <p>40. Taking everything into account, which of the following renewable heating systems would you consider installing in your organisation? Please select all that apply.</p> <p>It is important to note that 'solar' does not include solar photovoltaic (Solar PV) panels as this is not a heating technology.</p> |
| <ul style="list-style-type: none"> • Biomass boilers |
| <ul style="list-style-type: none"> • Ground source heat pumps |
| <ul style="list-style-type: none"> • Water source heat pumps |
| <ul style="list-style-type: none"> • Solar |
| <ul style="list-style-type: none"> • Biogas plant |
| <ul style="list-style-type: none"> • Air to water heat pumps |
| <ul style="list-style-type: none"> • Bioliquid boilers |
| <ul style="list-style-type: none"> • Biomethane injection |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • None |
| <ul style="list-style-type: none"> • Don't know |

[IF RESPONDED 'NONE' TO QUESTION 40, GO TO QUESTION 41, OTHERWISE GO TO QUESTION 42]

| |
|--|
| <p>41. What changes would have to be made for your organisation to consider installing a renewable heat technology? Please select all that apply.</p> |
| <ul style="list-style-type: none"> • Easier installation process... |
| <ul style="list-style-type: none"> • Long term certainty over the level of government support |
| <ul style="list-style-type: none"> • Availability of suitable funding |
| <ul style="list-style-type: none"> • Less expense |
| <ul style="list-style-type: none"> • Further knowledge of renewable heat technologies |
| <ul style="list-style-type: none"> • More technologies supported by the government's non-domestic renewable heat incentive |
| <ul style="list-style-type: none"> • A reliable recommendation |
| <ul style="list-style-type: none"> • Greater reliability |
| <ul style="list-style-type: none"> • More mature and proven technologies |
| <ul style="list-style-type: none"> • Availability of technologies at a more suitable scale for my organisation's requirements |
| <ul style="list-style-type: none"> • Increased capacity (kWth) |
| <ul style="list-style-type: none"> • Eligibility of a particular renewable heat technology for the Renewable Heat Incentive |
| <ul style="list-style-type: none"> • Other: [text input] |
| <ul style="list-style-type: none"> • Don't know |

- Don't need a new heating system

42. The questions in this section are focused around who you would seek advice from if your organisation were to consider installing a new heating system.

Which of the following would you trust to provide advice about which heating system to install? Please select all that apply.

- Tradesperson (e.g. plumber, gas fitter)
- Energy supplier
- Green Deal assessor
- Energy Savings Advice Service
- Other Energy Saving Trust advice service
- Carbon Trust
- From the government (including DECC)
- Ofgem
- Private energy advice service
- Consultant
- Friend/family
- Community group
- Other organisation that has already installed renewable heating technology
- Building management/facilities
- Designer/architect
- Own internal energy expertise
- Energy Brokerage
- Other: [text input]
- None of the above
- Don't know

[ANSWER QUESTION 43 IF NOT 'DON'T KNOW' OR 'NONE OF THE ABOVE' TO QUESTION 42, AND IF MORE THAN ONE RESPONSE IS CHECKED]

43. Which of these would you trust the most to provide advice about which heating system to install?

- Response options: [list of answer options coded in Question 42]
- Don't know

44. Which of the following would you trust to provide advice if you were to consider installing [IF RHT ALREADY INSTALLED NOT 'NONE' OR 'DON'T KNOW' TO QUESTION 14: additional] renewable heating systems.

- Tradesperson (e.g. plumber, gas fitter)
- Energy supplier
- Green Deal assessor
- Energy Savings Advice Service

| |
|--|
| <ul style="list-style-type: none">• Other Energy Saving Trust advice service |
| <ul style="list-style-type: none">• Carbon Trust |
| <ul style="list-style-type: none">• From the government (including DECC) |
| <ul style="list-style-type: none">• Ofgem |
| <ul style="list-style-type: none">• Private energy advice service |
| <ul style="list-style-type: none">• Consultant |
| <ul style="list-style-type: none">• Friend/family |
| <ul style="list-style-type: none">• Community group |
| <ul style="list-style-type: none">• Other organisation that has already installed renewable heating technology |
| <ul style="list-style-type: none">• Building management/facilities |
| <ul style="list-style-type: none">• Designer/architect |
| <ul style="list-style-type: none">• Own internal energy expertise |
| <ul style="list-style-type: none">• Energy Brokerage |
| <ul style="list-style-type: none">• Other: [text input] |
| <ul style="list-style-type: none">• None of the above |
| <ul style="list-style-type: none">• Don't know |

[ANSWER QUESTION 45 IF NOT ('DON'T KNOW' OR 'NONE OF THE ABOVE') TO QUESTION 44, AND IF MORE THAN ONE RESPONSE CHECKED]

45. Which of these would you trust the most to provide advice about which heating system to install?

| |
|---|
| <ul style="list-style-type: none">• Response options: [list of answer options coded in Question 44] |
| <ul style="list-style-type: none">• Don't know |

1.2.4 The Renewable Heat Incentive Experience

46. The final section of the survey is about the Renewable Heat Incentive (the RHI). The RHI is a Government scheme that pays businesses and organisations that generate and use renewable energy to heat their buildings. Organisations are paid for the heat they produce through a tariff system that provides different rates for different technologies. The current scheme is only available to non-domestic heat producers, with a household scheme due to open in spring 2014. Before we contacted you, had you ever heard of the Renewable Heat Incentive?

| |
|--|
| <ul style="list-style-type: none">• Yes |
| <ul style="list-style-type: none">• No |
| <ul style="list-style-type: none">• Don't know |

[IF ANSWERED 'YES' TO QUESTION 46, ANSWER QUESTIONS 47 AND 48]

47. How did you hear about the Renewable Heat Incentive? Please select all that apply.

| |
|---|
| <ul style="list-style-type: none">• Ofgem |
| <ul style="list-style-type: none">• Other government departments/local government |

| |
|---|
| • Another company/organisation |
| • A trade association |
| • A supplier of renewable heat technologies |
| • An installer of renewable heat technologies |
| • DECC Website |
| • DECC (source of information other than website) |
| • Other website |
| • Consultant |
| • Social media |
| • At an event |
| • A colleague |
| • Newspapers |
| • Trade magazines |
| • Other: [text input] |
| • Don't know |

48. Was the information you received from this source useful?

| |
|--------------|
| • Yes |
| • No |
| • Don't know |

[IF ANSWERED 'YES' TO QUESTION 48, ANSWER QUESTION 49]

49. Why was it useful? Please select all that apply

| |
|--|
| • It explained which renewable heat technologies are supported by the Renewable Heat Incentive |
| • It explained how the application process works |
| • It gave me information about the tariffs available |
| • It explained how the Renewable Heat Incentive would be useful for my organisation |
| • Other: [text input] |

[IF ANSWERED 'NO' TO QUESTION 48, ANSWER QUESTION 50]

50. Why was it not useful? Please select all that apply.

| |
|--|
| • It did not explain which renewable heat technologies are supported by the Renewable Heat Incentive |
| • It did not provide information about renewable heat technologies |
| • It did not direct me to where to go for further information |
| • It did not explain how the application process works |
| • It did not give me information about the tariffs available |
| • Other: [text input] |

[ANSWER QUESTION 51 IF RESPONDED 'YES' TO QUESTION 46]

51. Has your organisation considered applying for the Renewable Heat Incentive?

- Yes and decided not to apply
- Yes and decided to apply
- Yes and still undecided
- No
- Don't know

[ANSWER QUESTION 52 IF RESPONDED 'YES AND DECIDED NOT TO APPLY' OR 'NO' TO QUESTION 51, AND IF NO RENEWABLE HEAT TECHNOLOGY INSTALLED ('NONE' OR 'DON'T KNOW' TO QUESTION 14)]

52. What were the reasons your organisation decided not to apply? Please select all that apply.

- Do not trust renewable heat technologies
- Do not have space available to install a renewable heat technology
- The renewable heating options I have considered are not covered under Renewable Heat Incentive
- There are no suppliers in my locality
- The application process seems too complicated
- The amount of financial support isn't sufficient
- The risks associated with installing a renewable heat technology are too great
- The Renewable Heat Incentive application process is too time intensive
- Renewable heat technologies are too expensive
- It wasn't technically feasible for the site
- Other: [text input]
- Don't know

[ANSWER QUESTION 53 IF RESPONDED 'YES AND DECIDED NOT TO APPLY' OR 'NO' TO QUESTION 51, AND IF A RENEWABLE HEAT TECHNOLOGY IS INSTALLED (NOT 'NONE' OR 'DON'T KNOW' TO QUESTION 14)]

53. What were the reasons your organisation decided not to apply? Please select all that apply.

- Insufficient information on the Renewable Heat Incentive
- The amount of financial support isn't sufficient
- The application process is too time intensive
- The application process is too complicated
- The renewable heating options I have considered are not eligible for the Renewable Heat Incentive
- Lack of confidence in continuation of the scheme
- Other: [text input]
- Don't know

1.2.5 Smart Meters

54. What were the reasons your organisation decided not to apply? Please select all that apply.

Both Smart Meters and Advanced Meters record information on energy usage and send meter readings directly to energy suppliers. This means meter readings are provided automatically and remotely rather than having to be read off manually from the meter. - LOW

As far as you are aware, do you have any smart or advanced meters for electricity in your organisation?

Information for participants provided below:

“Advanced meter” – this is a meter that can provide half-hourly electricity or hourly gas usage information that is remotely accessible by the supplier and which consumers can access (for instance, through online reports). Advanced meters typically feed information one-way only (sending the data back to the energy supplier). The energy company cannot communicate back with the meter, for example if there is a problem.

“Smart meter” – this is the next stage on from an advanced meter. Smart meters also provide detailed data on energy consumption but in addition they allow two-way communications between the energy supplier and the meter (so the energy company can access the meter remotely if there is a problem).

- Yes
- No
- Don't know

[ANSWER 55 IF RESPONDED 'YES' TO QUESTION 54, OTHERWISE TO QUESTION 56]

55. As far as you are aware, do you have any smart or advanced meters for gas in your organisation? – LOW

- Yes
- No
- Don't know

56. And, finally, please select the option which best describes the ownership of the sites within your organisation:

- Organisation owns all sites
- Organisation owns some sites and rents others
- Organisation rents all sites
- Other [text input]
- Don't know

1.3 End Questionnaire Text

Thank you for your participation in this questionnaire. The views of your organisation play a significant part in the development of the Renewable Heat Incentive. You will be able to access the final report and results of the study online via the DECC website once it is published in the summer of 2015.

If you have any questions about the research you can contact [insert name] either via email [insert email address] or by calling [insert phone number].

4. Qualitative study of possible non-domestic applicants

2 4.1 Research aims

This report summarises the findings from a qualitative study of possible non-domestic applicants. The study aimed to explore possible applicants’:

- Views of RHTs and facilitators and barriers to installation;
- Awareness and understanding of RHI, including sources of information;
- Views on facilitators and barriers to RHI applications both in relation to the scheme itself and wider contextual factors.

3 4.2 Methodology

This was a qualitative study designed to explore the views and experiences of non-domestic possible applicants to the RHI. A qualitative approach was chosen because it allows for in depth exploration of respondents’ views and experiences in an unstructured way that is ideal for the exploratory nature of the research questions:

- To explore the facilitators and barriers to RHT installation;
- To explore awareness and understanding of RHI;
- To identify facilitators and barriers to RHI applications.
- Exploratory in nature, this study aimed to gather in-depth feedback from non-domestic possible applicants closest to the schemes (those who had either installed an RHT but not applied for the RHI, or had considered (or were considering) an RHT in the future). The findings from this strand of the evaluation are therefore intended to complement the findings from the non-domestic wider business survey which provides a broader snapshot of the views and experiences of the wider business community. In total, 23 telephone interviews were conducted with businesses across a range of business sectors and regions.

3.2.1.1.1

3.2.1.1.2 *Sampling and recruitment*

A sample frame was drawn from publically available business lists and the sample was purposively selected to achieve diversity in relation to business sector and region.⁸ These criteria were chosen because there are differences in take-up of RHI by sector and region and it was important to reflect this diversity within the sample.

⁸ These lists were online business directories including; for England, Yell.com and 192.com; for Wales, iwales.co.uk; for Scotland, iscotland.co.uk. Organisations were not targeted specifically, rather we filtered the search by sector and region to provide a list of organisations that were relevant to the study.

Businesses were initially contacted by telephone and a short screening questionnaire conducted aimed at identifying businesses that had the potential to be applicants to the RHI. These were businesses that had either:

- installed RHTs but not applied for the RHI, or
- had considered (or were in the process of considering) RHT installation.

A copy of the screener used to identify potential applicants is appended here. Further information was also sent by email, including a leaflet providing further details about the study (a copy of the leaflet is appended here).

In total telephone calls were made to 745 businesses, from which 200 businesses were screened (the remaining were 'non-responses' where we were unable to contact an appropriate member of staff or 'opt-outs' where further participation in the research was declined). Of the 31 businesses found to be eligible to participate, 23 interviews were achieved.

In larger organisations (for example, Local Authorities, Hospital Trusts, supermarket chains) respondents were typically staff members with a specific responsibility for energy, typically Energy Managers. In the case of small businesses, it was less likely to have a member of staff with this specific responsibility, so respondents were typically Managing Directors and Owners.

Identifying and contacting the appropriate staff member to complete the screening process was challenging. In some instances businesses had a 'no research' policy, in other cases contact details were incorrect or phones went straight to voicemail with no opportunity to speak to a member of staff. Organisations with a staff member specifically responsible for energy use were easier to reach and screen for eligibility. Consequently, large organisations like Local Authorities and educational institutions (for example, Higher Education establishments), were easier to engage in the research and were well represented in our achieved sample. In contrast, some sectors were hard to engage and limited interviews were conducted with businesses in the agricultural and commercial sectors. As a result, sector specific issues for these groups may not have been raised and this represents a limitation of the achieved sample and consequently a limitation in the findings. In contrast, good representation in the Public / Non Profit sectors; and in the Education sector (specifically Higher Education) allow us to have greater confidence that the findings of the study reflect the range of views and experiences in these sectors.

The achieved sample of 23 interviews is smaller than our target which was to achieve between 40 and 50 interviews. The high level of 'non-response' and the high number of businesses screened out as 'ineligible' made the recruitment process challenging and ultimately meant that we were unable to achieve the intended sample size within time and budget. Again, this represents a limitation in the study, particularly for sectors that were less well represented (Commercial and Agricultural sectors). Table 4.1 provides a break-down of the achieved sample.

Table 4.1: Achieved sample of non-domestic possible applicants

| | | <i>Achieved sample</i> | | |
|--------------|----------------------------|-------------------------------------|---|-----------|
| | | Installed RHT (not applied for RHI) | Considering / considered RHT installation | Total |
| Sector | Agriculture | 0 | 1 | 1 |
| | Commercial | 1 | 1 | 2 |
| | Education | 4 | 1 | 5 |
| | Industrial | 2 | 3 | 5 |
| | Leisure | 0 | 3 | 3 |
| | Public sector / non-profit | 4 | 3 | 7 |
| Region | East | 3 | 1 | 4 |
| | London and South East | 1 | 3 | 4 |
| | North East | 0 | 2 | 2 |
| | North West | 0 | 1 | 1 |
| | South West | 1 | 1 | 2 |
| | East Midlands | 1 | 1 | 2 |
| | West Midlands | 0 | 1 | 1 |
| | Scotland | 3 | 2 | 5 |
| | Wales | 1 | 0 | 1 |
| | UK wide | 1 | 0 | 1 |
| Total | | 11 | 12 | 23 |

3.2.1.1.3 Fieldwork and analysis

Interviews were conducted in March and April 2014. Topic guides were used to guide the discussions and tailored guides were developed for businesses that had installed RHTs but not applied for RHI; and those that were considering or had considered RHT installation. An example guide is appended here. Interviews took approximately half an hour and were digitally recorded and transcribed verbatim for full analysis.

The qualitative data were analysed using Framework - an approach to qualitative data management, which is systematic and comprehensive. This approach ensures the study's findings are robust and grounded in the data (Ritchie et al, 2013). The first stage of analysis involves identification of emerging issues to inform the development of a thematic framework. The column headings on the matrix relate to key sub-topics, and the rows to individual respondents. A copy of the themes used in the thematic framework is appended here. Data from each case is then summarised in the relevant cell. This approach ensures that the analysis is comprehensive and consistent. Organising the data in this way enables the views, circumstances and experiences of all respondents to be explored within a thematic framework that is both grounded in, and driven by, their own accounts. The thematic matrices allow for the full range of views and experiences to be compared and contrasted both across and within cases, and for patterns and themes to be identified and explored.

The findings presented in the report reflect the range and diversity of views and experiences of those interviewed. As this was a small scale qualitative study, the prevalence of views and


experiences arising from the data are not reported. Verbatim interview quotations are used in the report to highlight themes and findings where appropriate.


3.2.2 Recruitment leaflet:

RESEARCH PROJECT

The Renewable Heat Incentive: research with potential applicants







What is the research about?
 This research study is about the Renewable Heat Incentive (RHI) which is a Government funded incentive to encourage the take-up of renewable heat technologies. We want to talk to businesses and organisations that have the potential to apply for the RHI, but have not yet done so. In particular we are interested in talking to you about:

- o your energy uses and how decisions are made about the type of heating technology you utilise, and
- o your awareness of the RHI and the factors that encourage and discourage take-up of the RHI.

The study has been commissioned by the Department of Energy and Climate Change (DECC) and will inform a report to DECC which will be made publically available at the end of the evaluation in the summer of 2016. The evaluation is being conducted by a consortium comprised of NatCan Social Research, Eunomia Research & Consulting, Frontier Economics and the Centre for Sustainable Energy.

Who can take part?
 We want to speak to businesses and organisations that have the potential to apply for the RHI, but have not yet done so. You do not need to have heard of the RHI to take part, we are interested in hearing everyone's views.

What does taking part involve?
 Taking part involves discussing your experiences and views in a telephone interview at a time that is convenient to you. The interview would be conducted by a researcher from NatCan or Eunomia and would last no longer than 30 minutes.

We will record the discussion so that we have an accurate record of what has been said. Everything discussed in the interview is confidential and the recording is stored securely in accordance with the Data Protection Act 1998.

Participation is completely voluntary and you are under no obligation to take part.

What will happen to the findings from the research?
 Findings from the interviews will contribute to a report for DECC which will help inform the future development of the RHI. Findings will be reported anonymously and no individuals or organisations will be identifiable in the report. The final integrated report will be available to download on the DECC website at the end of the evaluation in the summer of 2016.

How do I find out more about the research?
 If you have any questions about the research you can email [insert name] or call [insert number].

3.2.2.1 Recruitment screener:

3.2.2.1.1.1.1

3.2.2.1.1.1.2 A - INTRODUCTION

Verify company name

My name is [AS APPROPRIATE], and I am a researcher from NatCen Social Research/ Eunomia, calling on behalf of the (UK) Government’s Department of Energy and Climate Change. We are conducting research on heating systems used by businesses/organisations, and are particularly interested in the decision making processes around, and requirements of, new heating systems. The research is part of an evaluation of the Renewable Heat Incentive, a Government scheme designed to support the uptake of renewable heating technologies.

Would it be possible to speak to someone in the organisation who is, or would be, involved in the decision-making process for choosing and installing a new heating system?

If this is the person we need to speak to go to **C**.

If person responsible available go to **B**.

If person responsible for heating installations **unavailable** ask for their:

Name: _____

E-mail address: _____

Tel no: _____

Suitable time to contact: _____

Send research information by e-mail and contact again at suitable time **or** in 1-2 days’ time. Note call attempts below. Update recruitment log after 3 tries.

| CALL ATTEMPTS | | |
|---------------|-----|------|
| | Day | Time |
| 1. | | |
| 2. | | |
| 3. | | |

3.2.2.1.1.1.3 B. INTRODUCTION

My name is [AS APPROPRIATE], and I am a researcher from NatCen Social Research/ Eunomia, calling on behalf of the (UK) Government's Department of Energy and Climate Change. We are conducting research on heating systems used by businesses/organisations, and are particularly interested in the decision making processes around, and requirements of, new heating systems. The research is part of an evaluation of the Renewable Heat Incentive, a Government scheme designed to support the uptake of renewable heating technologies. We are not trying to sell you anything.

I would like to ask you a few questions about your current heating installation. Are you happy to answer these questions?

If **YES**: continue

If **No**: Is there someone else I could speak to? If **YES** start at **B**. If **No**: **END**

3.2.2.1.1.1.4 C. RENEWABLE HEATING INSTALLATION

Have you installed any Renewable Heat Technology since 15 July 2009 that could have been eligible for the Renewable Heat Incentive?

If **NO**: go to section **D**

If **DON'T KNOW**: prompt with list of renewable heating systems (see below).

If **still DON'T KNOW**: ask if there is anyone else who might know.

If **there is**: go to **B**

If **there isn't**: **END**

If **YES**: continue:

What type of renewable heating system did you install?

Record type of RHT (refer to list): _____

- *Biomass boilers*
- *Ground source heat pumps*
- *Solar thermal*
- *Biomethane injection*
- *Biogas plants: Size? (>200kw thermal) _____*
- *Biogas combined heat and power boilers (CHPs)*
- *Deep geothermal power*
- *Air to water heat pumps*

Other: _____

Have you at any point applied for the RHI?

If **YES**: **END**

If **No**: Go to **Section E**.

D. POTENTIAL TO INSTALL A RENEWABLE HEAT TECHNOLOGY

Are you familiar with any of the following renewable heat technologies:

- *Biomass boilers*
- *Ground source heat pumps*
- *Solar thermal*
- *Biomethane injection*
- *Biogas plants*
- *Biogas combined heat and power boilers (CHPs)*
- *Deep geothermal power*
- *Air to water heat pumps*

If yes: since 15th July 2009 have you considered, or are you currently considering any of these technologies for installation in your business/organisation?

If **YES**: go to Section **E**.

If **NO**: **END**

E. RESEARCH PARTICIPATION

We would like to invite you to take part in the research for the evaluation of government support for renewable heating systems. This will mean taking part in a 30 minute interview over the phone, at a later time.

You are under no obligation to take part but understanding your choice of heating installation and views on Renewable Heating Technologies and government support are important for the research we are conducting. Findings from the evaluation will be used to understand the scheme's performance to date and inform its future development. The interview is confidential and anonymous - unless you choose to allow DECC to have access to your information to recontact you. The findings will inform a report to DECC which will be made publically available at the end of the evaluation in the summer of 2015.

I can tell you a little bit more about the research now or if you prefer I can send some information by email. *Refer to research information leaflet.*

Would you be happy to take part in an interview?

If **YES**: continue

If **NO/UNSURE**: offer to send information about the research. If YES, ask for/confirm email address.
Thank you for your time – END.

ARRANGE INTERVIEW TIME/DATE - note contact details below

3.2.2.2 Example topic guide:

1.1 TOPIC GUIDE 1: Installed RHTs but not applied for RHI

1.1.1 Researcher Introduction

- Thank participant for participation.
- Introduce self and NatCen (as independent research contractor).
- We have been commissioned by the Department of Energy and Climate Change (DECC) to evaluate the Renewable Heat Incentive (RHI) which was launched in 2011. The RHI is a Government funded incentive to encourage the uptake of renewable heat technologies. DECC would like to find out more about how your business/organisation makes decisions about the type of heating technology used, your views on these technologies and on the RHI itself.
- The interview will last no longer than 30 minutes.
- We have a range of topics in mind that we'd like to speak to you about but compared to a survey questionnaire the interview will be discursive in style. We would like to cover the following topic areas:
 - Your attitude to heating and energy use;
 - Related decision-making; and
 - Awareness of the RHI
- There are no right or wrong answers. If you're not sure how to answer a question feel free to say so. We're not expecting you to be an expert on the RHI. You do not even need to have heard of the RHI to take part; we are interested in hearing everyone's views.
- Participation is completely voluntary and you do not have to answer any questions you do not want to.
- What you say is confidential, it will not be possible to identify anyone in the report and we will not inform DECC or anyone else about who has taken part.
- With your permission we would like to record the interview and data will be stored securely in accordance with the Data Protection Act 1998. Recordings are only accessible to the research team and are destroyed after the research is finished. Recording the interviews will allow us to ensure we accurately capture your views. During the interview it also allows us to concentrate on the discussion rather than taking notes and ensures we don't miss anything you tell us.
- Check if any questions before we start and ask permission to start recording.

1.1.2 Background Information

Aim: to obtain information about the respondent and the business

- **Respondent role:** department/responsibilities
- **Business**

- Description of business - refer to breakdown provided by Eunomia
- Number of buildings; sites responsible for; size: approx no. of employees
- Regional/country coverage
- On/off gas grid
- **Heating coverage**
 - Sites/buildings covered (whether they have multiple sites); part of a district heating network if applicable
 - Ownership – heat-user (business), Energy Savings Company (ESCO) (private or public), cooperative, housing association, ‘social landlord’
- **RHT heating system**
 - Type of heating installation; capacity (*cross-check with screener*)
 - When installed
 - Use – process; water; space; combinations of these

1.1.3 Energy Consumption and Efficiency

Aim; to explore awareness of energy consumption/cost (general and with specific reference to heating) and views on energy efficiency

- **Heating consumption and costs**
 - Monitoring of energy consumption - do they, how, why, what is done with results
 - Cost of energy use and importance of this to the business; split between process and heat if applicable
- **Energy Efficiency Schemes**
 - Involvement in any other government energy efficiency schemes (e.g. Climate Change Agreements, EU ETS, Green Deal Assessment)
- **Energy Efficiency**
 - Any energy efficiency improvements
 - awareness of; any installed; why – related or unrelated to RHT; plans for additional
 - Any energy efficiency assessments/audits – when; why

1.1.4 Decision to Install New Technology

Aim: to explore decision-making in relation to installing RHTs

- **Old heating system**

Whether RHT replaced another heating system or was part of an expansion of (process/space) capacity; how far in advance this decision was made.

- Type of old heating system (if applicable), e.g. oil or gas boiler, electric heaters or another RHT
- Reasons for replacing old heating system: age of system; running costs; size; effectiveness; use; regulatory restrictions
- Why it was replaced at that time (planned, broken down etc.)

- Staff (i.e. roles) involved in decision to replace old system / expand capacity;
- **Choosing a new heating system**
- Information/advice received, what info; from where; how was it useful
- Prior knowledge of RHTs
- Discussion around research of RHTs and other systems

Reason for RHT rather than non-RHT system- *This is about the choice between a renewable and non-renewable system*

Probe for consideration of:

- Reputational considerations
- Corporate Social Responsibility
- Energy assessments / audits
- Environmental considerations
- Costs
- Technology; performance; confidence; reliability
- Staff (i.e. roles) involved in final decision;
- Reasons for choice of RHTs *This about the choice of a specific renewable heat technology*

Probe for consideration of:

- Type of technologies – range of options considered
- Sizes
- Cost / availability of subsidies
- Knowledge/awareness of alternatives
- Financial considerations
 - Cost of RHT; capital cost; cost of installation; payment method; pay-back period; hurdle rates
 - Sources of finance – loan, private funds, Dedicated Energy Supply Company, Grants etc.
- Views on choice of RHT: right choice for business?
- RHTs installation

Note: businesses may have installed more than one RHT. Discuss the following in relation to all RHT installations if multi-technology business

- Supplier and supply chain (e.g. installers, design consultants, engineering, procurement and construction (EPC) contractors)
- Planning permission needed – any issues/difficulties getting it?
- Other regulatory compliances; what; where; impact
- Installation process; what worked well; challenges
- **Views of RHT installation now it is installed**
- Effectiveness of/issues with the installation
- Comparison with previous heating system if relevant

1.1.5 Knowledge of RHI and Reasons for Not Applying

- **Finding out about RHI**
- Sources of information on RHI (if any) (installer, event, government publication, word of mouth, other government policy or scheme) ; what info; who from; was it useful
- Views on information received (if received any)
 - Whether sufficient to inform a decision
 - What was missing? What would they have needed to know? From who?
- Suggestions for promoting / raising awareness of RHI

IF HAS PRIOR AWARENESS OF RHI:

- Understanding of how RHI works
- Eligibility criteria
- Accreditation of RHTs
- Application process
- Incentive/payment/tariff structure/degression

IF HAS NO PRIOR AWARENESS OF RHI:

[Researcher to explain RHI using info sheet]

- Why are they not aware of the RHI
- Any engagement with other government schemes
- Any discussion with supply chain about the RHI?
- No dedicated role in organisation for this?

1.1.6 RHI Decision Making

- **Initial views on RHI scheme (based on info provided by Researcher)**
- Views on RHI in principal
- **Reasons for not applying for RHI**
- Awareness; why not before
- Business reasons; investment cycle
- RHI specific reasons (e.g. degression)
- Chosen technology / installation not being eligible for support
- Financial constraints
- **What would have changed their mind (if still not interested)**
- More/different information
- Application process ; easier; quicker; more guidance
- Different funding structure / higher tariffs
- Different technology types being eligible for support (if so, which ones)
- **Influence of key organisations**

- Issues relating to key players of the scheme (DECC, Ofgem)
- **For people who are now interested**
- Why are they now interested?

1.1.7 END

- Ask if respondent has anything else to add
- Stop recording
- Thank participant
- Reassure about confidentiality
- Explain next steps of research
- Check whether participant has questions about the research
- Re contact question:

The Department of Energy and Climate Change (DECC) may conduct further research about the RHI and RHTs. DECC or a research company appointed by DECC may wish to contact you for research purposes only.

Would you be happy for us to give your contact details to DECC?

3.2.2.3

3.2.2.4 Thematic framework structure:

3.2.2.4.1.1 1.1 Background information

Respondent role, Description of business - size, no. employees, regional/country coverage
On/off gas grid, type of RHT heating installation, when installed, purpose e.g. water, space-
Sites covered; district coverage, ownership

3.2.2.4.1.2 1.2 Energy consumption & efficiency

Monitoring of consumption, cost of use, involvement in other government efficiency schemes,
energy efficiency improvement, views on efficiency of RHT, efficiency assessments

3.2.2.4.1.3

3.2.2.4.1.4 1.3 Decision to Install New Technology

Details of old heating system, reasons for replacing. staff involved in decision, choosing a new
heating system - info sources, options explored, prior knowledge of RHTs, reason for choosing
RHT, staff involved in decision

3.2.2.4.1.5 1.4 RHT installation

Reasons for choice of RHTs: type of technologies: sizes, suitability. Financial information: cost
of RHT; capital cost; cost of installation; payment; pay-back period; hurdle rates, supplier and
supply chain, planning permission needed, coverage of RHT, Installation process

3.2.2.4.1.6 1.5 Views of RHT installation

Views on choice of RHT, effectiveness of/Issues with the installation, comparison with previous
heating system

3.2.2.4.1.7 1.6 Knowledge & understanding of RHI

Sources of information, views on information, suggestions for raising awareness of RHI,
understanding of how scheme works, if no prior awareness of RHI – reasons

3.2.2.4.1.8 1.7 RHI decision-making - reasons for not applying

Views on RHI, reasons for not applying, what changes would make them apply

3.2.2.5 1.8 Other

5. Qualitative study of multiple applicants

4 Research Aims

This annex summarises the methodology and findings from qualitative research with applicants who have submitted more than one application to the Renewable Heat Incentive (RHI), herein 'multiple applicants'. In designing and conducting the applicant survey, it became clear that there was a significant minority of organisations that had submitted multiple applications to the RHI. These organisations are of specific interest to the evaluation, however it was not felt that the applicant survey was either the most efficient or appropriate way to collect data specifically on the experience of multiple applicants. Therefore, this qualitative strand of research was designed and aimed to achieve the following objectives:

- map the range of motivations of multiple applicants to the RHI
- identify the specific motivations for deploying different types of RHTs
- describe multiple applicants' views of the RHI application process and how their experience has changed by technology and over time
- explore applicants' experiences of operating multiple applications
- identify the business models used to deploy multiple applications
- describe the range of benefits experienced by installing multiple RHTs and of submitting multiple applications to the RHI
- identify any ways in which the RHI could better encourage further multiple applications
- identify any good practice/lessons learnt which could be shared/replicated

5 Methodology

5.2 Sampling and recruitment

Initial analysis of the applicant data for the non-domestic RHI identified a significant minority of 'multiple applicants'. These are identified as two or more applications from the same postcode/telephone number from the RHI administrative data provided by Ofgem.

Of 4,307 applications for individual RHT technologies for which we were given contact information, 2,825 of these were identified as being the only application made by that organisation. The remaining 1,482 applications were accounted for by multiple applications from 424 organisations. Table 5.1 shows the frequency of these multiple applicants broken down by four categories.

Table 5.1: Breakdown of Multiple Applicant Typologies

| | >=2 applications Same technology for all applications Same application status for all applications | >=2 applications Different technologies Same application status for all applications | >=2 applications Same technology for all applications Different application status' | >=2 applications Different technologies Different application status' | Total |
|-------------------------|--|--|---|--|-------|
| Number of organisations | 226 | 46 | 127 | 26 | 424 |
| Number of installations | 658 | 103 | 634 | 97 | 1,482 |

Another way of examining the multiple applicants is to consider what applications for technologies are made by multiple applicants. Table 5.2 illustrates that some of the less prevalent technologies overall are more likely to be part of a multiple installation than a single installation, notably solar thermal.

Table 5.2: Breakdown of Technology Type vs Single or Multiple Applicant

| | | Whether application is unique or one of many | | |
|-----------------|-------------------------|--|--------------------|-------|
| | | Single Applicant | Multiple Applicant | Total |
| Technology Type | Bio-Methane | 4 | 3 | 7 |
| | Biogas | 8 | 3 | 11 |
| | Ground Source Heat Pump | 111 | 71 | 182 |
| | Municipal Solid Waste | 1 | 0 | 1 |
| | Solar Thermal | 53 | 119 | 172 |
| | Solid Biomass Boiler | 2,638 | 1,281 | 3,929 |
| | Water Source Heat Pump | 10 | 5 | 15 |
| Total | | 2,825 | 1,482 | 4,317 |

The administrative data, however, was not reliable in capturing all of the multiple applicants taking part in the RHI. The data provided was based on a capture of the RHI database as of 31st December 2013 and did not systematically capture details of multiple applicants (for example, a specific question is not included within the application process or an 'applicant ID' assigned to each application). Instead, the telephone number associated with each application was used to best approximate and identify multiple applicants. Thus we were aware that the number of multiple applicants reported within the applicant data was likely to be an underestimate, as it would only link applications with a shared telephone number. Although no data were available on this aspect of the multiple applicants, it was expected (and subsequently confirmed through the study with multiple applicants) that multiple applicants would fall into one of the following sub-groups:

- Those who had made multiple applications for RHTs at a single site;
- Those who had made multiple applications for RHTs at multiple sites;
- Those who had made multiple applications for RHTs at multiple sites not owned and/or operated by them;

Accordingly we included a specific question within the non-domestic applicant survey to identify multiple applicants. This would also ensure an updated list of multiple applicants, as the fieldwork for the non-domestic applicant survey took place a few months after the capture of the database. The sample frame for the research was then drawn from multiple applicants who had participated in the non-domestic applicant survey (i.e. those who agreed to be re-contacted by researchers). We acknowledge there is potential for bias in our sample frame as it only included multiple applicants who responded to the survey, however there is no evidence to suggest this is a particular issue.

The sample was constructed to ensure diversity of technology combinations with other criteria including application status and geography captured where possible. Following the interviews within the non-domestic applicant survey, 78 per cent of multiple applicants were identified as being available for re-contact; meaning that a total of 104 multiple applicants, covering 508 installations were identified as the sample frame for the qualitative study of multiple applicants. This group can be broken down as follows:

- 34 applicants who were previously identified as being single applicants in the applicant data as of 31st December 2013, but stated that they had multiple applications within their response to the non-domestic applicant survey;
- 36 applicants who had applied for the same technology and had the same application status for each of their applications;
- 10 applicants who had applied for different technologies but had the same application status for each of their applications;
- 23 applicants who had applied for the same technologies but had different application status for their applications; and
- 1 applicant who had applied for different technologies and had different application status for their applications.

The coverage of the sample frame included the following combinations of technologies:

- Biomass only: 83 applicants;
- GSHP only: 5 applicants;

- Solar Thermal only: 5 applicants;
- Biomass and Solar Thermal: 7 applicants;
- Biomass and GSHP: 3 applicants; and
- Biomass, Solar Thermal and GSHP: 1 applicant.

In addition to coverage of the technologies above, multiple applicants also covered different industrial classifications, as shown in Table 5.3.⁹ Organisations were purposively sampled to cover a range of technologies and sectors. Where organisations had installed multiple biomass systems the sample was designed to include those with relatively large and small numbers of systems.

| Table 5.3: Sample distribution by industrial sector | |
|---|----------------------------|
| Industry | Number in available sample |
| Agriculture | 38 |
| Industrial | 10 |
| Commercial & Leisure | 47 |
| Public | 9 |
| Total | 104 |

In total 20 telephone interviews were conducted. These can be summarised in Table 5.4.

| Table 5.4: Achieved sample of multiple applicants | |
|---|---------------------------|
| | Number in achieved sample |
| Technology Combinations | |
| Biomass Only | 8 |
| GSHP Only | 3 |
| Biomass and Solar Thermal | 3 |
| Biomass and GSHP | 2 |
| Solar Thermal and GSHP | 2 |

⁹ Note that where applicants' installations are listed under multiple industrial classifications, applicants are categorised according to the most common industrial classification recorded

| | |
|--|----|
| Biomass, Solar Thermal and GSHP | 2 |
| Total | 20 |
| | |
| Sector | |
| Agriculture: Crop and animal production, hunting and related service activities | 5 |
| Agriculture: Forestry and logging | 1 |
| Industrial: Other mining and quarrying | 1 |
| Commercial & Leisure: Accommodation | 7 |
| Commercial & Leisure: Libraries, archives, museums and other cultural activities | 2 |
| Commercial & Leisure: Retail trade, except of motor vehicles and motorcycles | 1 |
| Commercial & Leisure: Activities of head offices; management consultancy activities | 1 |
| Public: Education | 2 |
| Total | 20 |
| | |
| Region | |
| South West | 4 |
| North West | 2 |
| Yorkshire and the Humber | 3 |
| North East | 3 |
| Scotland | 3 |
| East Midlands | 1 |
| West Midlands | 2 |
| Wales | 2 |
| Total | 20 |

5.2.1 Recruitment Email

The following email was sent to invite potential participants in the research.

NatCen
Social Research that works for society


Department
of Energy &
Climate Change

eunomia
research & consulting

Dear [X]

You recently took part in a telephone survey looking at the views of organisations that have made an application for the Renewable Heat Incentive (RHI). The project, funded by the Department of Energy and Climate Change (DECC), is trying to better understand the experience of a range of different users.

Your organisation has made multiple applications for the RHI and we would like to invite you to take part in a short telephone discussion with a researcher to better understand what is different about your experience compared to organisations who installed a single system. The researcher will ask you about your motivations for installing multiple technologies, the RHI application process for your installations and how these systems are performing. Your insight will help inform the evaluation of the scheme, in particular the experience of applicants with multiple installations.

The interview will take the form of a discussion with a researcher from NatCen Social Research or Eunomia Research & Consulting and will last around 30 minutes. Everything you tell us during the interview will be confidential. Your name or any other information which may allow someone to identify you will not be included in any reports. We will ask to audio record the interview so that we can accurately document the discussion. The recording will be stored securely and kept within the research team.

If you wish to take part, may I suggest **DATE** at **TIME** for your interview? Please reply to this email to confirm you are happy to take part at the agreed day and time, or feel free to suggest an alternative date in the w/c **DATE**. Please also include the best telephone number to reach you on for the discussion.

If you have any further questions about the research, please don't hesitate to get in touch on the contact details below.

Please note that we may not be able to carry out an interview with everyone interested in taking part in the research.

Yours sincerely

[INSERT RESEARCHER CONTACT DETAILS]

5.2.2 Recruitment leaflet

What is the research about?

This research study is trying to better understand how businesses and organisations engage with the Renewable Heat Incentive (RHI). We would like to speak to individuals responsible for making multiple applications for the RHI. In particular we are interested in discussing:

- The motivations behind installing multiple RHI installations;
- The RHI application process for the various installations;
- The experience associated with having multiple installations; and
- Possible changes to the RHI that would better facilitate installing multiple systems and submitting multiple applications to the scheme

Who is conducting the research?

The study has been commissioned by the Department of Energy & Climate Change (DECC) and will inform the evaluation of the scheme, in particular the experience of applicants with multiple installations. The research is being conducted by a consortium comprised of NatCen Social Research, Eunomia Research & Consulting, Frontier Economics and the Centre for Sustainable Energy.

What does taking part involve?

We would like to invite you take part in a telephone discussion lasting around 30 minutes with a researcher from either NatCen Social Research or Eunomia Research & Consulting.

We will ask to audio record the interview so that we can accurately document the discussion. Everything discussed in the interview is confidential and the recording will be stored securely in accordance with the Data Protection Act 1998.

Participation is completely voluntary and you are under no obligation to take part.

What will happen to the findings from the research?

Findings from the interviews will contribute to a report for DECC which will help inform the future development of the RHI. Findings will be reported anonymously and no individuals or organisations will be identifiable in the report.

How do I find out more about the research?

If you have any questions about the research you can email RHI@natcen.ac.uk or call on 020 7549 7060.

RESEARCH PROJECT

**The
Renewable
Heat
Incentive:
research with
multiple
applicants**



5.2.2.1 Example Topic Guide

5.2.2.1.1 Researcher Introduction

- Thank participant for participation.
- Introduce self and NatGen / Eunomia (as independent research contractor).
- We have been commissioned by the Department of Energy and Climate Change (DECC) to evaluate the Renewable Heat Incentive (RHI). We are contacting you, as you have agreed to participate in follow-up research after answering a telephone questionnaire about your experiences of the RHI a few weeks ago.
- Your insights will help inform the evaluation of the scheme, in particular for participants with multiple applications. The findings from the interviews will contribute to a report for DECC which will help inform the development of the RHI.
- The interview will last no longer than 30 minutes.
- We have a range of topics in mind that we'd like to speak to you about but compared to a survey questionnaire the interview will be discursive in style. We would like to cover the following topic areas, focusing on:
 - Your motivations for installing multiple Renewable Heat Technologies;
 - Your experiences of the RHI application process for your installations;
 - The experience associated with having multiple installations; and
 - Possible changes to the RHI that would better facilitate multiple installations.
- There are no right or wrong answers. If you're not sure how to answer a question feel free to say so.
- Participation is completely voluntary and you do not have to answer any questions you do not want to.
- What you say is confidential, it will not be possible to identify anyone in the report. DECC may wish to observe, however we will not inform anyone else about who has taken part.
- With your permission we would like to record the interview and data will be stored securely in accordance with the Data Protection Act 1998. Recordings are only accessible to the research team and are destroyed after the research is finished. Recording the interviews will allow us to ensure we accurately capture your views. During the interview it also allows us to concentrate on the discussion rather than taking notes and ensures we don't miss anything you tell us.
- Check if any questions before we start and ask permission to start recording.

5.2.2.1.2 Background Information

Aim: brief summary and recap of respondent and the business to build rapport, but not in too much detail that it becomes repetitive for the respondent.

- **Respondent role:** department/responsibilities
- **Business/Organisation**
 - Description of business or organisation - *refer to breakdown provided by Eunomia*
 - Number of buildings; sites responsible for; size: approx no. of employees
 - Regional/country coverage
- **RHT heating systems**
 - Number and types (technology) of heating installation; capacities
 - Use – process; water; space; combinations of these
 - When installed and where – in combination (at the same building/site) or separately. Retro-fitted into existing buildings or installed in new buildings
 - Roughly when did they install/apply –not on a system by system basis but in general – were they spread out, and if so from when to when? Or were they at the same time?
- Heating coverage
 - Sites/buildings covered (whether they have multiple sites); part of a district heating network if applicable. If not part of a DH network, do they plan to be in future?
 - Ownership – heat-user (business), Energy Savings Company (ESCO) (private or public), cooperative, housing association, ‘social landlord’
- **Status of RHI applications** – all approved, awaiting approval, applied but told not eligible, not yet submitted, etc.
 - Some customers may have a mix of the above
 - **Energy supplier** – who is it (e.g. one of the Big 6 suppliers, specialist broker)?

5.2.2.1.3 Motivations for Choosing Multiple Installations

Aim: to explore decision-making and motivations in relation to installing multiple RHT installations.

- Reasons for choosing particular installation(s) [This is about the choice of a specific renewable heat installation]
- Probe for consideration of:
 - Type of technologies – range of options and different combinations considered
 - *[If some installations are on the same site / building:]* Ability or requirement for multiple installations ‘plug in’ to one heating system; space required to install multiple systems
 - Sizes
 - Cost / availability of RHI or other subsidies
 - Knowledge/awareness of alternatives
 - Environmental considerations
 - Technology: performance; confidence; reliability

- Any problems encountered which influenced choice of installation (e.g. no access to installer/supplier, problems securing finance, technology not suited to requirement, etc)
- **Was the RHI tariff a factor in choosing the technologies you installed?**
- If all are on a single site, did they choose a number of smaller technologies rather than a larger one because the RHI tariffs made this more favourable? If so, why/who made this decision?
- **What were your motivations for the multiple deployment of renewable heat technologies?**
- Economic?
- Part of a company wide effort to reduce carbon emissions (e.g. does the organisation have specific strategic low to zero carbon goals?)
- Regulatory requirements
- Any other motivations?
- **Business model behind installing multiple installations**
- Incidental to the core business (e.g. installations are to cover own heating requirements only); or
- Business set up specifically to install RHT (in multiple locations, for other companies/organisation)
- Staff dedicated to looking after RHT installations or resource drawn from across a range of departments
- Main driver of the programme (e.g. CEO, Finance Director, Estates Manager, Energy Manager, Sustainability Manager)
- **Financing of installations**
- Methods used to assess and inform investment decisions including those related to economies of scale from purchasing multiple installations
- Effect of potential tariff degression on decision to invest in current and future technologies
- Sources of finance – loan, private funds, Dedicated Energy Supply Company, Grants etc.
- Differences or grouping of financing for deployed technologies
- Involvement of specific investors
- **Installation and installers**
- Installer(s) used – same or different for each installation
- Role of installer(s) when choosing technologies
- **Did they use the first installation(s) as a pilot exercise? If so, why:**
- To prove the financial model/return in order to make a stronger case for further investment?
- To test the technology?

- Because they had an installer/project manager able to carry out the same installation on various sites?
- To develop expertise in house?
- To ensure they received a guaranteed RHI tariff before any depression?
- To learn from the application process before applying for additional installations?
- Any other contributing factors?

5.2.2.1.4 RHI Application Process

Aim: to explore experiences around applying for the RHI for multiple installations.

- **Timing of applying for the RHI for multiple installations**
 - All applications completed at the same time or not;
 - Why/Why not?
- **Problems or challenges during application process**
 - Challenges with different types of technologies
 - Change in types/number of challenges over time or as the number of applications completed increases
 - Have any changes made to the scheme regulations impacted on you?
- **Internal resources during application process**
 - Staff dedicated to administering RHI applications or resource drawn from across departments?
- **External help or resources during application process (if any)**
 - External consultant to complete application (if any). What type of consultant (e.g. sustainability, energy, engineering)?
 - Contact with Ofgem / Installers / others who helped with application including Independent Report on Metering Arrangements (IRMA) Providers
 - Is energy supplier involved? If so, what role do they play?
 - Useful? – why, why not?

5.2.2.1.5 Experience of Using Multiple Technologies

Aim: to explore how multiple installations are used, whether any additional installations are installed and plans for future installations.

- **Use of technologies**
 - Is the use of all installations (in terms of how the heat is used, hours of operation, how it is operated, etc) the same?
 - How does installation operation compare to any forecast heat generation and use at installation design stage?
 - How do current installation operating hours compare to installation operating hours provided at RHI application stage?

- *[If some installations are on the same site / building:]* Function of installations in relation to other installations – is one used as back-up for another, how do they complement each other?
- Problems or experiences using different technologies together
- Collective procurement of biomass feedstocks (if relevant) and source of biomass feedstocks (e.g. bought from third party suppliers, sourced from own woodland, by-product from industrial processes or a combination of these)
- **Additional installations**
 - Any other RHI-eligible installations installed?
 - If so, why has the RHI not been applied for?
 - Any other renewable, non-RHI-eligible installations installed?
 - Reasons for choice of technology
 - Use of installation (how is the heat used)
 - Alternatives considered
- **Other non-heat technologies**
 - Any renewable electricity (e.g. solar PV, wind farms), green power purchase agreements (PPAs), energy efficiency measures (e.g. LED lighting)
- **Future plans**
 - Further installations: technology types, how many, sizes, locations
 - Why / Why not?
 - Changes in business model for deploying RHT installations

5.2.2.1.6 Proposed changes to the RHI

Aim: to enable us to understand what works and what could be improved upon for multiple applicants to inform thinking regarding any changes to the Regulations.

- **General impressions of installing multiple RHI installations**
 - If multiple installations were carried out at different times or at the same time, based on their experience would they recommend people doing the same?
- Application process
 - Suggested improvements for application process, for single or multiple installations
- Barriers to multiple installations
 - Suggested improvements to remove any barriers to multiple installations
 - Support raising or identifying financing opportunities.

5.2.2.1.7 END

- Ask if respondent has anything else to add
- Stop recording

- Thank participant
- Reassure about confidentiality
- Explain next steps of research
- Check whether participant has questions about the research
- Re contact question:

We appreciate that you have already made a significant contribution to the RHI evaluation research, and your help is greatly valued. DECC or a research company appointed by DECC may wish to contact you again for research purposes only.

Would you be happy for us to give your contact details to DECC? YES NO

6 Fieldwork and Analysis

Telephone interviews were conducted between March and June 2014. Topic guides were used to guide the discussions and interviews took approximately half an hour.

The qualitative data were analysed using a framework approach to qualitative data management, which is systematic and comprehensive. This approach ensures the study's findings are robust and grounded in the data (Ritchie and Lewis, 2003).

6. Qualitative study of current and potential investors in Renewable Heat Technologies (RHTs)

Research Aims

This report summarises the findings from telephone interviews with potential and actual investors in Renewable Heat Technologies (RHTs) in Great Britain. The study aimed to explore the following aspects:

- Characteristics of investor organisations and business models;
- Existing and ongoing investment activity;
- Views on barriers to the provision of finance to RHTs;
- Views and experience of the Renewable Heat Incentive (RHI) and in relation to other financial support mechanisms; and
- Future opportunities that would lead to the provision of finance.

7 Methodology

This was a qualitative study designed to explore the views and experiences of a range of organisations operating in this sector, including private equity firms, banks and asset finance companies. The findings from this strand of the evaluation aim to represent investor's perspective, which should be seen in conjunction with the views on financing obtained from the non-domestic applicants survey (Work Package 2.1).

7.2 Sampling and recruitment

We initially identified a number of types of investment, or Investor 'Sub-groups' within the sample frame for interview. These were as follows: asset finance providers, private equity firms, infrastructure developers, banks, and energy service companies (ESCO's).

From the collection of previously known contacts and through general research, a total of 111 businesses were identified as being in the investor population. Of these 111 businesses, 68 were targeted for interview. This selection was based on the following criteria:

- The need to provide a representative sample across the sub-groups;
- The likelihood, of the business being active in the renewable heat sector – derived from both our existing knowledge and analysis of each business' website; and
- An assumption of a 30% 'hit rate' in terms of converting those selected into interviews.

Following both an initial piloting exercise with 4 investor contacts and a review of RHI applicant data supplied to DECC by Ofgem (which demonstrated that there have been very few

applications of large scale), we revised the sampling strategy to concentrate on financial models designed to fund smaller projects (in the range £0.25 - 5 million). This resulted in the following changes to the sub-groups:

- Dedicated project developers were removed from the sample frame, as these are usually focused on larger schemes.
- Many private equity firms, as they were often relying on backing from institutional investors, were unlikely to be involved in smaller projects although some private equity firms did transact at this level either:
 - if they were investing in companies which are able to aggregate several smaller projects into a portfolio investment vehicle; or
 - if they were backed by retail investors (rather than institutional investors). In particular, investment capital was far more likely to be available where firms offered their clients a package that included tax relief through a Government scheme, i.e. a Venture Capital Trusts (VCT), or Enterprise Investment Scheme (EIS).¹⁰

Consequently, we split Private Equity into two distinct sub-groups 'non-EIS/VCT' and 'EIS/VCT'.

- 'Community' funding bodies were added as a new sub-group, as they offer capital and services to smaller projects because they operated under primarily social rather than commercial lending criteria.

The amended list of sub-groups therefore consists of:

- i. Private equity firms (non VCT/EIS) – equity bought by firms on behalf of investors;
- ii. Private equity firms (VCT/EIS) – equity bought by firms on behalf of retail investors benefitting from VCT or EIS tax relief;
- iii. Project Finance – off balance-sheet lending from banks for energy infrastructure projects;
- iv. Asset finance – companies (including banks) offering both hire purchase or leasing of equipment;
- v. Energy supply companies (ESCOs) – companies providing heat to businesses on a tariff basis, which wraps-up all development, capital and ongoing O&M costs; and
- vi. 'Social' lenders – funding bodies set up to lend capital (often to community energy projects) raised through public sector grants or philanthropists.

It should be noted that several companies offer a range of services that qualify them under more than one sub-group. For example, one company offered asset finance, debt finance and equity. Therefore we assigned companies to a sub-group which they advertised as a substantial part of their services, and the interviews were geared towards the sub-group chosen.

In total, 28 telephone interviews were conducted with businesses across six key investor types. The interviewees were typically heads of departments with investment portfolios in the renewables sector.

¹⁰ It should be noted, however, that following an announcement in March 2014, the use of EIS and VCT lending is most likely to change shortly when the Government's 2014 Finance Bill is enacted. The Bill includes the stipulation that projects will no longer be eligible to benefit from investments backed by EIS (and SEIS), or VCT tax relief if they are also supported by the RHI. The sample frame for this study was designed prior to the Government's March 2014 announcement, and therefore its impact has not been assessed.

Table 6.1 provides a summary of the achieved sample for each sub-group, the number of organisations which did not respond to contact for interview and the number of organisations which agreed to interview and then ‘opted out’ either by cancellation or simply not being available at the scheduled time.

With the exception of community/public sector lenders (of which there are very few active in the market) the aim was to achieve a consistent number of interviews across all sub-groups; with 4-5 per sub-group, thus 23-28 interviews in total. This distribution was broadly achieved, albeit a large number of interviews were held with private equity investors (non VCT/EIS). This was the result of this sub-group being the most responsive following initial contact, and the desire, at the early stage of the process to not limit the number of interviews with any one sub-group, should the other sub-groups fail to engage.

To help deliver the desired distribution, follow-up telephone calls were made to the sub-groups which had been least responsive to the initial email. For both the private equity firms (VCT/EIS and infrastructure lenders sub-groups, a second follow-up call was made in an effort to achieve at least 4 interviews for each sub-group.

Table 6.1: Achieved sample of investors

| | <i>Achieved sample</i> | <i>Non-Responses¹</i> | <i>Opt-outs²</i> | <i>TOTAL</i> |
|------------------------------------|------------------------|----------------------------------|-----------------------------|--------------|
| Private Equity Firms (non VCT/EIS) | 8 | 5 | 1 | 14 |
| Private Equity Firms (VCT/EIS) | 3 | 5 | 1 | 9 |
| Infrastructure Lenders | 4 | 4 | 1 | 9 |
| Asset Finance | 5 | 2 | 3 | 7 |
| ESCO's | 5 | 14 | 4 | 19 |
| Community / Public Sector Lenders | 3 | 0 | 0 | 3 |
| Total | 28 | 30 | 10 | 68 |

Notes:

1. ‘Non-responses’ refers to businesses which did not respond to emails or follow-up calls to arrange an interview
2. ‘Opt-outs’ refers to businesses which agreed to hold an interview, but then did not participate; either by cancelling or simply not being available at the scheduled time

7.3

7.4 Fieldwork and Analysis

Interviews were conducted during February and March 2014. Topic guides were used to guide the discussions and tailored guides were developed for each of the different investor sub-groups. An example guide is appended here. Interviews took approximately half an hour and many were digitally recorded and transcribed verbatim for full analysis.

As per the qualitative interviews with possible applicants, as described in Section 4, the qualitative data were analysed using Framework - an approach to qualitative data management, which is systematic and comprehensive. This approach ensures the study’s findings are robust and grounded in the data (Ritchie et al, 2013). The first stage of analysis involves identification of emerging issues to inform the development of a thematic framework. The column headings on the matrix relate to key sub-topics, and the rows to individual respondents. Data from each

case is then summarised in the relevant cell. This approach ensures that the analysis is comprehensive and consistent. Organising the data in this way enables the views, circumstances and experiences of all respondents to be explored within a thematic framework that is both grounded in, and driven by, their own accounts. The thematic matrices allow for the full range of views and experiences to be compared and contrasted both across and within cases, and for patterns and themes to be identified and explored.

The findings presented in the report reflect the range and diversity of views and experiences of those interviewed. As this was a small scale qualitative study, the prevalence of views and experiences arising from the data are not reported. Verbatim interview quotations are used in the report to highlight themes and findings where appropriate.

7.4.2 Recruitment email

The following email was sent to invite potential participants in the research.



7.4.3 Example Topic Guide for Asset Finance Organisations

7.4.3.1.1

7.4.3.1.2 Researcher Introduction

Thank participant for participation.

Introduce self and Eunomia (as independent research contractor).

We have been commissioned by the Department of Energy and Climate Change (DECC) to evaluate the Renewable Heat Incentive (RHI) the non-domestic version of which was launched in 2011. A domestic version is launching in Spring of this year. DECC would like to find out more about the related potential barriers and opportunities for investment in renewable heating installation and technologies. In this interview we are focusing on the non-domestic scheme but are interested in your view on the domestic scheme.

The interview will last no longer than 30 minutes.

What you say is confidential. We will not be informing DECC as to who specifically we have spoken with, and it will not be possible to identify anyone in the report.

We would like to record the interview and data will be stored securely in accordance with the Data Protection Act 1998. Recordings are only accessible to the research team and are destroyed after the research is finished.

Check if any questions before we start and ask permission to start recording.

7.4.3.1.3

7.4.3.1.4 Background Information

Aim: to obtain information about the respondent and the business

Please provide an overview of business activities and/or types of business

- Industries which lend into
- Strategic lending criteria
- Environmental focus
- Renewable energy focus
- Sustainability criteria, e.g. not biofuels
- Social issues
- etc

Note that in this interview we wish to discuss with you your offering of asset finance relating to renewable energy only.

7.4.3.1.5 Existing and Ongoing Renewable Energy Finance Provision

Aim: to explore what energy projects (not just heat) they are providing finance to/have provided finance to

- Proportion of your total lending to renewable energy (and renewable transport) sector
- Growth expectations over next 3-5 years
- Increasing/decreasing level of competition to fund schemes

- Nature of products offered
 - Hire/lease purchase, Finance lease, Operating lease etc
 - Period of 'loan'
 - Level (if any) of arrangement fees
 - Other structures or conditions

- Level of marketing (if any) for these products
 - Target markets
 - Forms of marketing
 - Rationale for marketing choices

- Split of investment across different renewable energy sub-sectors
 - Electricity (if biomass, then feedstock supply or generation)
 - Heat (if biomass, then feedstock supply or generation)
 - Transport (if biomass, then feedstock supply or generation)

- Capacity and value of energy-related projects finance provided to
 - Heat – MWth and £s (project specific and total portfolio)
 - Electricity – MWth and £s (project specific and total portfolio)
 - Transport – litres/tonnes and £s (project specific and total portfolio)

- Technologies finance provided to
 - Electricity - Onshore wind, offshore wind, biogas / anaerobic digestion (AD), solar photovoltaic (PV), biomass, energy from waste (EfW),
 - Heat - Solar thermal, biomass, energy from waste (EfW), heat pumps, biogas / AD
 - Transport – biofuels, hydrogen

- Reasons for previously deciding not to provide finance to specific renewable energy projects
 - Electricity
 - Heat
 - Transport

7.4.3.1.6 *Barriers to Provision of Asset Finance for Renewable Heat Projects*

Aim: to obtain their views on what might be constraining provision of finance to renewable heat

- Main barriers to provision of finance to renewable heat projects
 - Heat-off-take / counterparty risk
 - Small scale of projects
 - Lack of understanding of RHTs by potential clients

Qualitative study of current and potential investors in Renewable Heat Technologies (RHTs)

- Gaps in supply chain
- Other
- How any barriers identified might be overcome

(Mention that we will talk more about particular opportunities later in the interview)

- Is project risk declining such that interest rates are declining
- Different for different technologies or types of projects

7.4.3.1.7 Interactions with the RHI and other mechanisms

Aim: to explore experiences and views on the RHI

- Understanding of the RHI
 - Current eligible technologies
 - Consultations on 'extension' technologies (i.e. bioliquids, reversible air-to-air heat pumps, direct process heating, gas-driven heat pumps, biopropane, heat networks/district heating)
 - Eligibility criteria
 - Application process
 - Tariff structures
 - Degression
- Details of any direct experience of RHI – positive or negative
 - Type of technology / business
 - Whether they would invest in RHI projects again (why / why not?)
- Perceived risks of a RHI supported projects (as opposed to RH projects which aren't RHI supported)
 - Degression mechanism
 - Risk of non-accreditation (grandfathering at time of pre-accreditation *only currently for large or 'complex' projects*)
 - Other
- Comparison of experiences of RHI with those of any other RE mechanisms
 - Renewable Obligation (RO) – strengths/weaknesses
 - Feed-in Tariff (FiT) – strengths/weaknesses
- Recommendations as to how might the RHI change to as to better encourage investment

- Details of any wider government policy (e.g. from HMRC or HMT) which drive or constrain investment in RHI-supported projects

7.4.3.1.8 Future Opportunities for Provision of Finance

Aim: Determine what they see as future financing opportunities in RHI-supported RHTs

- Specific opportunities for provision of finance
 - Particular technologies
 - Particular business sectors
- Interest in forthcoming opportunities relating to domestic RHI scheme
- Facilitators / barriers to investment in the domestic scheme

7.4.3.1.9 END

- Ask if respondent has anything else to add
- Thank participant
- Reassure about confidentiality
- Explain next steps of research
- Check whether participant has questions about the research

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Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2AW
www.gov.uk/decc
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