Department for Energy Security & Net Zero

Evaluation of the Boiler Upgrade Scheme

Technical Methodological Report – 2024 Interim Report

Research Paper Number 2024/020

Completed by ICF for the Department for Energy Security and Net Zero prior to the recent general election in the United Kingdom in July 2024. As such, any references to government policies, commitments, or initiatives may reflect the stance of the previous administration and were accurate at the time of fieldwork and writing.

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Introduction

In March 2023, the Department for Energy Security and Net Zero ('the Department') commissioned an evaluation of the Boiler Upgrade Scheme (BUS). The study is scheduled to finish in March 2026 and is being undertaken by an evaluation team of ICF working with Eunomia, University College London (UCL) and BMG Research.

Evaluation aim

The aim of this study is to evaluate the delivery, impacts, and value-for-money (VfM) of the BUS. The results will provide accountability and identify learning to improve the design and delivery of the Scheme and other carbon reduction initiatives. During the scoping phase of the study, the evaluation team agreed with the Department a total of 16 process, impact, and economic evaluation questions. These questions guide the evaluation, shaping the methodology and the research topics explored during primary research. The evaluation questions are summarised in Table 1, which also indicates whether the accompanying Interim Report includes any early conclusions. Given the early stage of the evaluation, the focus to date has been on answering the process related evaluation questions.

Table 1: Overview of the evaluation questions and their status to date

Evaluation question	Interim conclusions?
Process evaluation	
1. How effective has Ofgem's delivery of the Scheme been?	Yes
2. What has been installers' experiences of the delivery of the BUS? Has participating in the Scheme imposed any undue burdens on them and, if so, what and to what extent?	Yes
3. What has been property-owners' experiences of the delivery of the Scheme by Ofgem?	Yes
4. How easy or difficult did installers find it to participate in the BUS? What were the enablers and barriers to participation?	Yes
5. How have property-owners heard of and learned about the BUS? What were their experiences of the marketing of the Scheme by installers and DESNZ?	Yes
6. How easy or difficult did property-owners find it to participate in the BUS? What were the enablers and barriers to participation?	Yes

Evaluation question	Interim conclusions?
7. What lessons can be learnt from the Scheme design and implementation to support future policy design?	Yes
Outcome and impact evaluation	
8. Has the BUS achieved its objectives regarding the installation of LCH systems and the abatement of carbon, and why? To what extent are these outcomes additional?	No
9. How has the Scheme design incentivised or disincentivised the uptake of LCH systems, and how has this varied between different groups of property-owners? How has the Scheme interacted with other incentives?	No
10. Why have property-owners chosen to participate or not participate in the BUS, and how has this varied between different groups of property-owners? Why have property-owners exited the Scheme before having had a LCH system installed?	No
11. Why have installers chosen to participate or not participate in the BUS, and how has this varied between different groups of installers?	No
12. Has the BUS achieved its objectives to support employment within the LCH sector and expand the LCH market? What impacts has the BUS had on the LCH sector, including on investment, supply chains and costs?	No
13. How satisfied are property-owners with the installation and use of their LCH system, and would they recommend one?	No
14. To what extent have property-owners changed their energy and heating use as a result of having a LCH system installed? Has BUS caused property-owners to make other energy-related changes?	No
15. To what extent has the BUS met its requirements under the Public Sector Equality Duty (PSED)?	No
Value for money assessment	
16. Was the BUS good value for money (VfM)? How could the VfM of the BUS be improved?	No

Evaluation methodology

The evaluation is being delivered through a series of workstreams. These workstreams consist of a mixture of primary research and analysis of data and documentation. To date, the following workstreams have been completed:

- Primary research with property owners, consisting of a survey and interviews with property owners that had a BUS-funded installation, and a small number of interviews with property owners that applied for a BUS voucher but did not go on to have a BUS-funded installation.
- Primary research with low carbon heating (LCH) system installers, consisting of a survey and interviews with installers that were registered under the BUS.

Future evaluation workstreams will repeat some of this research and deliver new research, ensuring that each of the evaluation questions set out in Table 1 will be answered. Future workstreams will consist of:

- Further primary research with property owners that had a BUS-funded installation. This will consist of three more waves of surveys of property owners that recently had an installation, repeating the questionnaire used in the first wave (the methodology for which is described in this report). This will be supplemented by six detailed case studies of properties where Air Source Heat Pumps (ASHPs) have been installed under the BUS. There will also be a follow-up survey of property owners that will be undertaken in spring 2024, to explore experiences of using a LCH system during the winter heating season.
- Interviews with property owners and LCH system installers that did not participate in the BUS, which is scheduled to take place in spring 2024 and will capture learning about what deterred these groups from joining the Scheme.
- Further research with LCH system installers that are registered to deliver under the BUS, consisting of another wave of the installer survey that is described in this report.
- Quasi-Experimental Analysis (QEA) to estimate the additionality of the observed impacts of the BUS (system installations delivered, jobs supported within the LCH sector). This analysis will assess the extent to which impacts can be robustly attributed to the Scheme, rather than other factors shaping LCH deployment. Initial scoping work has been completed, and interim analysis is planned for later in 2024 (with final analysis to follow in 2025).
- Analysis of the impacts of the BUS on the LCH market and supply chain, consisting of interviews with market representatives and analysis of secondary data. This analysis will take place in 2025.
- Analysis of the value-for-money of the BUS, consisting of a qualitative ‘3Es’ assessment of the Scheme’s economy, efficiency, and effectiveness. Equity will be added as a fourth assessment criterion. The 3Es approach is used by the National Audit Office (NAO) to assess the VfM of government spending. The VfM assessment will take place in 2025.

Reporting

This Technical Methodological Report accompanies a separate Interim Report which contains findings to date from the evaluation. This report contains a detailed description of the evaluation methodology, including the data collection and analysis that has been undertaken to date.

This report and the Interim Report are the first published reports from the evaluation. Another interim report is planned for publication in 2025 with a Final Report to be published in 2026. These reports will be accompanied by technical reports that will provide information about the research methodology employed.

Primary Research with Property Owners

Primary research with property owners consisted of an online survey and interviews with property owners that had a LCH system installed under the BUS, and interviews with property owners that had applied for a BUS voucher but had not had a LCH system installed under the scheme. The property owner survey described here is the first of a planned four waves of surveys, which will run at approximately six-monthly intervals.

Survey of property owners with a BUS-funded installation

Questionnaire design

The questionnaire was designed to take 15-20 minutes to complete for most respondents; the median average actual completion time was 12 minutes 15 seconds. Routing was used to minimise the number of questions that had to be answered and ensure respondents only answered questions which were applicable to them. The questionnaire consisted of three main sections:

- Property owners' experience of the customer journey from joining the BUS, arranging and having a LCH system installed, paying for the installation, and (potentially) complaining if they were not satisfied with their experiences.
- Property owners' overall satisfaction with their BUS experience and with their new LCH.
- About property owners and their properties.

Questions were primarily closed-ended, with an open-ended wrap-up question at the end to give respondents an opportunity to expand upon and explain their answers.

Sample design

The population for the survey was all properties that had an installation funded through the BUS. The sampling frame was developed by applying the following sampling criteria:

- Inclusion of all properties where a LCH system was installed[1] under the BUS between 1 October 2022 and 30 April 2023. The October 2022 threshold was used because, whilst BUS installations date back to May 2022, these property owners might struggle to accurately recall elements of their experiences[2]. The April 2023 threshold was used because these were the latest BUS data available when sample design commenced.
- Exclusion of all installations that were under investigation for suspected compliance or fraud related reasons as at the end of July 2023, when the sample was finalised.

[1] The variable used was the date that the new LCH system was listed as being commissioned on the MCS register (variable "MCS_Commissioning_Date" in the BUS database).
[2] Checks confirmed that the profile of property owners that had installations prior to October 2022 was not significantly different to the profile of property owners that had installations after this date.

The sampling frame consisted of 6,816 properties from a population of 10,846 properties – the October 2022 threshold was the main reason why the sampling frame was much lower than the BUS installation population. A total of 4,000 properties were randomly sampled[3]. Stratification of the sample was considered, but not used[4].

Individual property owners can receive multiple BUS grants, provided the properties they wish to upgrade are eligible for support. Since it was not considered desirable for an individual to be asked to complete the survey multiple times, property owners who were named as the contact for multiple BUS installations could only be sampled once. The property that they were asked to consider when completing the survey was randomly selected from across their multiple properties. The sample of 4,000 property owners was randomly split into 100 contacts for the soft launch and 3,900 contacts for the mainstage survey (see next sub-section).

Survey delivery

The survey was administered online, using the Qualtrics survey platform. One hundred property owners were contacted by email for the purposes of a soft launch, which took place between 27 July and 2 August 2023. A total of 19 completed survey responses were received. Question completion and survey duration were reviewed, and various minor changes were made (primarily adding new answer codes based on open text responses provided by respondents).

The mainstage survey ran from 7 August to 1 September 2023. Property owners in the sample were sent an introductory email inviting them to participate, addressed to the individual who they had nominated as the lead for their involvement with the BUS. Two follow-up email reminders were sent, followed by a final postcard reminder. The postcard asked property owners to check their email inbox and complete the online survey, or to follow a link to an alternate version of the survey which they could access directly by scanning a QR code or by typing a URL into their web browser[5]. All property owners were told they could request a postal copy of the survey; three individuals took up this option.

As an incentive to increase participation, all sampled property owners were included in a prize draw, with the winner getting an online shopping voucher worth £200.

Table 2 provides a detailed breakdown of the survey delivery outcomes. A total of 1,310 responses were received[6], slightly more than the target of 1,250 responses. The response rate was 32.9% of the usable sample (excluding property owners with invalid/undeliverable emails).

[3] The target was 1,250 completed surveys, and a response rate of 31.25% was assumed.
[4] Two of the strata of potential interest – domestic or non-domestic properties, different types of LCH system installed – were not considered to be appropriate for sampling purposes. This was because the population sizes were too small (e.g. just 32 non-domestic properties in the sampling frame) and sub-group analysis was not assessed to be an evaluation priority. On-/off-gas grid properties were roughly evenly represented in the sampling frame, and so it was not deemed necessary to stratify the sample on this basis either.
[5] Households were given a unique PIN which they had to type into the alternate survey, to ensure that they could be identified.
[6] This includes two online survey responses which were not submitted but which had been completed as far as the final open text ‘wrap up’ question, which were assessed to have been sufficiently completed to be useable.

Table 2 Property owner survey response rate (soft launch and mainstage surveys combined)

	Number	% of sample
Number of property owners in sample	**4,000**	**-**
Invalid/undeliverable email	19	0.5%
Total usable sample	**3,981**	**-**
Did not start/complete survey*	2,610	65.3%
Completed the survey twice	57	1.4%
Completed the survey anonymously^	4	0.1%
Completed (% of total sample)#	**1,310**	**32.8%**
Completed (% of usable sample)#	**1,310**	**32.9%**

Notes: * Excludes 2 individuals who did not submit their survey responses but completed enough questions that they were classified as completed surveys; ^ these individuals could not be matched back to the BUS database and so their survey responses were not used because it was not possible to add in critical data on the type of LCH system they had installed etc. # respondents that submitted duplicate surveys have only been counted once.

Data processing and weighting

The following data processing activities were undertaken:

- For some questions, respondents were asked to specify details whenever they gave 'other' as an answer (i.e. a response that was not already covered by the list of answer codes shown). Their answers were analysed and, where possible, back-coded to existing codes, to slightly amended codes, or to newly created codes. The exception were those answers that were unclear or too general or where answers were 'unique' because they were given by just one survey respondent; such responses were left as an 'other' code. Newly created codes will be used for subsequent survey waves.
- Fully open-text responses to the final 'wrap-up' question were analysed qualitatively, using an adapted version of the analysis framework developed for the property owner interviews (see next section).
- Data from the survey were linked to data from the BUS database to create a consolidated dataset.

The characteristics of the achieved sample were compared to the profile of the population of property owners, to assess the representativeness of the sample (see Table 3).

This excludes 57 responses that were removed because they were duplicates – property owners that completed the survey twice (they had completed the original survey which was accessed using a unique email link and also the alternate survey which was accessed using a URL/QR code included in the reminder postcard).

Table 3: Profile of the achieved sample of property owners and of the population

Variable	Categories	% of achieved sample	% of population#
Type of LCH installed	Air Source Heat Pump (ASHP)	96.3%	96.3%
	Ground Source Heat Pump (GSHP)	2.1%	2.4%
	Shared ground loop GSHP	0.0%	0.1%
	Biomass boiler	1.6%	1.2%
Gas grid status	On-grid	59.9%	52.7%
	Off-grid	39.6%	46.8%
	Unknown	0.5%	0.5%
Property type	Domestic	99.8%	99.5%
	Non-domestic	0.2%	0.5%
Fuel type replaced	Gas	54.9%	46.2%
	Oil	23.3%	22.6%
	LPG	2.8%	3.5%
	Direct Electric	7.1%	8.9%
	Coal	1.4%	1.4%
	Other	0.8%	0.8%
	None	9.3%	16.3%
	Unknown	0.4%	0.3%

Notes: # Population data are for all BUS installations completed between May 2022 and April 2023 (i.e. not just installations after October 2022, from which the sampling frame was drawn).

Whilst the achieved sample was broadly representative of the population, it was decided to weight the data using the two variables where the sample differed most from the population:

- Whether property owners' property was on or off the gas grid; and
- The fuel type of the heating system that the LCH system replaced.

Table 4 summarises the weights that were applied. There were a few instances where data were not available about the grid status or prior fuel type of properties where LCH systems were installed (indicated as 'no data' in the table).

Table 4: Summary of the weights applied

	Grid status		
Fuel type replaced	**Off grid**	**On grid**	**No data**
Gas	n/a	0.83254	n/a
Oil	0.96924	1.04429	2.02316
LPG	1.21473	1.47180	n/a
Direct electric	1.24009	1.54156	n/a
Coal	1.03977	1.25764	n/a
Other	1.00854	1.01158	n/a
No previous fuel	1.84041	1.51874	1.19613
No data	1.76343	0.62882	0.34175

Notes: n/a is used where there were no cases to weight.

Data analysis and reporting

Survey data analysis consisted of descriptive statistics. A mix of univariate and bivariate analysis was carried out, using cross-tabulations to investigate the relationship between variables (e.g. whether question responses varied depending on the characteristics of property owners). Various cross-tabulations were carried out, and the most important have been included within data tables that have been published in support of this Technical Methodological Report. Differences between sub-groups were tested for statistical significance, and only those differences that were statistically significant were presented in the report. The results of the analysis of the property owner survey are presented in an Interim Report of evaluation results, which is published separately[7].

[7] See BUS Evaluation 2024 Interim Report.

Interviews with property owners

Topic guide design

The property owner topic guide was designed to take between 30-40 minutes for most interviewees. The topic guide consisted of the following sections:

- Property owners' motivations for applying for a voucher under the BUS and their reasons for not having had a LCH system installed previously.
- Property owners' experiences of the customer journey, including system design and experience through to voucher application. For those that had an installation, the topic guide also explored their experiences of this process, and their impressions of their new system.
- For property owners that did not have an installation under the BUS, why this was the case and what – if anything – they planned to do next.

Questions were accompanied by probes to follow-up on lines of enquiry, responding to interviewees' answers.

Sample design

The objective of the qualitative research was to explore different property owners' experiences of the BUS, and so interviewees were selected using purposive sampling. The target was 50 completed interviews, and the sample was composed of three sub-samples:

- Property owners that had a BUS-funded installation and responded to the property owner survey. The goal was 35 completed interviews from this group, and 111 property owners were sampled to achieve this target.
- Property owners that had a BUS-funded installation and were part of the sampling frame for the property owner survey, but who were not sampled for the survey. They were included to seek a balance of viewpoints, rather than relying on those that responded to the survey. The goal was 5 completed interviews from this group, and 14 property owners were sampled to achieve this target.
- Property owners that had applied for a BUS voucher which had either not been issued or had been issued but had expired before an installation could take place (and in both cases had not gone on to apply again and complete an installation). The goal was 4 interviews with individuals who had not been issued with a voucher and 6 interviews with individuals who had a voucher expire.

Various sub-group quotas were used to ensure the sample captured a range of viewpoints (see below).

Interview delivery

The interviewing period ran from 5 September till 29 September 2023. Property owners in the sample were sent an introductory email inviting them to participate, addressed to the individual

who they had nominated as the lead for their involvement with the BUS. Reminder emails were sent to increase participation. As an incentive to increase participation, all property owners were included in a prize draw, with the winner getting an online shopping voucher worth £200. As discussed below, the response rate amongst property owners that had not had a BUS installation was lower than expected; to encourage participation the incentive offered to this group was changed to a £30 shopping voucher to anyone who completed an interview. All interviews were carried out by telephone/MS Teams and, subject to interviewees' consent, recorded and transcribed for analysis. Interview duration ranged from 45 minutes to over an hour, which was slightly longer than expected (30-45 minutes). This was because interviewees took longer than expected to answer questions, though they were typically happy to speak for longer than planned.

Table 5 summarises the profile of the planned and achieved sample of interviews. A total of 40 interviews were completed with property owners that had an installation. It proved impossible to recruit any property owners from non-domestic properties, even after multiple samples were drawn. The non-domestic population is small: there were only 2 non-domestic respondents to the property owner survey, and only 50 non-domestic property owners in the population as a whole. Other than this, the profile of the achieved sample of interviews was approximately as intended, ensuring that the evidence base included perspectives from individuals from a range of backgrounds.

Three interviews were completed with individuals that had not had a BUS installation, compared to the ten that were planned. Recruitment was more challenging than anticipated, likely because these individuals had – in most cases – not benefited from the BUS. In a few cases, individuals who were contacted responded to say that they had actually had a BUS installation[8]. In one case this was discovered during the interview (this interviewee was instead interviewed as someone that had a BUS installation and has been counted in the 40 interviews described above). The implications of this are discussed below.

Table 5: Profile of the property owner interview sample (planned and achieved)

Category	Stratum	Planned (out of 50)	Achieved (out of 50)
Whether they had a BUS-funded installation	Had an installation	32	31
	Had an installation and 1+ expired vouchers	8	9
	No installation (voucher not issued)	4	1
	No installation (voucher expired)	6	2
	ASHP	>=17	28

[8] This is because there is a lag in the availability of BUS data.

Category	Stratum	Planned (out of 50)	Achieved (out of 50)
Type of LCH installed (or applied for)	GSHP	>=7	9
	Biomass boiler	5-7	6
Type of fuel system replaced (or planned to be replaced)	Gas	>=8	17
	Oil	>=8	11
	Direct electric	>=5	5
	Other (LPG, coal, other)	>=5	5
	None (i.e. self-builds)	>=5	5
Location of property	Rural	>=15	25
	Urban	>=15	18
Whether additional measures were installed	Loft insulation	>=5	14
	Cavity wall insulation	>=5	5
Satisfaction/dissatisfaction with BUS experience (survey respondents only)	Very or fairly satisfied	>=7	15
	Neither satisfied/dissatisfied	>=7	7
	Very or fairly dissatisfied	>=7	12
Annual household income (survey respondents only)	£0 to £20,799	>=7	8
	£20,800 to £51,999	>=7	12
	£52,000+	>=7	13
Total			**43**

Data analysis and reporting

Transcripts from the property owner interviews were created and coded into analytical frameworks designed around the main evaluation questions, with space for identification of unexpected evidence or themes. Coding and analysis were subject to quality assurance and consistency checks. Between-case (thematic) and within-case analysis was carried out. Analytical themes were identified based on evaluation needs (primarily the evidence needed to answer the evaluation questions) and from the interview data itself, in case any unexpected topics or lines of enquiry emerged. Qualitative evidence has been used to contextualise and

expand on the results of the surveys, including using verbatim quotes to illustrate key points. The results of the analysis of the property owner interviews are presented in an Interim Report of evaluation results, which is published separately[9].

The strengths and limitations of the property owner research

Research with property owners encompasses quantitative data from the survey and in-depth qualitative research. It thus provides a rich and varied evidence base about the experiences of property owners that have participated in the BUS. Survey data provides evidence from a randomly selected and representative sample of 1,310 property owners. The achieved survey sample was large enough to enable analysis of various sub-groups of interest, to explore if and how different property owners' experiences of the BUS varied. The qualitative research sample was purposively selected, in part from property owners' survey responses, to collect data from individuals with a range of experiences – positive, negative, and neutral. Interviews provided an opportunity to explore research themes in detail and complemented the results of the survey. The achieved sample of qualitative interviews – 43 individuals – was relatively large and provides a degree of confidence in the comprehensiveness of the results generated.

All research was undertaken under conditions of anonymity to encourage participants to be candid about their experiences – positive and negative. The evidence presented provides a detailed picture of why property owners have chosen to participate in the Scheme, how effectively it is being delivered, and where there are potential areas for improvement.

In terms of the limitations of the research, the main issue is that, with the exception of the three interviews with property owners that either did not get issued with a voucher or had a voucher expire, all participants have had a BUS-funded installation. This issue was recognised from the outset and future research is planned with 'non-participants'. Still, at this point in time, analysis of the experiences of property owners is largely limited to those individuals who completed the BUS customer journey and had a LCH system installed. The evaluation thus cannot yet analyse the experiences of individuals who either did not start the customer journey or who exited it without having had an installation. Reporting on the BUS customer journey will thus likely overstate the extent to which participants are satisfied with their experience and are able to overcome any barriers along the way.

The survey of property-owners excluded individuals who had a BUS-funded installation prior to October 2022. Whilst a comparison between groups either side of this cut-off date found that there were no major differences in terms of the profile of BUS installations, it was only possible to compare based on the available Scheme data. No comparison was possible, for example, of demographic or attitudinal characteristics, since these data were not available. It is possible therefore, that the sample of property-owners that responded to the survey may differ from the population of BUS participants in ways that are not known.

[9] See BUS Evaluation 2024 Interim Report.

Research to date with property owners has also focussed on their experiences of the BUS customer journey. The survey and interviews did briefly explore property owners' experiences of using their LCH system, but not in detail. This was partly to reduce survey and interview duration, and also because fieldwork was largely undertaken in summer 2023, meaning property owners would likely not yet have used their new system to heat their property (or months would have passed since they had used it this way). Future research is planned with property owners that will analyse the lived experience of LCH systems over the 2023/24 heating season. The Interim Report, however, only very briefly touches on property owners' perceptions of their new system.

Finally, the analysis in the Interim Report focusses on the experiences of owners of domestic properties. As discussed above, this partly reflects relative participation in the BUS, since there were very few installations completed in non-domestic properties. Only two survey responses were received from owners of non-domestic properties, and it was not possible to complete any interviews with these individuals. The Interim Report thus does not contain any analysis of the specific experiences of non-domestic property owners, nor draw any conclusions about whether the Scheme is appropriately tailored to their circumstances.

Primary Research with Installers

Primary research with installers consisted of a survey and interviews with installation companies that had registered to deliver installations under the BUS (regardless of whether they had actually done so). The installer survey discussed here is the first of a planned two waves of surveys, with the second wave scheduled to take place around one year after this first wave. This second wave is expected to involve any installers that registered with the BUS since the first wave, as well as any that did not respond to the first survey wave.

Survey of BUS registered installers

Questionnaire design

The questionnaire was intended to take 10-15 minutes to complete for most respondents; the mean average actual completion time was just under 20 minutes. Routing was used to minimise the number of questions that had to be answered. The questionnaire consisted of three main sections:

- Installers' experiences of the BUS, including joining the scheme, using Ofgem's systems, and the time spent on administrative tasks under the scheme.
- Installers' views on the factors affecting demand for BUS installations and their ability to deliver installations, and the impacts of BUS participation on their market offers.
- About the business, including employment before and after their registration with the BUS.

Questions were primarily closed-ended, with an open-ended wrap-up question at the end of the questionnaire to provide respondents with an opportunity to expand upon and explain their answers.

Sample design

The population for the survey was all installer companies registered to deliver installations under the BUS as at the end of May 2023 (1,136 companies). To create the sampling frame, the following actions were undertaken:

- Exclude any installer companies that were suspended or where their registration was not completed at the time (73 companies in total).
- Exclude any duplicate records or companies without valid[10] telephone numbers (6 companies in total).

[10] i.e. because there were insufficient numbers of digits in their telephone numbers. Further telephone numbers were found to be invalid once recruitment started (see below).

The resulting sampling frame consisted of 1,057 installer companies. All these companies were contacted as part of the survey.

Survey delivery

Surveys were conducted using Computer Assisted Telephone Interviewing (CATI), though installers were given the option of an online survey if preferred. Installers were sent an advance email that explained the purpose of the survey and informed them that a researcher from the evaluation team would be in contact to arrange a telephone appointment. Telephone surveys were undertaken at different times in the day (daytime and early evening) and at the weekend. A soft launch of the survey commenced on 26 July 2023 and ended on 1 August 2023, by which time 42 surveys had been completed (these have been included in the analysis). Question completion and survey duration were reviewed, and various minor changes were made (primarily adding new answer codes based on open text responses provided by respondents).

The mainstage survey ran from 7 August to 1 September 2023. All installers were contacted up to seven times during this period. Table 6 provides a detailed breakdown of the survey delivery outcomes. A total of 247 responses were received, slightly more than the expected figure of 15-20% of the sampling frame (i.e. 160-210 completed surveys). The response rate was 23.5% of the usable sample.

Table 6 Installer survey response rate (soft launch and mainstage surveys combined)

	Number	% of sampling frame
Number of installer companies in sampling frame[11]	**1,057**	**-**
Wrong number or contact/company not known	6	0.6%
Total usable sample	**1,051**	**-**
Unreachable within fieldwork window[12]	679	64.2%
Appointment could not be arranged within fieldwork window	6	0.6%
Refused	119	11.3%
Completed (% of sampling frame)	**247**	**23.4%**
Completed (% of usable sample)	**247**	**23.5%**

[11] As discussed above, the sampling frame excluded 73 installer organisations that were suspended or where their BUS registration was not completed when the sampling frame was created.
[12] The fieldwork window was up to 1 September. During this time each company was called up to seven times.

Data processing

The following data processing activities were undertaken:

- For some questions, respondents were asked to specify details whenever they gave 'other' as an answer (i.e. a response that was not already covered by the list of answer codes shown). Their answers were analysed and, where possible, back-coded to existing codes, to slightly amended codes, or to newly created codes. The exception were those answers that were unclear or too general or where answers were 'unique' because they were given by just one survey respondent; such responses were left in an 'other' code. These new codes will be used for the next survey wave.
- Fully open-text responses to the final 'wrap-up' question were analysed qualitatively, using an adapted version of the analysis framework developed for the installer interviews (see next section).
- Data from the survey were linked to data from the BUS database (up until the end of July 2023) to create a consolidated dataset.

The characteristics of the achieved sample were compared to the profile[13] of the population of BUS registered installers, to assess its representativeness (see Table 7). The achieved sample of installers slightly underrepresents those that have done no installations (11.3% of the sample, compared to 19.7% of the population), and overrepresents those that have done between 11 and 50 installations (26.7% of the sample, compared to 20.2% of the population). Overall, the 247 installers that responded to the survey had carried out 20% of the BUS-funded installations carried out by the end of July 2023. Re-weighting the sample was considered but not carried out due to the small size of the sample and the relatively large weights that would need to be used.

Table 7: Comparison of the BUS installer sample with the installer population

BUS funded installations completed (as at the end of July 2023)#	Number in sample	% of sample	Number in population	% of population
0	28	11.3%	231	19.7%
1 to 5	106	42.9%	494	42.2%
6 to 10	37	15.0%	162	13.8%
11 to 50	66	26.7%	237	20.2%
51+	10	4.0%	47	4.0%
All	**247**	**100.0%**	**1,171#**	**100.0%**

[13] There is little scheme data available about registered installers, which limited the number of variables that could be used to compare the sample with the population. Data on the volume of BUS-related delivery are available, and a comparison was made on the volume of installations completed (the volume of applications was also assessed, and the comparison is similar to that shown in Table 3).

Note: # Population data is taken from BUS data up until the end of July 2023, rather than to the end of May 2023, as was used for the original sample design. The number of installers thus differs to the installer population referred to earlier (1,171 rather than 1,136).

Data analysis and reporting

Survey data analysis consisted of descriptive statistics. A mix of univariate and bivariate analysis was carried out, using cross-tabulations to investigate the relationship between variables (e.g. whether question responses varied depending on the characteristics of installers). Various cross-tabulations were carried out, and the most important have been included within data tables that have been published in support of this Technical Methodological Report. The results of the analysis of the installer survey are presented in an Interim Report of evaluation results, which is published separately.[14]

Interviews with installers

Topic guide design

The installer topic guide was designed to take between 30-45 minutes for most interviewees. The topic guide consisted of the following sections:

- Installers' motivations for registering with the BUS, including any barriers or enablers.
- Installers' experiences of the BUS delivery, including Ofgem scheme administration, the effectiveness of the installer-led model, and the resources required to participate in the scheme.
- Installers' perceptions of the extent to which the scheme has incentivised deployment of low carbon heating technologies, including the impacts on the wider LCH supply chain.

Questions were accompanied by probes to follow-up on lines of enquiry, responding to interviewees' answers.

Sample design

The objective of the qualitative research was to explore different installers' experiences of the BUS, and so interviewees were selected using purposive sampling. The target was 30 completed interviews, and the sample was composed of two sub-samples:

- BUS registered installers that had responded to the BUS registered installers survey. The aim was 20-25 completed interviews from this group. A total of 189 BUS registered installers were sampled.
- BUS registered installers that had not responded to the BUS registered installers survey. The aim was to complete 5-10 interviews from this group, and 28 BUS registered installers were sampled.

[14] See BUS Evaluation 2024 Interim Report.

Various sub-group quotas were used to ensure the sample captured a range of viewpoints (see below).

Interview delivery

The interviewing period ran from 31 August till 10 October 2023. Installers in the sample were sent an introductory email inviting them to participate, addressed to the individual who they had nominated as the lead for their involvement with the BUS. Reminder emails were sent to increase participation. To incentivise participation, a charitable donation worth £10 was made to Heart Research UK on behalf of every respondent.

All interviews were carried out by telephone/MS Teams and, subject to interviewees' consent, recorded and transcribed for analysis. Interview duration ranged from 30-60 minutes, which was slightly longer than expected (30-45 minutes). This was because interviewees took longer than expected to answer questions, though they were typically happy to speak for longer than planned.

Table 8 summarises the profile of the planned and achieved sample of interviews. A total of 30 interviews were completed with installers. It proved difficult to recruit installers who had low levels of satisfaction with the BUS and those that had completed no or many (over 500) BUS-funded installations, and the target quotas were not achieved. It also proved impossible to recruit any installers that had not completed the survey, despite multiple attempts to contact them. The planned 5-10 interviews with this group were instead carried out with installers that had responded to the survey. Other than this, the profile of the achieved sample of interviews was approximately as intended, ensuring that the evidence base included perspectives from individuals from a range of backgrounds.

Table 8: Profile of the installer interview sample (planned and achieved)

Category	Stratum	Planned (out of 30)	Achieved (out of 30)
BUS registered installers who responded to the installer survey			
Level of satisfaction across all aspects of the BUS model[15]	Score 28 - 40	4 to 7	20
	Score 14 - 27	4 to 7	8
	Score 0 - 13	4 to 7	2
Geographic region	South East England	2 to 6	5

[15] The level of satisfaction was based on responses to eight questions under QD02 of the installer survey. These questions related to installer satisfaction with different elements of the BUS model (e.g. guidance, registration). The following scores were assigned to individual question responses before being totalled to provide overall level of satisfaction: Very satisfied = 5; Satisfied = 4; Neither satisfied nor dissatisfied = 3; Dissatisfied = 2; Very dissatisfied = 1; Have not experienced it yet = 0; Don't know = 0; Prefer not to say = 0. The higher the score, the higher the overall installer satisfaction with the BUS model.

Category	Stratum	Planned (out of 30)	Achieved (out of 30)
	London	2 to 6	3
	South West England and Wales	2 to 6	3
	Midlands	2 to 6	5
	East of England	2 to 6	5
	North East England & Yorkshire and the Humber	2 to 6	6
	North West England	2 to 6	3
Type of staff[16]	Even distribution of employees or concentration of employees offsite	3 to 6	18
	Concentration of employees onsite	3 to 6	11
	Even distribution of subcontractors or concentration of subcontractors offsite	3 to 6	3
	Concentration of subcontractors onsite	3 to 6	16
Number of BUS applications submitted	0 applications	3 to 6	2
	1-10 applications	3 to 6	13
	11-50 applications	3 to 6	10
	51-500 applications	3 to 6	5
	500+ applications	1 to 3	0
BUS installations completed	Only install LCH systems under the BUS	3 to 5	12
	Install LCH systems under and outside the BUS	3 to 5	18

[16] This sampling category was derived from answers to a survey question that asked installers to quantify the number of staff and subcontractors they employed to do BUS installations, divided into two groups defined by individuals' work location and function: i) onsite (home surveys, system design and quotation; installation; quality control and monitoring); and ii) offsite (marketing, promotion and recruitment of customers; administration and management). The categories reflected respondents' answers, defined by the relative balance of employees or subcontractors, and the balance between individuals who were onsite or offsite.

Category	Stratum	Planned (out of 30)	Achieved (out of 30)
Total			**30**

Data analysis and reporting

Transcripts from the installer interviews were generated and coded into analytical frameworks designed around the main evaluation questions, with space for identification of unexpected evidence or themes. Coding and analysis were subject to quality assurance and consistency checks. Between-case (thematic) and within-case analysis was carried out. Analytical themes were identified based on evaluation needs (primarily the evidence needed to answer the evaluation questions) and from the interview data itself, in case any unexpected topics or lines of enquiry emerged. Qualitative evidence has been used to contextualise and expand on the results of the surveys, including using verbatim quotes to illustrate key points. The results of the analysis of the installer interviews are presented in an Interim Report of evaluation results, which is published separately.[17]

The strengths and limitations of the installer research

Research with installers encompasses quantitative data from the survey and in-depth qualitative research. As with the property owner research, therefore, it provides a rich and varied evidence base about the experiences of installers that registered with the BUS. Survey data are based on a census of all installers (excluding any that were suspended) and a good response rate was achieved. Survey data are representative of the views of the BUS installer population. Interviewed installers were purposively sampled to ensure that participants provided a balance of viewpoints – positive, negative, and neutral – about the BUS. The combination of survey and installer data thus provides a robust and diverse evidence base about installers' experiences, and what can potentially be changed.

Because the installer research was – for now – limited to organisations that were registered to participate in the BUS, results may be affected by the lack of inclusion of non BUS-registered installers. This affects analysis of the effectiveness of the installer-led model and the barriers to participation in BUS. Future research is planned with non-BUS registered installers.

It proved challenging to recruit some installer groups to participate in the interviews, particularly those that had a low level of satisfaction with the BUS, and those that had made either very few or a lot of BUS applications. The views of these groups are thus underrepresented in the analysis of the results of the interviews.

[17] See BUS Evaluation 2024 Interim Report.

An increase in grant value[18] was announced on 20th September 2023, which was mid-way through the research with installers. As a result, ten installer interviews took place following the announcement. The increase in value may have influenced installers' perceptions of the Scheme (e.g. its impact on the LCH market).

[18] From 23 October 2023, the grant level for air source heat pumps and ground source heat pumps increased from £5,000 (air source) and £6,000 (ground source) to £7,500.

Property Owner Survey Questionnaire

About your property and heating system

R01

SHOW IF [UNIQUE] PROPERTY-OWNER.

Our records indicate that you had a [BUS MEASURE INSTALLED] under the Boiler Upgrade Scheme at [INSTALLATION ADDRESS, INSTALLATION POSTCODE]. For the following questions, please answer with this installation in mind.

SHOW IF [DUPLICATE] PROPERTY-OWNER

Our records indicate that you own more than one property that has had an installation under the Boiler Upgrade Scheme. For the following questions, please answer with the following installation in mind…

A [BUS MEASURE INSTALLED] that was installed at [INSTALLATION ADDRESS, INSTALLATION POSTCODE].

R02

ASK IF [DOMESTIC/NON-DOMESTIC] IN DATABASE IS UNKNOWN.

Is this property used for domestic (i.e. residential) or non-domestic (i.e. a business) purposes?

CODE ONE.

Domestic
Non-domestic
Don’t know [EXITS SURVEY]

QA01

ASK ALL.

Which of these best describes how you use, or plan to use, the property?

CODE ONE.

[IF DOMESTIC] Main home
[IF DOMESTIC] Second home primarily used by you
[IF DOMESTIC] Residential let (i.e. rented to someone to live in)
[IF NON-DOMESTIC] Main place of work
[IF NON-DOMESTIC] Commercial let (i.e. rented to another business)
[IF DOMESTIC] Holiday let
Another use [WRITE IN]
Mixture of uses

Don’t know
Prefer not to say

QA02a

ASK ALL DOMESTIC.

Which of the following best describes the property?

CODE ONE.

Detached house
Semi-detached house/Mid-terrace house
End-terrace house
Flat
Bungalow
Don’t know

QA02b

ASK ALL NON-DOMESTIC.

Which of the following best describes how the property is used?

CODE ONE.

Arts, community and leisure
Education
Emergency services
Factory
Health
Hospitality (e.g. restaurant or café)
Office
Shop
Warehouse
Other [WRITE IN]
Don’t know

QA03a

ASK ALL DOMESTIC.

How many bedrooms does the property have? Please include all rooms built or converted for use as bedrooms.

CODE ONE.

1
2
3
4
5 or more

Don’t know

QA03b

ASK ALL NON-DOMESTIC.

What is the approximate floorspace of the property?

CODE ONE.

Under 100 m2
101-250 m2
251-500 m2
501-1000 m2
Over 1000 m2
Don’t know

QA04

ASK ALL.

Roughly, when was the property built?

CODE ONE.

Pre 1900
1900-1929
1930-1982
1983-2011
2012 onwards
Don’t know

Q**A05**

ASK ALL.

Roughly, how old was the heating system you replaced with the [BUS MEASURE INSTALLED]?

CODE ONE.

4 years old or less
5-9 years old
10-14 years old
15+ years old
Don’t know

Part B: Joining the Boiler Upgrade Scheme

QB01

ASK ALL.

How did you first hear about the Boiler Upgrade Scheme?

SINGLE CODE. RANDOMISE ORDER.

Social media notification or advert
A letter or leaflet
An email
A telephone call
From an internet search
TV/radio
Online news article
Printed newspaper/magazine
Tradesperson or professional (e.g. plumber, builder, architect)
Heating industry or professional
Word of mouth
Charity or community group or other advice service
Other [WRITE IN]
Don't know

QB01a

ASK ALL THAT SELECTED SOCIAL MEDIA NOTIFICATION OR ADVERT

Which social media site did you hear about the Boiler Upgrade Scheme on?

SINGLE CODE. RANDOMISE ORDER.

Facebook
Instagram
LinkedIn
Twitter
Nextdoor
Another social media site [WRITE IN]
Don't know

QB02

ASK ALL.

Why did you decide to install a [BUS MEASURE INSTALLED], rather than a fossil fuel heating system? Please select any that apply.

MULTICODE. RANDOMISE ORDER.

Attitudinal reasons

I like the technology
It complements lifestyle and beliefs
Recommended by a friend/family member/neighbour
Recommended by a professional (e.g. plumber, architect or engineer)
I've seen a [BUS MEASURE INSTALLED] in operation and know that it works

Friends/family/neighbours have renewable heating technology installed

Technical reasons

Complements another renewable heating technology at my property
Complements an existing conventional heating technology installed in my property
Provides a more constant temperature
Easier to use/control
Easier access to fuel

Self-sufficiency reasons

Be more self-sufficient
Reduce my dependence on fossil fuels
As a more reliable energy source

Environmental reasons

It helps reduce air pollution
Reduce my carbon emissions

Financial reasons

Expected to save money on energy bills
Rising prices of fossil fuels (e.g. gas/oil)
Availability of the Boiler Upgrade Scheme grant

Other

Another reason [WRITE IN]
Don't know [EXCLUSIVE]

QB03

ASK ALL.

Did any of the following prompt your decision to have a [BUS MEASURE INSTALLED] installed now, as opposed to waiting? Please select any that apply.

MULTICODE. RANDOMISE ORDER.

Building the property
Moving into the property
Intending to let the property
Upgrading or refurbishing the property
The availability of the Boiler Upgrade Scheme grant
An approach or offer from a [BUS MEASURE INSTALLED] salesperson or installer
Needed to replace the existing heating system because it was broken
Thought the existing heating system would need to be replaced soon
Wanted to move to a fuel source with a more stable price
Something else [WRITE IN]
Don't know [EXCLUSIVE]

QB04

ASK ALL.

Why did you not previously have a [BUS MEASURE INSTALLED] installed in the property? Please select any that apply.

MULTICODE. RANDOMISE ORDER.

Unaware of them
Didn't know enough to consider installing one
Negative opinions about them
Didn't know enough about their benefits
No intention of replacing my heating system
Didn't know how to find a trusted installer
Tried but could not find an installer
Couldn't afford the upfront cost of the heat pump
Couldn't afford the upfront cost of other works (e.g. improvements to the energy efficiency of my property)
Couldn't afford the running costs
The property has only recently been occupied
Waiting for other supporting works (e.g. insulation) to be completed before installing a [BUS MEASURE INSTALLED]
Another reason [WRITE IN]
Don't know [EXCLUSIVE]

QB04a

ASK IF SELECTED NEGATIVE OPINIONS ABOUT THEM.

What was the nature of your negative opinions about [BUS MEASURE INSTALLED]? Please select any that apply.

MULTICODE. RANDOMISE ORDER.

Too difficult to use
Too noisy
Unattractive
Take up too much space outside the property
Take up too much space inside the property
Too disruptive to install
Wouldn't make the property warm enough
Wouldn't warm the property quickly enough
Wouldn't provide enough hot water
Will devalue the property
Unreliable
Something else [WRITE IN]
Don't know [EXCLUSIVE]

QB05

ASK ALL.

If the Boiler Upgrade Scheme grant had not been available, how likely would you have been to have had a [BUS MEASURE INSTALLED] installed anyway?

SINGLE CODE.

Very likely
Likely
Unlikely
Very unlikely
Don't know

QB05a

ASK ALL IF LIKELY OR VERY LIKELY.

Without the Boiler Upgrade Scheme grant, would the installation of a [BUS MEASURE INSTALLED] have been done as quickly? This question refers to how quickly you would have made your decision to install a [BUS MEASURE INSTALLED] and begin that process.

SINGLE CODE.

Yes – as quickly
No – slower without the Boiler Upgrade Scheme
No – quicker without the Boiler Upgrade Scheme
Don't know

QB06

ASK ALL.

To access a Boiler Upgrade Scheme grant your property must have a valid Energy Performance Certificate (EPC) with no outstanding recommendations for loft or cavity wall insulation. Did you need to do any of the following to access the Boiler Upgrade Scheme grant? Please select any that apply.

MULTICODE.

Install loft insulation
Install cavity wall insulation
Get a valid Energy Performance Certificate (EPC)
Something else [WRITE IN]
None of the above [EXCLUSIVE]
Don't know [EXCLUSIVE]

QB06a

ASK ALL THAT SELECTED LOFT INSULATION AND/OR CAVITY WALL INSULATION.

Was this insulation done by the same installer that did the [BUS MEASURE INSTALLED], or a different installer?

SINGLE CODE.

Done by the same installer
Done by a different installer
Don't know

COMMENT – routing for a later question.

QB07

ASK ALL.

How easy or difficult did you find the following steps in participating in the Boiler Upgrade Scheme?

	Very difficult	Fairly difficult	Fairly easy	Very easy	Don' t know	Not applicable
Finding an installer to provide you with a quote						
Finding an installer able to do the installation when you wanted it done						
Finding out information about the Boiler Upgrade Scheme						
Finding out information about a [BUS MEASURE INSTALLED]						
Paying for the costs of the installation that were not covered by the Boiler Upgrade Scheme grant						
[IF SELECTED AT QB06] Paying for loft insulation to be installed						
[IF SELECTED AT QB06] Paying for cavity wall insulation to be installed						

[IF SELECTED AT QB06a] Finding an installer willing to provide you with a quote for the insulation						
[IF SELECTED AT QB06a] Finding an installer able to install the insulation when you wanted it done						
Confirming with Ofgem that you consent to the installation						

QB09

ASK ALL.

How many installers did you get a quote from?

CODE ONE.

1
2
3 or more
Don't know

QB09a

ASK IF SELECTED 2 OR MORE.

Were any of these installers not registered under the Boiler Upgrade Scheme (i.e. they could not do the installation under the Boiler Upgrade Scheme)?

CODE ONE.

Yes, one or more was not registered under the Boiler Upgrade Scheme
No, they were all registered under the Boiler Upgrade Scheme
Don't know

QB09b

ASK IF SELECTED ONE OR MORE NOT REGISTERED UNDER THE BUS.

How did the quote(s) from the non-Boiler Upgrade Scheme registered installer(s) compare to the quote from the Boiler Upgrade Scheme registered installer? When answering, please compare the full quote values, i.e. the cost before the installer subtracted the value of the Boiler Upgrade Scheme grant. The Boiler Upgrade Scheme grant value is £5,000 for an air source heat pump and biomass boiler and £6,000 for a ground source heat pump.

The non-Boiler Upgrade Scheme registered installer(s) was…

SINGLE CODE.

Over £500 more expensive
Up to £500 more expensive
The same
Up to £500 cheaper
Over £500 cheaper
Don't know

Part C: Paying for the installation

QC01

ASK ALL.

How did you pay for the costs of the installation that were not covered by the Boiler Upgrade Scheme grant? This includes all costs associated with the installation of the [BUS MEASURE INSTALLED], including the [BUS MEASURE INSTALLED] itself, labour costs, VAT, and (where applicable) water cylinders and upgraded radiators. It does not include the cost of any separate measures, such as installing insulation or decommissioning an old fuel tank. Please select any that apply.

MULTICODE. RANDOMISE ORDER.

Savings or regular income from current account
Personal loan from bank, building society or other provider
Mortgage extension
Loan or finance scheme through installer or manufacturer
Other loan or finance (e.g. credit card)
Gift or loan from friends or family
Income from the sale of another property
Another grant or subsidy [WRITE IN]
Something else [WRITE IN]
Did not have to pay any additional installation costs [EXLUSIVE]
Prefer not to say [EXLUSIVE]
Don't know [EXLUSIVE]

QC02

ASK ALL.

How did your installer bill you for the [BUS MEASURE INSTALLED]?

CODE ONE.

You paid for the new system in full, and later the installer refunded you the Boiler Upgrade Scheme grant value
The installer reduced the upfront cost of the system by the value of the Boiler Upgrade Scheme grant
Something else [WRITE IN]
Don't know

Part D: The installation experience

QD01

ASK ALL.

How satisfied or dissatisfied were you with the following?

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	Don’ t know
Scheduling the installer to do the works						
Any disruption caused by the installation						
How many days the installation took to complete						
The handover of the system to you once the installation was complete (e.g. providing system documentation)						

QD02

ASK ALL.

Was the [BUS MEASURE INSTALLED] installation completed over one continuous period (excluding weekends and bank holidays)? By installation we mean the start and finish of the installation works, excluding any return visits to fix faults. By installation works we mean removing your existing system and installing the new system.

CODE ONE.

Yes – over one continuous period
No – broken up into multiple visits, including some days where the installer was not working at your property
Don’t know

QD02a

ASK ALL.

How many days did the [BUS MEASURE INSTALLED] installation take?

IF SELECTED YES – OVER ONE CONTINUOUS PERIOD OR DON'T KNOW AT QD02: Again, please count the time that passed between the start and finish of the installation works, but exclude any return visits to fix faults. Again, by installation works we mean removing your existing system and installing the new system.

IF SELECTED NO AT QD02: Again, please count the time that passed between the start and finish of the installation works, regardless of whether or not the installer was working at your property. Please exclude any return visits to fix faults. Again, by installation works we mean removing your existing system and installing the new system.

[WRITE IN NUMBER]
Don't know

Part E: After the installation was completed

QE02

ASK ALL.

Have you made any formal complaints about the [BUS MEASURE INSTALLED] installation to any of the following organisations?

MULTICODE. RANDOMISE ORDER.

Your installer
The Microgeneration Certification Scheme (MCS)
The Renewable Energy Consumer Code (RECC)
The Home Insulation & Energy Systems Quality Assured Contractors Scheme (HIES)
Ofgem
The Department for Energy Security & Net Zero
Another organisation [WRITE IN]
None of the above [EXCLUSIVE]
Don't know [EXCLUSIVE]
Prefer not to say [EXCLUSIVE]

QE02b

ASK FOR EACH ORGANISATION THAT THEY HAD COMPLAINED TO.

How satisfied are you with the outcome of this complaint?

	Very satisfied	Satisfied	Neither satisfied nor	Dissatisfied	Very dissatisfied	Too early to say	Don’ t know	Prefer not to say
Your installer								
The Microgeneration Certification Scheme (MCS)								
The Renewable Energy Consumer Code (RECC)								
The Home Insulation & Energy Systems Quality Assured Contractors Scheme (HIES)								
Ofgem								
The Department for Energy Security & Net Zero								
Another organisation								

QE03

ASK ALL.

Taking everything into account, how satisfied or dissatisfied are you with your [BUS MEASURE INSTALLED] overall?

CODE ONE.

Very satisfied
Fairly satisfied
Neither satisfied nor dissatisfied
Fairly dissatisfied
Very dissatisfied
Too early to say
Don't know

QE04

ASK ALL.

Based on your experience to date would you recommend a [BUS MEASURE INSTALLED] to friends?

CODE ONE.

Definitely would
Probably would
Probably would not
Definitely would not
Already recommended
Too early to say
Don’t know

QE05

ASK ALL.

Taking everything into account, how satisfied or dissatisfied are you with your experience of the Boiler Upgrade Scheme overall?

CODE ONE.

Very satisfied
Fairly satisfied
Neither satisfied nor dissatisfied
Fairly dissatisfied
Very dissatisfied
Too early to say
Don't know

Part F: About you

QF02

ASK ALL DOMESTIC.

Including yourself, how many people live in the household and what age brackets are they in from the following: [enter the number of people in each age band]

MULTICODE.

Age 0-15 [OPEN TEXT BOX]
Age 16-34 [OPEN TEXT BOX]
Age 35-54 [OPEN TEXT BOX]
Age 55-74 [OPEN TEXT BOX]
Age 75 and over [OPEN TEXT BOX]
Don’t know [OPEN TEXT BOX]

QF03

ASK ALL DOMESTIC.

What is the household's approximate total income before tax and any other deductions? This includes earnings from employment or self-employment, income from benefits and pensions, as well as income from other sources such as interest from savings.

CODE ONE.

£0 to £10,399
£10,400 to £20,799
£20,800 to £31,199
£31,200 to £41,599
£41,600 to £51,999
£52,000 to £103,999
£104,000 to £129,999
£130,000 or over
Prefer not to say

QF04

ASK ALL

How concerned, if at all, are you about climate change, sometimes referred to as 'global warming'?

CODE ONE.

Not all concerned
Not very concerned
Fairly concerned
Very concerned
Don't know

QF05a

ASK ALL DOMESTIC.

How easy or difficult is it to afford your energy payments?

CODE ONE.

Very easy
Somewhat easy
Somewhat difficult
Very difficult
Don't know
Prefer not to say

QF05b

ASK ALL NON-DOMESTIC.

How easy or difficult is it to afford your energy payments at the property where you installed the [BUS MEASURE INSTALLED]?

CODE ONE.

Very easy
Somewhat easy
Somewhat difficult
Very difficult
Don't know
Prefer not to say

QF06

ASK ALL.

When you first heard about the Boiler Upgrade Scheme, how much would you say you knew about a [BUS MEASURE INSTALLED]?

CODE ONE.

Never heard of them
Hardly anything but had heard about them
A little
A fair amount
A lot
Don't know

QF07

ASK ALL.

The next two questions are about disability and ethnicity, which are considered sensitive data. They will be used by ICF for data classification purposes only. Your responses will be treated in strictest confidence by the ICF study team and will not be shared or published in a way that would enable anybody to identify you from your answers. Do you agree to answer these questions on this basis? Please feel free to say "no, I do not agree".

CODE ONE.

Yes, I agree
No, I do not agree [SKIP TO PART G]

QF07a

ASK ALL THAT AGREED IN THE PREVIOUS QUESTION.

Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?

CODE ONE.

Yes
No
Prefer not to say

QF07b

ASK ALL THAT ANSWERED YES TO THE PREVIOUS QUESTION

Do any of your conditions or illnesses reduce your ability to carry out day-to-day activities?

Yes, a lot
Yes, a little
Not at all
Prefer not to say

QF07c

ASK ALL THAT AGREED IN THE PREVIOUS QUESTION.

What is your ethnic group? Choose one option that best describes your ethnic group or background.

CODE ONE.

White

English/Welsh/Scottish/Northern Irish/British
Irish
Gypsy or Irish Traveller
Any other White background, please describe

Mixed/Multiple ethnic groups

White and Black Caribbean
White and Black African
White and Asian
Any other Mixed/Multiple ethnic background, please describe

Asian/Asian British

Indian
Pakistani
Bangladeshi
Chinese
Any other Asian background, please describe

Black/African/Caribbean/Black British

African
Caribbean
Any other Black/African/Caribbean background, please describe

Other ethnic group

Arab
Any other ethnic group, please describe

Part G: Anything else

QG01

ASK ALL.

Is there anything else you would like to say about your experience of the Boiler Upgrade Scheme?

OPEN TEXT CODE. UNPROMPTED.

No

Installer Survey Questionnaire

Part A: About your business

QA01

ASK ALL.

As of right now, what is the number of employees for the business? Please include all part- and full-time workers paid from your payroll, including those temporarily absent but still being paid. This is everybody, not just people who work in the heat pump or biomass boiler sector. Please exclude self-employed workers and subcontractors.

ONLY READ OUT IF PROMPT IS REQUIRED. INTERVIEWER TO CODE TO BELOW BANDINGS.

1 (sole trader)
2-9 people
10-49 people
50-249 people
250+ people
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QA02

ASK ALL

Before your business's involvement with the Boiler Upgrade Scheme, how many full time equivalent staff were involved in the delivery of [LCH HEATING SYSTEM(S) INSTALLED]?

We're going to break this down by off-site work and on-site work. In addition to this, if you employed any subcontractors, whether they were employed for off or on-site work.

READ OUT EMPLOYMENT CATEGORIES.

IF ASKED, GIVE THE FOLLOWING INFORMATION ABOUT WHAT THESE CATEGORIES CONSIST OF:

Off-site work, including marketing, administration and management, includes:

Marketing, promotion and recruitment of customers: Marketing, publicity and promotion of your business and its services, including general and targeted activities. Fielding enquiries and responding to questions about these heating systems, prior to undertaking a home survey.
Administration and management: Administration of the whole process, including booking appointments, completing paperwork and meeting compliance requirements (e.g. MCS). Agreeing contracts. Senior management oversight of the process.

On-site work, including survey, design and installation , includes

Home surveys, system design and quotation: Remote and in-person surveys, including heat loss calculations. Design of heat pump systems including discussions with property-owners. Generation, communication and discussion of quotes.
Installation: Pre-installation briefing. Removal of the existing heating system. Installation of the new heating system, including any supporting works such as replacement of radiators, installation of a water tank, groundworks, and any other works inside the property. Handover of the system including provision of documentation.
Quality control and monitoring: Post-installation visits to check the quality of the installation, including any remediation works. If done, monitoring of system performance based on any monitoring equipment installed. Responding to any complaints.

No of FTE staff

Employed, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Employed, on-site work including survey, design and installation	[NUMERIC]	Don't know
Sub-contracted, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Sub-contracted, on-site work including survey, design and installation	[NUMERIC]	Don't know

QA03

ASK ALL

And now, how many full-time equivalent staff are currently involved in the delivery of [LCH HEATING SYSTEM(S) INSTALLED] under the Boiler Upgrade Scheme?

We're going to break this down by off-site work and on-site work. In addition to this, if you have employed any subcontractors, whether they are employed for off or on-site work.

READ OUT EMPLOYMENT CATEGORIES.

IF ASKED, GIVE THE FOLLOWING INFORMATION ABOUT WHAT THESE CATEGORIES CONSIST OF:

Off-site work, including marketing, administration and management, includes:

Marketing, promotion and recruitment of customers: Marketing, publicity and promotion of your business and its services, including general and targeted activities. Fielding enquiries and responding to questions about these heating systems, prior to undertaking a home survey.
Administration and management: Administration of the whole process, including booking appointments, completing paperwork and meeting compliance requirements (e.g. MCS). Agreeing contracts. Senior management oversight of the process.

On-site work, including survey, design and installation , includes

Home surveys, system design and quotation: Remote and in-person surveys, including heat loss calculations. Design of heat pump systems including discussions with property-owners. Generation, communication and discussion of quotes.
Installation: Pre-installation briefing. Removal of the existing heating system. Installation of the new heating system, including any supporting works such as replacement of radiators, installation of a water tank, groundworks, and any other works inside the property. Handover of the system including provision of documentation.
Quality control and monitoring: Post-installation visits to check the quality of the installation, including any remediation works. If done, monitoring of system performance based on any monitoring equipment installed. Responding to any complaints.

No of FTE staff

Employed, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Employed, on-site work including survey, design and installation	[NUMERIC]	Don't know
Sub-contracted, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Sub-contracted, on-site work including survey, design and installation	[NUMERIC]	Don't know

QA04

ASK ALL.

Does your business currently install [LCH HEATING SYSTEM(S) INSTALLED] outside of the Boiler Upgrade Scheme? IF NECESSARY: By this, we mean does it undertake installations that are not part-funded by a Boiler Upgrade Scheme grant?

DO NOT READ OUT. CODE ONE.

Yes
No [SKIP TO QA05]
Don't know [SKIP TO QA05]

QA04A

ASK ALLTHAT ANSWERED YES TO QA04

And how many full-time equivalent staff are involved in the delivery of [LCH HEATING SYSTEM(S) INSTALLED] outside of the Boiler Upgrade Scheme?

Again, broken down by off-site work and on-site work. In addition to this, if you have employed any subcontractors, whether they are employed for off or on-site work.

READ OUT EMPLOYMENT CATEGORIES.

IF ASKED, GIVE THE FOLLOWING INFORMATION ABOUT WHAT THESE CATEGORIES CONSIST OF:

Off-site work, including marketing, administration and management, includes:

> Marketing, promotion and recruitment of customers: Marketing, publicity and promotion of your business and its services, including general and targeted activities. Fielding enquiries and responding to questions about these heating systems, prior to undertaking a home survey.
> Administration and management: Administration of the whole process, including booking appointments, completing paperwork and meeting compliance requirements (e.g. MCS). Agreeing contracts. Senior management oversight of the process.

On-site work, including survey, design and installation, includes

> Home surveys, system design and quotation: Remote and in-person surveys, including heat loss calculations. Design of heat pump systems including discussions with property-owners. Generation, communication and discussion of quotes.
> Installation: Pre-installation briefing. Removal of the existing heating system. Installation of the new heating system, including any supporting works such as replacement of radiators, installation of a water tank, groundworks, and any other works inside the property. Handover of the system including provision of documentation.
> Quality control and monitoring: Post-installation visits to check the quality of the installation, including any remediation works. If done, monitoring of system performance based on any monitoring equipment installed. Responding to any complaints.

No of FTE staff

Employed, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Employed, on-site work including survey, design and installation	[NUMERIC]	Don't know
Sub-contracted, off-site work including marketing, administration and management	[NUMERIC]	Don't know
Sub-contracted, on-site work including survey, design and installation	[NUMERIC]	Don't know

QA05

ASK IF QA03 SUBCONTRACTOR EMPLOYMENT IS GREATER THAN ZERO [I.E. THEY WORK WITH SUBCONTRACTORS]

Thinking about these subcontractors that you have worked with to deliver [LCH HEATING SYSTEM(S) INSTALLED] under the Boiler Upgrade Scheme, do they have MCS accreditation? Please only consider subcontractors who are directly involved in the elements of the installation that would be covered by MCS standards.

READ OUT. CODE ONE ONLY.

All do
Most do
Some do
None do
Don't work with any sub-contractors
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QA06

ASK ALL.

In the 12 months before your business registered with the Boiler Upgrade Scheme, approximately how many [LCH HEATING SYSTEM(S) INSTALLED] units did your business install in England and Wales?

ONLY READ OUT IF PROMPT IS REQUIRED. INTERVIEWER TO CODE TO BELOW BANDINGS.

New business [DO NOT READ OUT]
0
1-5
6-10
11-20
21-30
31-50
50+
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QA07

ASK ALL.

Approximately what proportion of your business's revenue is from [LCH HEATING SYSTEM(S) INSTALLED] installations?

READ OUT. CODE ONE OPTION PER LINE. INTERVIEWER TO CODE TO BELOW BANDINGS

	% of revenue	Don't know	Prefer not to say

		[DO NOT READ OUT]	[DO NOT READ OUT]
Before you started working on Boiler Upgrade Scheme installations	0% 1-25% 26-50% 51-75% 75-99% 100%		
Since you started working on Boiler Upgrade Scheme installations	0% 1-25% 26-50% 51-75% 75-99% 100%		

Part B: Joining the Boiler Upgrade Scheme

QB01

ASK ALL.

Did you sign up your business with the Boiler Upgrade Scheme so that you could…?

READ OUT EACH OPTION. ONE CODE ONLY

Do more [LCH HEATING SYSTEM(S) INSTALLED] installations
Sustain your existing level of [LCH HEATING SYSTEM(S) INSTALLED] installations
Start doing [LCH HEATING SYSTEM(S) INSTALLED] installations
Another reason [WRITE IN]
Don't know [EXCLUSIVE] [DO NOT READ OUT]
Prefer not to say [EXCLUSIVE] [DO NOT READ OUT]

Part C: Your Experience of the Boiler Upgrade Scheme

We are going to ask you some questions about your experiences of engaging with consumers as part of the Boiler Upgrade Scheme.

QC02

ASK ALL.

Do you believe there is anything that limits demand for Boiler Upgrade Scheme installations amongst consumers?

DO NOT READ OUT. CODE ONE.

Yes
No
Don't know
Prefer not to say

QC02a

ASK ALL THAT SAID YES TO BARRIERS.

What do you think limits demand amongst consumers?

READ OUT. CODE ALL THAT APPLY. RANDOMISE.

Lack of awareness of [LCH HEATING SYSTEM(S) INSTALLED]
Negative perceptions about [LCH HEATING SYSTEM(S) INSTALLED]
Lack of understanding of the benefits of [LCH HEATING SYSTEM(S) INSTALLED]
Lack of awareness of the Boiler Upgrade Scheme
Negative perceptions about the overall cost of a [LCH HEATING SYSTEM(S) INSTALLED]
Lack of access to funds to top up the Boiler Upgrade Scheme grant (i.e. to afford the rest of the upfront cost)
Concerns about [LCH HEATING SYSTEM(S) INSTALLED] running costs
The requirement to have a valid EPC
The requirement for properties to have cavity wall and loft insulation installed
Closure of other Government schemes (e.g. the Renewable Heating Incentive, the Green Homes Grant Voucher Scheme)
The value of the Boiler Upgrade Scheme grant
Something else [WRITE IN]
Don't know [EXCLUSIVE] [DO NOT READ OUT]
Prefer not to say [EXCLUSIVE] [DO NOT READ OUT]

QC04

ASK ALL.

The government ran a nationwide digital marketing campaign to promote the Boiler Upgrade Scheme between January and March 2023. Are you aware of this campaign?

DO NOT READ OUT. CODE ONE.

Yes
No
Don't know [DO NOT READ OUT]

Prefer not to say [DO NOT READ OUT]

QC04a

ASK ALL THAT WERE AWARE OF THE CAMPAIGN.

Do you think that this campaign led to any change in the number of enquiries that you received from customers?

READ OUT. CODE ONE.

More enquiries
No change
Fewer enquiries
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QC04b

ASK IF LED TO MORE ENQUIRIES.

And have these enquiries led to more booked installations?

READ OUT. CODE ALL THAT APPLY.

Yes, through the Boiler Upgrade Scheme
Yes, not through the Boiler Upgrade Scheme
No [EXCLUSIVE]
Too early to say [EXCLUSIVE]
Don't know [EXCLUSIVE] [DO NOT READ OUT]
Prefer not to say [EXCLUSIVE] [DO NOT READ OUT]

QC05

ASK ALL.

Is there anything that limits the number of Boiler Upgrade Scheme installations that your business is able to do? When answering please exclude any issues relating to the scale of demand from consumers.

CODE ONE.

Yes
No
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QC05a

ASK ALL THAT INDICATED THERE WAS SOMETHING LIMITING THE NUMBER OF INSTALLS THEY DO.

What limits the number of installations that your business does under the Boiler Upgrade Scheme? Again, when answering please exclude any issues relating to the scale of demand from consumers.

READ OUT. CODE ALL THAT APPLY. RANDOMISE.

The availability of appropriate skilled staff to work on installations under the Boiler Upgrade Scheme
The availability of subcontractors to work on installations under the Boiler Upgrade Scheme
How quickly Ofgem pays vouchers once you've redeemed them
The time limit on a Boiler Upgrade Scheme voucher (e.g. 3 months for an air source heat pump voucher)
Opportunities for [LCH HEATING SYSTEM(S) INSTALLED] installations outside of the Boiler Upgrade Scheme
The availability of materials and equipment (e.g. heat pumps, radiators)
Opportunities for other installation work (e.g. solar thermal installations, gas or oil boiler installations)
Getting approvals from a Distribution Network Operator, or DNO
Planning law restrictions
Time spent carrying out administrative and compliance tasks (e.g. MCS requirements)
Something else [WRITE IN]
Don't know [EXCLUSIVE] [DO NOT READ OUT]
Prefer not to say [EXCLUSIVE] [DO NOT READ OUT]

QC06

ASK ALL.

Thinking about a usual [LCH HEATING SYSTEM(S) INSTALLED] installation, does your business typically charge customers more, less or the same for an installation under the Boiler Upgrade Scheme, compared with an installation quoted and delivered to the same customer outside of the scheme?

I would like to remind you of the confidential nature of the survey. Your answers will not be identifiable to you.

READ OUT. CODE ONE. REVERSE ORDER RANDOMLY.

A lot more
A little more
About the same
A little less
A lot less
Only deliver installations as part of the scheme
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

Part D: Your experience of Ofgem's BUS systems

QD01

ASK ALL.

Overall, how satisfied or dissatisfied are you with Ofgem's administration of the Boiler Upgrade Scheme?

READ OUT. CODE ONE.

Very satisfied
Fairly Satisfied
Neither satisfied nor dissatisfied
Fairly Dissatisfied
Very dissatisfied
Haven't experienced it yet
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QD02

ASK ALL.

Thinking about your experience of the Boiler Upgrade Scheme, how satisfied or dissatisfied are you with the following?

READ OUT. CODE ONE ONLY PER LINE. RANDOMISE.

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	Haven't experienced it yet	Don't know	Prefer not to say
The installer guidance issued by Ofgem								
Registering with Ofgem to be a BUS installer								
The system for applying for BUS vouchers								
The system for applying to redeem BUS vouchers								
How quickly Ofgem pays you after you submit your redemption applications								
The online portal for tracking voucher status								
Ofgem's customer service and support								

Ofgem's communications on any changes or updates to the scheme?								

QD03

ASK ALL THAT HAVE SUBMITTED A VOUCHER APPLICATION.

On average, per voucher, how much time do you estimate your business spends on administration under the Boiler Upgrade Scheme?

Please include all the time spent filling in applications, responding to any queries from Ofgem, and any other administration that is unique to the Boiler Upgrade Scheme - i.e. not what you would normally do as part of the installation of a [LCH HEATING SYSTEM(S) INSTALLED]. If your business had to get MCS certification to participate in the Boiler Upgrade Scheme please exclude the time this took from your estimate.

ENTER TEXT. COLLECT IN HOURS- CONFIRM POST PILOT

Open text
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

QD05

ASK ALL THAT HAVE SUBMITTED A VOUCHER APPLICATION.

Do you pass on any additional costs associated with delivering [LCH HEATING SYSTEM(S) INSTALLED] installations under the Boiler Upgrade Scheme when quoting for an installation?

READ OUT. CODE ONE.

No – we don't experience any additional costs
No – we experience additional costs but don't pass them on
Yes – we pass them on
Don't know [DO NOT READ OUT]
Prefer not to say [DO NOT READ OUT]

Part E: The impacts of participating in the Boiler Upgrade Scheme

QE01

ASK ALL.

Have you made any of the following changes to your market offer because of the Boiler Upgrade Scheme?

READ OUT. CODE ALL THAT APPLY. RANDOMISE.

Serve a larger geographical area

Serve a wider range of property types (e.g. detached, semi-detached properties)
Serve a wider range of property ages (e.g. Victorian properties)
Serve a wider range of tenure types (e.g. homeowners, private landlords)
Added new specialisms (e.g. work in conservation areas, Listed buildings)
Started installing insulation
Started installing other renewable energy products (e.g. solar panels)
Started offering finance to customers (e.g. loans)
Another change [WRITE IN]
No changes [EXCLUSIVE]
Don't know [EXCLUSIVE] [DO NOT READ OUT]
Prefer not to say [EXCLUSIVE] [DO NOT READ OUT]

Part F: Anything else

QF01

ASK ALL.

Is there anything else you would like to say about your experience of the Boiler Upgrade Scheme?

OPEN TEXT CODE. UNPROMPTED.

No

Property Owner Interview Topic Guide

Part A: Introduction

NOTE: ASSUMED DURATION 2-3 MINUTES

Introduce yourself and ICF.

Explain that ICF has been contracted by the Department for Energy Security and Net Zero to evaluate the Boiler Upgrade Scheme. We will be referring to this as the BUS from now on. We understand that you:

…Had a [reference heating system installed] installed under the BUS

…Were named as the property-owner on [reference how many voucher applications] applications under the BUS, none of which resulted in a voucher being issued

…Were named as the property-owner on [reference how many voucher applications] applications under the BUS, of which [reference how many vouchers issued but expired] expired without an installation at your property

IF THEY COMPLETED THE PROPERTY OWNER SURVEY: Thank them again for having completed the online survey about their experiences. Explain that the purpose of this interview is to discuss their experiences of the BUS in more detail.

Reiterate that the results of this interview will be confidential and will not be made available to the Department for Energy Security and Net Zero or Ofgem, or anyone else in a way that would identify you personally. Results will be reported in aggregate, with anonymous quotations. Explain that they can stop the interview and withdraw from the research at any time up until 29 September 2023, either by telling the interviewer or by replying to the email they received from us.

Ask permission to record the interview and explain that this is just for the purpose of keeping accurate notes. The audio file will be deleted after the interview transcript has been finalised. IF NO CONSENT: explain that you will instead be keeping notes from the interview.

Part B: Joining the scheme and learning about [LCH SYSTEM]

NOTE: ASSUMED DURATION 5 MINUTES.

QB01

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QB04 which explores barriers previously encountered and views on LCH systems.

Looking back to before you decided to participate in the BUS, what had stopped you from having a [LCH SYSTEM] installed in your home? Probe:

> At the time, how well did you understand a [LCH SYSTEM], in terms of what it was like to have one installed in your home, and to use one?
> What, if any, did you think were the positive and negative features of a [LCH SYSTEM]? Where had you got this information from?
> Had you previously looked into getting a [LCH SYSTEM] installed? If so, what had stopped you?

QB02

ASK ALL THAT HAD AN INSTALLATION.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QB05 which explores how likely it is that they would have had a LCH system installed anyway, if the BUS was not available.

IF SURVEY DATA ARE NOT AVAILABLE: If the Boiler Upgrade Scheme grant had not been available, how likely would you have been to have had a [LCH SYSTEM] installed anyway?

IF DON'T KNOW THEN SKIP TO QB02

ALL: Probe:

> IF LIKELY THEY WOULD HAVE HAD ONE INSTALLED ANYWAY: Why do you say that you would have been likely to have one installed? When do you think this would have happened? NOTE TO INTERVIEWER: recall/recap their answers to QB01 Given that you had not previously had one installed, why do think you would have been likely to do so now? How confident are you that this would have happened, and what might have stopped it?
> IF NOT LIKELY THEY WOULD HAVE HAD ONE INSTALLED ANYWAY: Why do you say that you would have been unlikely to have one installed? NOTE TO INTERVIEWER: recall/recap their answers to QB01 What would have stopped you, and how confident are you that you would not have found a way to overcome this?

QB03

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QB01 which explores how they first heard about the BUS, and QB02/03 which explores their motivations to act. Also review their answers to QB06 and whether they found it easy or difficult to find out information about the LCH system they had installed.

How did you hear and learn about the BUS and what made you want to participate? Probe:

> What motivated you to want to get a [LCH SYSTEM] installed, rather than a fossil fuel heating system? What was it about the BUS that addressed any concerns you might previously have had about getting a [LCH SYSTEM]? Did you consider getting a [LCH SYSTEM] installed outside of the BUS, and if so why? Why did you decide to have a [LCH SYSTEM] installed when you did? What were the triggers for taking action now, rather than keeping your existing heating system? NOTE TO INTERVIEWER: THEIRS MAY BE A SELF-BUILD PROPERTY, WITH NO EXISTING HEATING SYSTEM.

What information did you access about the BUS and about a [LCH SYSTEM] more generally? NOTE TO INTERVIEWER: PROBE ABOUT THE SOURCE(S) USED, SUCH AS INTERNET, FRIENDS/FAMILY. Were you satisfied or dissatisfied with the information you accessed, and did you feel able to make an informed decision about whether or not to proceed?
What, if anything, did you learn that was new to you? Did anything you learned challenge or confirm any pre-existing perceptions – positive or negative – that you had about a [LCH SYSTEM]?

Part C: System design and experience through to voucher application

NOTE: ASSUMED DURATION 15 MINUTES.

QC01

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QB07 and QB09 which explored ease of accessing BUS. For these individuals, recap and probe their response.

How did you find an installer to submit a BUS application for you? Probe:

Did you contact an installer or did an installer contact you?
IF THEY CONTACTED THE INSTALLER: How many installers did you contact, and how did you identify them? How confident were you that they were trustworthy, and what did you do to check this? If there was anything about them that you thought did not seem trustworthy, what was this and why did you think it? IF NOT MENTIONED: Did you check the list of accredited installers on the Microgeneration Certification Scheme (MCS) before contacting an installer? Did you check that installers were registered to install measures under the BUS before contacting them?
IF THEY WERE CONTACTED BY THE INSTALLER: How confident were you that they were trustworthy, and what did you do to check this? If there was anything about them that you thought did not seem trustworthy, what was this and why did you think it? Did you contact any other installers in addition to the one that contacted you, and if not why not?
Were these installers available to do the installation work when you wanted it done? If not, how long did they say the delay would be, in weeks?
How did you decide which installer to use for the BUS application?

QC02

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QB07 which explored ease of accessing BUS. And check their answer to QC02 on how the installer billed them for the works, albeit here this question is presented as how they presented this in the quote. For these individuals, recap and probe their response.

Can you talk me through the process you saw the installer go through to design and quote for the [LCH SYSTEM]? IF NECESSARY: If they had multiple quotes then ask them to summarise across all of them. CLARIFICATION IF NEEDED: What were the steps you saw the installer take? Probe:

Did the installer visit your property to carry out a survey? IF NECESSARY: This would have been to measure the property and do the calculations needed to input into the design of the proposed system. Were you satisfied with your experience of this visit? Did the installer charge you for this survey, or did they offer it for free (and if so under what conditions?). Did this affect your decision about which installer to use and whether to proceed with the [LCH SYSTEM]? NOTE TO INTERVIEWER: INSTALLERS MAY BE OFFERING FREE SURVEYS/QUOTES TO PERSUADE PEOPLE TO CHOOSE THEM, AND THIS QUESTION EXPLORES IF/HOW THIS AFFECTS PROPERTY OWNERS' DECISION-MAKING.
How did the installer communicate and discuss the design of the [LCH SYSTEM] with you? Were there any areas where you disagreed about the design, and if so what was the outcome of this? Probe: Whether the outcome was satisfactory.
How did the installer communicate the quote to you? Was there any negotiation about the price, and if so what was the outcome of this? Probe: Whether the outcome was satisfactory.
In their quote, how did the installer propose to bill you for the [LCH SYSTEM]? Was it clear to you how they had treated the BUS grant in their calculations? Had they reduced the quote by the value of the BUS grant? IF NECESSARY: this is £5,000 for ASHPs and biomass boilers, and £6,000 for GSHPs. Or did they propose to charge you the full amount then give you a refund equal to the value of the BUS grant? Were you happy with their proposed approach? Were there subsequently any changes to the overall costs you were charged?
Once you agreed to proceed, were you satisfied or dissatisfied with the process through which the installer submitted a BUS voucher application on your behalf? Why do you say this?
How was the experience of giving customer consent for you? IF NECESSARY: This is where Ofgem checked with you that you were happy that a BUS application had been submitted and for works to proceed on your behalf.

QC03

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, check their answer to QB06 to see whether they needed to have loft and/or cavity wall insulation installed in order to access BUS. For these individuals, recap and probe their response.

IF THERE IS NO SURVEY DATA: Did you also need to get loft insulation or cavity wall insulation, in order to access the BUS? IF NECESSARY: to access the BUS grant, a property must not have an outstanding recommendation for either loft or cavity wall insulation on their EPC.

IF THERE IS SURVEY DATA: Your survey response indicated that you did / did not need to get loft insulation or cavity wall insulation in order to access the BUS.

IF YES, FOR 1) LOFT INSULATION AND 2) CAVITY WALL INSULATION: Did you get a quote from the same installer that designed the [LCH SYSTEM]? If not, why not? Did you consider the quote(s) you received to be reasonable and/or affordable? How did the cost compare to that of the [LCH SYSTEM] quote?
IF YES, FOR 1) LOFT INSULATION AND 2) CAVITY WALL INSULATION: Were you able to find someone who was available to undertake these works when you wanted then done? If not, what impact did this have on your plans?
ALL: Did you also get a quote for any other related works, at the same time as the [LCH SYSTEM] was designed? If so what were these works, and why did you want to have this work done at the same time?

QC04

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QC01 which explored how they paid for the installation costs not covered by the BUS grant. For these individuals, recap and probe their response.

NOTE TO INTERVIEWER: check records on whether the installation happened and tailor accordingly. How were you planning to pay / how did you pay for the costs of the installation that were not covered by the BUS grant? NOTE TO INTERVIEWER: IF QC03 INDICATES THEY HAD LOFT AND/OR CAVITY WALL INSULATION INSTALLED In your answer please separate out how you planned to pay/paid for 1) the costs of the installation of the [LCH SYSTEM] and 2) the costs of the loft and/or cavity wall insulation you had installed around the same time. Probe:

> What source(s) of funding were you planning to use/did you use?
> How easy or difficult was it to access enough funds, and were you ultimately successful?
> Did this amount and timing of the funds have any impact on your plans? (e.g. the timing of the installation, what was going to be installed / what was installed - such as the size of the [LCH SYSTEM] unit or any insulation works undertaken in parallel).

NOTE TO INTERVIEWER:

> IF THE PROPERTY-OWNER DID NOT HAVE A LOW CARBON HEATING SYSTEM INSTALLED UNDER THE BUS PROCEED TO PART D.
> IF THE PROPERTY-OWNER DID HAVE A SYSTEM INSTALLED UNDER THE BUS THEN SKIP FORWARD TO PART E.

Part D: Exiting the BUS

NOTE: ASSUMED DURATION 10 MINUTES

NOTE TO INTERVIEWER: THIS SECTION IS ONLY FOR PROPERTY-OWNERS THAT DID NOT HAVE AN INSTALLATION UNDER THE BUS, WHETHER BECAUSE THEY 1) APPLIED FOR BUT NEVER GOT A VOUCHER, OR 2) GOT A VOUCHER BUT IT EXPIRED WITHOUT THEM EVER HAVING HAD AN INSTALLATION.

QD01

ASK IF HAD 1+ UNSUCCESSFUL VOUCHER APPLICATIONS.

Our records indicate that your property was named on at least one BUS voucher application that was not issued. Why was this, and what happened? Probe:

> Was it your choice not to proceed? If so why did you change your mind? Did Ofgem contact you to check if you consented to having an application in your name? If so what happened?
> IF THEY CONSENTED TO PROCEED: Did you find out why the voucher application was not issued? If so, what was the reason? Did you try to resolve the problem, and what was the outcome? If the problem could not be resolved, why was this?
> How satisfied or dissatisfied were you with your experience of trying to get a BUS voucher? Did your installer keep you adequately informed about what was happening and what you needed to do?

NOTE TO INTERVIEWER: SKIP TO QD03.

QD02

ASK IF HAD 1+ VOUCHERS THAT EXPIRED WITHOUT AN INSTALLATION HAPPENING.

Our records indicate that your property was named on at least on BUS voucher that expired without an installation happening. Why was this, and what happened? Probe:

> What stopped the installation happening within the voucher validity period? For reference, the voucher validity period is 3 months if you are installing an air source heat pump or biomass boiler, or 6 months if you are installing a ground source heat pump. INTERVEIWER TO PROBE AND DIFFERENTIATE BETWEEN:
> Reasons related to the BUS design, e.g. a requirement to have loft or cavity wall insulation installed
> Reasons unrelated to BUS but about other challenges related to getting a LCH system installed, e.g. finding an installer available to do the works
> Reasons unrelated to any of the above, e.g. a change in personal circumstances, including no longer having the finance available to pay for the system
> What actions, if any, did you and your installer take to try to get an installation completed before the voucher expired? Why did this not work?
> How satisfied or dissatisfied were you with your experience of trying to get a [LCH SYSTEM] installed under the BUS?
> Did your installer keep you adequately informed about what was happening and what you needed to do?

NOTE TO INTERVIEWER: PROCEED TO QD03.

QD03

ASK ALL.

What have you done, or plan to do next, regarding the installation of a [LCH SYSTEM] at your property? Do you still intend to install a [LCH SYSTEM]? (or, have you done so already?)

> IF DON'T PLAN TO INSTALL A LCH SYSTEM – why not? What has changed to deter you from having a [LCH SYSTEM], given that you had applied to have one installed under the BUS?
> IF DON'T PLAN TO INSTALL A LCH SYSTEM – do you still intend to replace your existing heating system? If so, what with, if not a [LCH SYSTEM]? Why have you chosen to have this installed instead of a [LCH SYSTEM]?
> IF DO PLAN TO INSTALL A LCH SYSTEM – when do you expect this to happen? Do you intend to try to fund the installation using the BUS?
> IF YES - why have you not already done so? Is there anything about the BUS that needs to change for you to be able to use it?
> IF NO – why do you not intend to use the BUS? How do you plan to pay for the installation if not through the BUS?

QD04

ASK ALL.

Have you installed, or do you plan to have installed, any other 'green' energy products in your property? By green energy products we mean other forms of low carbon heating, renewable

generation of electricity, and/or measures to improve the energy efficiency of your home. Probe:

> What role, if any, did your involvement in the BUS have in this decision?
> ADJUST THIS QUESTION DEPENDING ON THEIR ANSWER TO THE PREVIOUS QUESTION: Will this be in addition to or instead of a [LCH SYSTEM]? What do you think are the relative pros and cons of a [LCH SYSTEM] versus alternative green energy products?
> IF THEY WILL HAVE SOMETHING INSTALLED IN THE FUTURE: When do you think you might have this installed, and what influences this timetable? What, if anything, might stop you?
> Have you, or do you plan to, get an electric vehicle?

NOTE TO INTERVIEWER: SKIP TO PART F.

Part E: Installation, handover, and impressions of the [LCH SYSTEM]

NOTE: ASSUMED DURATION 15 MINUTES

NOTE TO INTERVIEWER: THIS SECTION IS ONLY FOR PROPERTY-OWNERS THAT HAD EXPERIENCE OF HAVING AN INSTALLATION.

QE01

ASK ALL THAT HAD AN EXPIRED VOUCHER AT SOME POINT PRIOR TO HAVING AN INSTALLATION.

Note to interviewer: check the BUS database which will show: 1) how many vouchers they had that expired; and 2) when this happened, relative to the installation they did have.

Our records indicate that your property was named on at least on BUS voucher that expired before you went on to have a [LCH SYSTEM]. Why was this, and what happened? Probe:

> What stopped the installation happening within the voucher validity period? For reference, the voucher validity period is 3 months if you are installing an air source heat pump or biomass boiler, or 6 months if you are installing a ground source heat pump. INTERVIEWER TO PROBE AND DIFFERENTIATE BETWEEN:
> Reasons related to the BUS design, e.g. a requirement to have loft or cavity wall insulation installed
> Reasons unrelated to BUS but about other challenges related to getting a LCH system installed, e.g. finding an installer available to do the works
> Reasons unrelated to any of the above, e.g. a change in personal circumstances, including no longer having the finance available to pay for the system
> What actions, if any, did you and your installer take to try to get an installation completed before the voucher expired? Why did this not work?

QE02

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QD01 and QD02 / QD02a which explored experiences of the installation. For these individuals, recap and probe their response.

How satisfied were you with your experience of having a [LCH SYSTEM] installed? Probe:

> Did your experience of installation match what you had expected? Was there anything that was different from what you had understood would be the case?
> How, if at all, has your experience of the installation – good or bad – affected your perceptions of the new system?
> Did the on-the-day handover leave you adequately prepared to use your new system? What were the strengths and weaknesses of the handover?
> Have you contacted your installer since the installation was completed, for example to fix any faults and/or ask any questions?
> IF YES: Were you satisfied or dissatisfied with your installer's response? Did it adequately resolve the issue?

QE03

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QE02/QE02a, which explored whether they had submitted any formal complaints and what the outcome of these was. For these individuals, recap and probe their response.

Have you made any formal complaints about the installation of the [LCH SYSTEM] to any organisation? IF NECESSARY: examples would include your installer, consumer protection schemes such as the Microgeneration Certification Scheme, Renewable Energy Consumer Code or Home Insulation & Energy Systems Quality Assured Contractors Scheme. Or Ofgem or the Government.

> What was the reason for these complaints? Why had this not been satisfactorily resolved by your installer?
> How did you choose which organisation(s) to complain to? How easy or difficult did you find the process of submitting a complaint?
> What was the outcome of these complaints? Were you satisfied or dissatisfied with this, and why?

QE04

ASK ALL.

Note to interviewer: check the BUS dataset which shows the key BUS dates, including the date the original voucher application was submitted. If necessary, repeat this information to jog the interviewee's memory.

Thinking back to when you first decided you wanted to have a [LCH SYSTEM] installed under the BUS, how much time elapsed between then and the completion of the installation? NOTE TO INTERVIEWER: calibrate this against the date you know the application was submitted, noting that they would have started their journey before this. Ask them to be as precise as feasible – start and end month. Probe:

> Were you satisfied or dissatisfied with the amount of time it took from start to finish? How did this compare to your expectations about how long it would take?

Did you experience any notable delays during this time? If so, what were they? If they involved an installer, did the installer adequately explain why there was a delay and keep you updated on progress?

QE05

ASK ALL.

Note to interviewer: for those that responded to the WS4 survey, review their answers to QE03 and QE04 which explored their satisfaction with their new system and propensity to recommend it. For these individuals, recap and probe their response.

What are your impressions, positive and negative, about your [LCH SYSTEM]? Probe:

What do you like or dislike about the new system, in terms of how warm your property is, its appearance, location, noisiness, size, its impact on the environment – anything? Do all members of your household think the same?
What heating system did you use before your heat pump was installed? NOTE TO INTERVIEWER: IF THEY HAVE MOVED INTO THE PROPERTY, INCL. IF IT'S A SELF BUILD, DISCUSS WHAT SYSTEM THEY HAD PREVIOUSLY USED ELSEWHERE FOR COMPARISON How does the [LCH SYSTEM] compare, based on how warm your property is, its appearance, location, noisiness, size, its impact on the environment etc.?
Has anything about the [LCH SYSTEM] – how warm your property is, its appearance, location, noisiness, size, its impact on the environment etc. – changed anything about how you use heating or hot water, or how you use the space in your home or garden? If anything has changed, what are your views on the merits, or not, of having a [LCH SYSTEM]?
Would you recommend a [LCH SYSTEM] to anyone, and why? Have you shown anyone the system, and what were their impressions?

QE06

ASK ALL.

Have you installed, or do you plan to have installed, any other 'green' energy products in your property? By green energy products we mean other forms of low carbon heating, renewable generation of electricity, and/or measures to improve the energy efficiency of your home. IF NECESSARY: we are interested in things such as solar panels, batteries, solar thermal systems, any kind of insulation.

What role, if any, did your involvement in the BUS have in this decision? What, if anything, was it about having a [LCH SYSTEM] installed that influenced your decision?
IF THEY WILL HAVE SOMETHING INSTALLED IN THE FUTURE: When do you think you might have these alternative green energy products installed? What, if anything, might stop you?

Part F: Closing and exit

NOTE: ASSUMED DURATION 2-3 MINUTES

ANYTHING ELSE

Is there anything else you would like to say about your experiences of the BUS?

Thank them for their time.

Explain that we plan to enter their name into a prize draw, where the winner will receive a £200 online shopping voucher. The prize draw will happen within 4 weeks of the end of our programme of interviews with property-owners, which we expect will be towards the end of September 2023. Note that we have their email address and will be in touch if they have been successful.

Installer Interview Topic Guide

Notes for interviewers:

> The assumption is that all organisations have been screened and are therefore within the scope of the research. However, we have included a series of screening questions to check.
> Boiler Upgrade Scheme is abbreviated to 'BUS'.

Introduction (2 mins)

My name is xxx, and I am a researcher from Eunomia Research & Consulting. We've been commissioned by the UK Department for Energy Security and Net Zero to evaluate the Boiler Upgrade Scheme (BUS) for England and Wales.

As part of this evaluation, we want to understand installers' experience with the BUS and identify barriers and opportunities facing the scheme. The project team are also speaking with Ofgem along with property owners who have participated in the BUS. This should give us a good understanding of how the BUS is operating and being perceived.

[If completed the installer survey] Thank you for having completed the online survey about your experiences. This interview will allow us to discuss your experiences in more detail.

Do you have any questions at this point?

If publication queried: The findings will inform a report to the Department for Energy Security and Net Zero, which is likely to be published on the gov.UK website, and we can show an official letter from the Department for Energy Security and Net Zero if authenticity is questioned. All personal and commercially sensitive data will be anonymised and non-identifiable.

Outline of interview (2 mins)

In this interview we are looking for your views on a range of topics, including:

> The characteristics of your business (only those who didn't respond to the survey).
> Your experience and feedback from participating in BUS.
> Impacts that BUS has had on your business and the wider market.
> Barriers and opportunities facing BUS.

We expect the interview to take around 30 to 45 minutes, depending on your responses.

Are you happy for me to video/audio record this interview? This will mainly allow me to focus on our conversation rather than taking notes during the interview. You can withdraw your consent at any time during this interview. The recording will only be used internally within Eunomia for the purpose of analysis and will not be shared with anyone outside of our organisation. All personal information will be anonymised prior to sharing of the report. No personal information of yours or your company will be linked to the report or any other outputs of the project. You can ask to be removed from the study at any time, including during the

interview, up until 29th September 2023. This can be done by contacting the organiser of this interview. Final outputs of this study will be anonymised, and it will not be possible to identify you or your business in any of the outputs from this study. Any recording will only be shared with the project team and will be deleted once the research has been published.

If interviewee would prefer just audio recording: Please could you turn off your camera to keep this as an audio recording?

If interviewee declines the video/audio recording, only take interview notes.

Do you have any questions before we begin?

If interviewee seems distracted (e.g., driving in between jobs or is time constrained), offer the chance to reschedule the call if they have a more suitable time within the next 3-4 days. If they cannot and/or are happy with the call to go ahead, proceed with the interview at their discretion.

Once the recording starts: Recording has now started. Can you confirm for me again that you are happy to be recorded?

1 INTRODUCTION – 6 mins

1.4 Please briefly explain your business to me.

What is the size of your business – how many people do you currently employ?
What does your business specialise in?
Where is your business located and where is your customer base?
Do you subcontract any elements of your work? Which and why?

1.5 What heating system(s) and technologies do you install?

(e.g. ASHP, GSHP, WSHP, biomass boiler, solar thermal, solar PV, gas boilers, oil boilers, LPG boilers, direct electric heating)

If the interviewee mentions other measures/services, note them too.

Has this changed over the last couple of years?
What has impacted this?
Has the BUS changed this?

If a sole trader:

How much of your time do you spend on installing heat pumps/biomass boilers compared to other activities? Why?

1.6 Have you installed renewable heat technologies under any government schemes other than the BUS?

(e.g. RHI, Green Homes grant, Energy Company Obligation (ECO), Homes Upgrade Grant (HUG), Local Authority grants or loans)

How many renewable heat technology installations have you carried out under an alternative government scheme compared to BUS?

1.7 Do you currently charge customers for heat pump surveys?

If they do currently charge for surveys:
Have you always charged customers for heat pump surveys? Why do you charge for surveys?

If they used to offer them for free:

Why did you stop offering to carry out the surveys for free?

If they do not charge for surveys:

Do you feel that offering a free survey has any impact on the likelihood that customers will get a heat pumped installed?

2. REGISTERING WITH BUS – 6 mins

2.1 What made you decide to become a registered installer and participate in the BUS?

How were you made aware of the BUS and that you could become a registered installer?
What was the core reason/motivation for joining?
Did you have any reservations to joining?

2.2 What actions did your business take to enable you to register in the BUS?

MCS certification?

Note: this means accreditation or registering with the MCS. Registering for MCS is burdensome – well documented, do not spend too much time on this.

Other qualifications?
Recruited new staff / trained new staff / trained existing staff ?
Subcontractors / umbrella scheme?
Changed types of products installed?

2.3 How easy or difficult did you find it to register for the BUS?

How easy or difficult was the registration process to understand and follow?

2.4 Were there any barriers or enablers to registration? What were they?

Do you have any recommendations to improve the participation process? (e.g. joining requirements, RECC/HIES membership?)
What were the enablers?
What were the barriers?
How were they addressed?

Note: MCS registration and EPC requirements can hold up the process – well documented, do not spend too much time on this question.

To participate in BUS you are not required to have a particular EPC rating. Rather, you are required to have an EPC with no outstanding recommendations for cavity wall or loft insulation.

3. BUS DELIVERY – 15 mins

3.1 Overall, how have you found Ofgem's administration of the BUS?

The installer guidance issued by Ofgem
The system for applying for BUS vouchers
The system for applying to redeem BUS vouchers
How quickly Ofgem pays you after you submit your redemption applications
The online portal for tracking voucher status
Ofgem's customer service and support
Ofgem's communications on any changes or updates to the scheme?

3.2 What have been the resource requirements (in terms of cost, time, labour) to administer your participation in the BUS?

What is the average cost in pounds to your business, per voucher, of administration under the BUS?
What is the average amount of time needed to administer your participation in the BUS?
Who is doing the admin work within your business?
Is this proportionate?
Has it had unexpected consequences (e.g. diversion of resources)?

Note: Registering for MCS is burdensome – well documented, do not spend too much time on this.

3.3 Have you had to make any changes to your business processes to align with the needs of the BUS?

To what extent does the BUS align with the typical heat pump journey?
Is there anything which limits or supports your ability to install under the BUS? If they ask for examples:
Availability of staff/subcontractors to work on installations under the BUS
How quickly Ofgem pays vouchers once you've redeemed them
Time limit on BUS vouchers (e.g. 3 months for an air source heat pump voucher)
How much demand you get from potential customers
What changes have you made?
Why have you made them?
How do these compare to typical heat pump installs?

3.4 Do you use an umbrella scheme for BUS installations?

What impact has this had on the way in which your business carries out surveys and installations?

An umbrella Scheme helps non-MCS accredited plumbing and heating professionals with their heat pump installations, by taking care of key parts of the heat pump project such as design, compliance, and certification.

If so, why?
How does the umbrella scheme function?

Are subcontractors used under this scheme MCS-registered?
If not, why not?
What impact has this had?

3.4 Have any of your BUS vouchers expired, reaching the end of their validity period, without being redeemed? Why?

[If yes] Why?

3.5 For BUS-funded installations, for what reasons do your customers typically enquire about getting a heat pump/biomass boiler?

Has your business undertaken any marketing or promotion? If so, what did this entail?
What impact, if any, do you feel this marketing had on the number of enquiries you had about installation?
Are customers typically aware of the BUS?
At what point do they typically enquire? (e.g. end of life system, work on house, general upgrade)
Do you actively identify and approach prospective customers in the first instance, or rely on them coming to you?

3.6 For BUS-funded installations, what type of properties do you install heat pumps and/or biomass boilers into?

Are there any building types you have not or would not expect to install a heat pump or biomass boiler into?
Why is this?

3.7 From your experience, what proportion of BUS-funded installations have been installed alongside other energy efficiency measures?

Other energy efficiency measures include loft insulation, cavity-wall insulation, double-glazing etc. These energy efficiency measures may be installed by other contractors, or have been installed previously.

What energy efficiency measures are most commonly installed alongside the heat pump or biomass boiler?

3.8 How has the “installer-led” model worked for your business and customers?

Installer-led means the installer is responsible for apply for (and subsequently redeeming) a voucher from the BUS on behalf of the property owners.

How have you found the level of responsibility that is placed on you?
What benefits or challenges are there for you and your customers from the “installer-led” model? What?
What changes, if any, to the “installer-led model” would you suggest?

3.9 Once the BUS-funded heat pump or biomass boiler is installed, how do you provide your customer with the BUS grant? Do you invoice the customer for the cost of the installation minus the value of the BUS grant?

Note: There are two approaches, do not state the below unless required. The other approach is to invoice the customer for the full cost of the installation, then refund the customer once the BUS grant is recovered.

Why do you use this approach?
How do property-owners find the payment process?
Could you use an alternative approach to provide a customer with the BUS grant? If not, why not?

3.10 We are aware that BUS has some hidden costs. Overall, would you say that your business typically charge customers more, less or the same for an installation under the BUS, compared with an installation quoted and delivered to the same customer outside of the scheme?

Why?

4 OUTPUTS AND IMPACTS – 10 mins

4.1 In total, approximately how many BUS funded heat pump/biomass boiler installations have you carried out?

How many of these do you believe would still have been installed without the BUS grant? (i.e., the customer would have purchased the heat pump or biomass boiler regardless of there being BUS grant funding).
Why do you believe these installations would have happened without the grant?
What has limited the number of BUS installations you have carried out?

(Note: examples include lack of capacity to do more, lack of demand in their area, busy doing solar panels)

4.2 Over the three year (2022-2025) current BUS funding period, how many full-time equivalent employees do you estimate that BUS-funded installations will have supported for your business?

Do you believe that the existence of the BUS led your business to take on additional employees? Why?
Do you believe that the existence of the BUS led your business to take on additional subcontractors? Why?

4.2 In total, how many heat pump / biomass boiler installations have you carried out without the BUS.

- During the same period – proportion of time and revenue on BUS vs non-BUS of your business
- Why was BUS not used for these installations?
- Did you use any other government-backed heat pump installation schemes for these installations?

4.3 To what extent do the BUS eligibility criteria impact your installations of heat pumps and biomass boilers?

- Overall, have you seen an increase or decrease in the volume of heat pumps supplied?

Eligibility criteria for property owners include:

Domestic and non-domestic properties are eligible, social housing are not.
EPC <10 years old.
Loft and cavity wall insulation must be installed if on EPC.
Excluding air-to-air air source heat pumps and hybrid systems.
System sizing of ≤45kWth.

Heat pump seasonal coefficient of performance (SCOP) of ≥2.8.

What criteria are most difficult to meet? Why?
Have you had to decline work due to the eligibility criteria not being met?

4.4 Are you a member of any other consumer codes?

Was the BUS a driver to becoming a member of any of these?

e.g. Renewable Energy Consumer Code, Heat Pump Association Membership, Trustmark.

Which?

4.5 Are you a member of a Competent Person Scheme for heat pump installations?

Was the BUS a driver to becoming a member of any of these?
Are you a member of any other competence schemes? e.g. OFTEC, APHC, NIC EIC, NAPIT
Which?

4.6 What changes, if any, have you made to your business as a result of participating in the BUS? e.g. opened new office or branches, investment, transition away from fossil fuel market.

Why did you make these changes?

4.7 In your opinion, what impact (if any) has the BUS had on the uptake of low carbon heating in England and Wales?

To what extent are the grant amounts and flat-rate approach sufficient for the different technology types?
£5,000 towards an air source heat pump or biomass boiler.
£6,000 towards a ground source or water source heat pump.
If BUS installations weren't 0% VAT, what difference do you think that would make?

5. SUPPLY CHAIN AND POLICIES – 6 mins

5.1 What impact, if any, has the BUS had on the heat pump/biomass boiler supply chain and market?

Supply chain refers to the steps involved in getting a completed product (heat pump/boiler) to the property owners

Supply chain costs, parts, labour or any other aspects of the supply chain?
Investments into heat pumps or biomass boilers?
Models available?
New market entrants?

5.2 In your opinion, what legacy (if any) will the BUS leave on the low carbon heating market, after the scheme ends in 2028?

To what extent will it help grow capacity and resilience within the sector?
How can the impacts of the BUS on installations be maintained?

6. CLOSING AND EXIT

6.1 Are there any other positive or negative experiences from the BUS scheme that you would like to add?

Note to interviewer: this may have been discussed in reference to previous questions.

Across the whole process: registration; voucher application; installation and commissioning; voucher redemption.

6.2 Is there anything else you would like to say about your experiences of the BUS?

Closing remarks (2 mins)

Ask if participant has anything else to add.
Stop recording.
Thank participant.
Reassure them that their views will be anonymised and they won't be identifiable in any of the project outputs. No personal details will be linked to any details in the project report or other outputs.
Confirm that a charity donation will be made on their behalf to Heart Research UK following the interview.
Explain next steps of research:
Additional interviews with industry
Findings will be written up into a report.
Check whether participant has questions about the research.
Ask whether they are happy to be contacted again for more information in case it is needed.
Let them know that they are very welcome to send any further information that they might think of later by emailing you directly.

This publication is available from:
https://www.gov.uk/government/publications/evaluation-of-the-boiler-upgrade-scheme

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