

Heating and Cooling Installer Study (HaCIS):

Technical Report Appendices



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Appendix A: Literature Review Search Strategy

The research team developed search terms for each research question, in agreement with BEIS.

RQ1: characteristics and activities	RQ2: archetypes	RQ3: upskilling	RQ4: standards/accr edition	RQ5: business models
heat* OR cool* OR pump OR supply chain OR install* OR demograph* OR divers* OR age OR gender OR race OR disab* OR train* OR skill* OR qualif* OR build OR off-gas OR new build OR exist* OR domestic OR non-domestic OR list* OR urban OR rural OR house OR flat*	heat* OR cool* OR pump OR supply chain OR install* OR train* OR skill* OR upskill* OR qualif* OR chang* OR apprent* OR engage* OR support OR carbon OR transit* special* OR divers* OR attitude OR geograph* OR locat* OR region* OR information OR advice OR customer OR archetype OR workforce*	heat* OR cool* OR pump OR supply chain OR install* OR skill* OR upskill* OR qualif* OR chang* OR apprent* OR willing* OR influenc* OR attitud* OR geograph* OR locat* OR region* OR travel OR tim* OR workforce*	heat* OR cool* OR pump OR supply chain OR install* OR low carbon OR skill* OR upskill* OR attitude OR standard* OR accredit* OR Gas Safe OR MCS OR Trustmark OR competent person* scheme OR consumer code* OR RECC OR HIES OR scheme*OR chang* OR installation OR quality OR customer satisf* OR	heat* OR cool* OR pump OR supply chain OR install* OR low carbon OR business model* OR challenge* OR risk* OR business plan* OR transit* OR partner* OR affiliat* OR supplier OR equip* OR smart control* OR radiator* OR efficiency* OR trade* OR profession* OR retrofit advisor* OR builder* OR electrician* OR

RQ1: characteristics and activities	RQ2: archetypes	RQ3: upskilling	RQ4: standards/accr editation	RQ5: business models
geograph* OR locat* OR region* OR carbon OR transit* OR activit* OR workforce*			customer experi enc* OR workforce*	plumber* OR renewable* OR cost OR time OR cost reduc* OR referral* OR lead* OR special* OR divers* OR workforce*

Appendix B: Employer survey invite letter

[Contact]
[Company]
[[Address line 1]
[Address line 2]
[Address line 3]
[Address line 4]
[Address line 5]
[Postcode]
[Date]

Help us understand your heating and cooling workforce

Dear [Contact],

Government wants to hear from your business on the future of the heating and cooling sector.

The Department for Business, Energy and Industrial Strategy (BEIS) has commissioned IFF Research to carry out research with the heating and cooling sector. We would like to hear about the characteristics and skills of your heating and cooling workforce and invite you to take part in a 10 minute online survey.

Meeting the UK's net-zero target will require virtually all heat in buildings to be decarbonised. By taking the time to participate in this study, you will help BEIS understand more about the characteristics, activities, and attitudes of the existing heating and cooling installer workforce. BEIS will use the findings to inform strategies that support and encourage installers through the low carbon heating transition. Your experiences are crucial for this research, and for informing future policy.

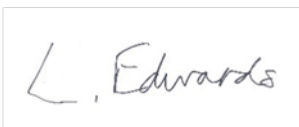
The best person to complete this survey is likely to be a senior member of staff with responsibility for training and skills within your company. This might be the [IF SMALL/MICRO: Owner or Managing Director; IF MED / LARGE: HR Director or Manager]. If this is not you, please pass this on to the most appropriate individual.

Please complete the survey by navigating to the link below and entering the unique access code:

**Website: www.iffresearch.com/HACemployers
Access code: [ID]**

You have until 25th November 2021 to complete the survey. Depending on your answers, it should take about 10 minutes to complete and you can pause the survey and return to it if needed. In order to maximise the number who share their views, we will be calling businesses who do not complete online to support them or offer them the chance to complete via telephone.

Yours faithfully,

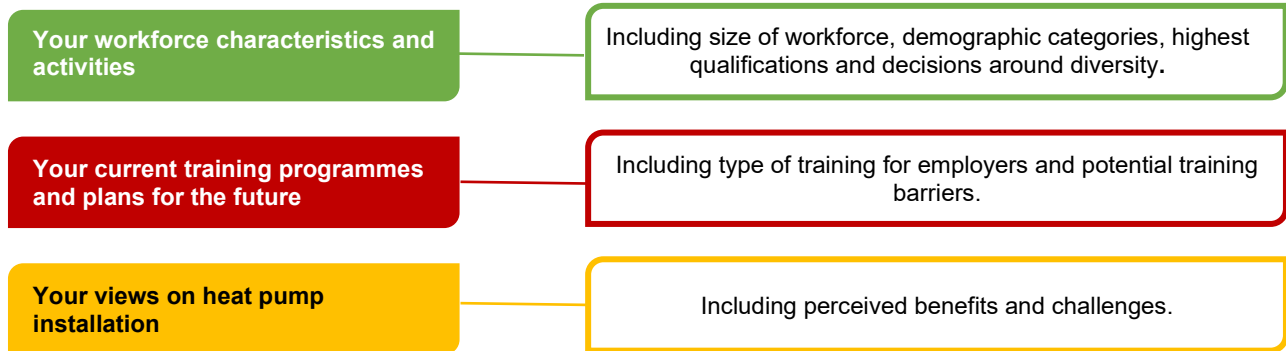


Laura Edwards, Head of Heat Systems Research, BEIS

Andrew Skone James, Director, IFF Research

What will be asked

You may find it helpful to have the below information to hand while completing the survey.



Frequently Asked Questions

Is the survey compulsory?

Participation in the study is entirely voluntary, but your views are vital to help shape future policies on low carbon heating as the government seeks to transition the heating and cooling industry to net zero.

How do I complete the survey?

Type the link provided in the green box overleaf into your internet browser and enter in your unique access code (shown in the green box overleaf). You will then be directed to the start of the survey.

Who are IFF Research?

BEIS have commissioned IFF Research, an independent research agency, to carry out this research on our behalf.

Can I complete over the phone?

The survey is being hosted online and is designed to be easy to complete, but we do offer a chance for businesses to complete via telephone if they are experiencing any difficulty completing online.

Who do I contact if I need support?

If you have any issues or queries about completing the survey, please email IFF Research at HAC-mailbox@iffresearch.com or call us on 0800 804 8039.

Will my data be kept confidential?

Yes, the findings are strictly confidential and will be used for research purposes only. The research is being conducted in accordance with the Market Research Society Code of Conduct, and any information you provide will be handled securely in line with the UK Data Protection Act and the EU General Data Protection Regulation (GDPR). Answers will only be reported at the aggregate level, and it will not be possible to identify any individual or organisation in the published findings. Unless express permission is given by you, your name and contact details will be deleted 12 months after completion of this project. Your name, organisation and contact details will not be shared beyond the research team at IFF. You have a right to have a copy of your data, change your data, or withdraw from the research at any point. If you'd like to do this, please visit our website at:

www.iffresearch.com/gdpr

Appendix C: Employer survey

ASK ALL

S1 Are you the person at this site who would have the best overview of the heating and cooling side of the business, including hiring and training of the workforce?

1. Yes
2. No
3. Don't know
4. Prefer not to say

Thanks for your interest. The survey is aimed at understanding the characteristics of the heating and cooling workforce in your company. We would be grateful if you could share this survey with a colleague who would be better suited to responding to these questions.

ASK ALL

S2 In what region(s) does your business operate?

MULTICODE

1. East Midlands
2. East of England
3. London
4. North East
5. North West
6. South East
7. South West
8. West Midlands
9. Yorkshire and The Humber
10. In the UK but outside England
11. Outside the UK
12. Don't know
13. Prefer not to say

Thanks for your interest. The survey focusses on those operating in England only.

ASK ALL

A1 How many people work [micro/small businesses: for your business; medium/ large businesses: at your branch/ location]?

Please include the total workforce, not just those who work on heating and cooling. Both full-time, part-time and self-employed staff on your payroll, and any working proprietors or owners, but exclude any outside contractors or agency staff.

numeric value.

1. WRITE IN. MINIMUM 1.
2. I am a sole trader
3. Don't know
4. Prefer not to say

Ask IF NUMBER OF PEOPLE NOT KNOWN (A1 = code 2/3)

A1DK Would you be able to provide a rough estimate of how many people work [micro/small businesses: for your business; medium/ large businesses: at your branch/ location] using the following options?

read out. single code

1. 1
2. 2-4
3. 5-9
4. 10-24
5. 25-49
6. 50-99
7. 100-249
8. 250 or more
9. Don't know
10. Prefer not to say

ASK ALL

A2 What number of these staff include heating and / or cooling installation as part of their role?

Please include full-time, part-time and self-employed staff on your payroll, and any working proprietors or owners, but exclude any outside contractors or agency staff.

By “staff working on heating and / or cooling installation” we are including installers of both wet heating systems and warm air systems, installing heat pumps, as well as air conditioning (A/C) and refrigeration installers, across both domestic and/or non-domestic buildings.

DS: NUMBER MUST BE SAME OR LESS THAN A1 OR A1DK RESPONSE

1. WRITE IN. MINIMUM 1.
2. We don't have any heating and cooling installers
3. Don't know
4. Prefer not to say

Ask IF NUMBER OF PEOPLE NOT KNOWN (A2 = code 2/3)

A2DK Would you be able to provide a rough estimate on the number of heating and cooling installers using the following options?

read out. single code

DS: NUMBER MUST BE SAME OR LESS THAN A1 OR A1DK RESPONSE

1. 1
2. 2-4
3. 5-9
4. 10-24
5. 25-49
6. 50-99
7. 100-249
8. 250 or more
9. Don't know
10. Prefer not to say

ASK ALL

A3 To help the government understand the makeup of the heating and cooling sector we are now going to ask you for information on the characteristics of your heating and cooling installers. If you don't know the precise figures, please provide estimates as best you can.

Roughly, how long have your heating and cooling installer employees worked in the industry? Please give an estimate on the proportion of your workforce that are in each of the following categories.

ENTER NUMBERS

DS: PERCENTAGES MUST SUM TO 100%

1. Less than 2 years
2. 2 – 4 years
3. 5 – 9 years
4. 10 – 19 years
5. 20 + years
6. Don't know
7. Prefer not to say

ASK ALL

A4 Roughly what age is your heating and cooling installation workforce? Please give an estimate on the proportion of your workforce that are in each of the following categories.

read out. Insert percentages

DS: PERCENTAGES MUST SUM TO 100%

1. 16-24
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. 65+
7. Don't know
8. Prefer not to say

ASK ALL

A5 Typically, what is the most common qualification level of your heating and cooling installers?

PROMPT IF NECESSARY. SINGLE CODE.

1. No formal qualifications
2. Level 1 qualifications (e.g., D or below at GCSEs graded D-G, or 3-1s, NVQ Level 1)
3. Level 2 qualifications (e.g., GCSEs at A*-C or 9-4, NVQ Level 2, CSE, or O levels)
4. Level 3 (e.g., A level, advanced apprenticeship, AS level, level 3 diploma, level 3 NVQ)
5. Level 4 (e.g., certificate of higher education (CertHE), higher apprenticeship, level 4 diploma, level 4 NVQ)
6. Level 5 (e.g., diploma of higher education (DipHE), foundation degree, higher national diploma (HND), level 5 NVQ)
7. Level 6 (e.g., degree apprenticeship, degree with honours - for example bachelor of the arts (BA) honours, Bachelor of Science (BSc) honours, level 6 diploma, level 6 NVQ)
8. Level 7 (e.g., master's degree, for example Master of Arts (MA), Master of Science (MSc), integrated master's degree, for example Master of Engineering (MEng), level 7 diploma, level 7 NVQ)
9. Level 8 (e.g., doctorate, for example Doctor of Philosophy (PhD or DPhil), level 8 diploma)
10. Don't know
11. Prefer not to say

ASK ALL

The next section of this survey focuses on your business's training strategy and practices. Even if your training is limited, your responses to these questions are just as valuable to us.

ASK ALL

B1 Has your establishment provided any INTERNAL training for your heating and cooling workforce in the past 24 months?

By internal training we mean training that was run by you or other employees of your organisation rather than external training providers or other organisations.

Please include both on-the-job training that might occur during the course of installations and any courses or dedicated training sessions that have been run internally.

DO NOT read out. Single CODE

1. Yes
2. No
3. Don't know
4. Prefer not to say

ASK ALL

B2 Has your establishment provided any EXTERNAL training for your heating and cooling workforce in the past 24 months? By external training we mean any training that has been delivered by people who are not immediate employees of your organisation.

DO NOT read out. Single CODE

1. Yes
2. No
3. Don't know
4. Prefer not to say

Ask IF no training is offered (B1 AND B2 = 2)

B3 What are the barriers to offering training to your heating and cooling installers in the past 24 months?

READ OUT. MULTICODE

1. Lack of funding
2. Staff are too busy to take time out to train
3. Lack of time to organise
4. Lack of staff able to provide training
5. Lack of suitable external training options
6. Lack of knowledge on where training is needed
7. Other (Please specify)
8. Not applicable - our staff are fully trained
9. Not applicable – we have not experienced any barriers
10. Don't know
11. Prefer not to say

Ask those who provide TRAINING (B1 OR B2 = 1)

B4 What aspects of the heating and cooling installer's job role does this training cover?

Please consider internal and external training when answering this question.

READ OUT. MULTICODE.

1. Health and safety

2. Installation skills
3. Maintenance skills
4. Training on new kit / products
5. Customer service skills
6. Communication
7. Digital skills (e.g. using online tools to support work)
8. Project management
9. Sales
10. Other (Please specify)
11. None
12. Don't know
13. Prefer not to say

ASK ALL

B5 What [IF OFFER TRAINING ALREADY (B1=1 OR B2=1: other] training would you like to offer to your heating and cooling workforce in future?

READ OUT. Multi code.

1. Health and safety
2. Installation skills
3. Maintenance skills
4. Training on new kit / products
5. Customer service skills
6. Communication
7. Digital skills (e.g. using online tools to support work)
8. Project management
9. Sales
10. Other (Please specify)
11. None
12. Don't know
13. Prefer not to say

ASK ALL

B6 We'd now like to ask some questions about Apprenticeships. By Apprenticeships we mean those which follow a formal framework and lead to a nationally recognised qualification.

Do you currently have any heating and cooling installers undertaking Apprenticeships [micro/small businesses: at your business; medium/ large businesses: at your branch/ location]?

1. Yes
2. No
3. Don't know
4. Prefer not to say

IF HAVE CURRENT APPRENTICESHIPS (B6=1)

B7 How many do you have [micro/small businesses: at your business; medium/ large businesses: at your branch/ location]?

DS: MUST BE SAME OR LESS THAN A2 FIGURE

1. WRITE IN
2. Don't know

IF DK NUMBER OF APPRENTICES (B7=CODE 1)

B7DK Is it approximately...?

READ OUT. SINGLE CODE.

DS: MUST BE SAME OR LESS THAN A2 FIGURE

1. 1
2. 2-4
3. 5-9
4. 10-24
5. 25-49
6. 50-99
7. 100+
8. Don't know

IF HAVE CURRENT APPRENTICES (B6=1)

B8 Why did you start offering Apprenticeships?

DO NOT READ OUT. MULTICODE.

1. Good way to get skilled staff
2. To ensure young people continue to enter the industry / company
3. Wanted to help a young relative/friend enter the sector
4. Good way to give young people a chance in employment
5. Demand among existing staff
6. We wanted to upskill current staff
7. We could shape our own Apprenticeship framework or standard
8. We were encouraged to do so by training providers
9. Availability of grants to support it
10. Apprenticeship Levy encouraged us to
11. New government incentive for hiring a new apprentice (introduced in 2021)
12. Other (specify)
13. Don't know

IF have NO CURRENT APPRENTICES (B6=2)

B9 Why does your establishment not currently have apprentices?

DO NOT READ OUT. MULTICODE.

1. Haven't before so haven't considered it
2. We cannot currently afford to
3. Prefer other forms of training
4. Prefer to recruit experienced staff
5. All our staff are fully skilled so no need
6. Apprenticeships are not offered in our area of need
7. We are not looking to recruit new staff
8. They are not suitable due to the size of establishment

9. Past apprentices have not been of a good standard
10. We have struggled to find a suitable applicant
11. An apprentice is due to start soon
12. We have only recently opened the application process
13. Other (SPECIFY)
14. Don't know

ASK ALL

C1 We'd now like to focus on your business model, and the way you operate. What types of projects do your heating and cooling installers typically work on?

read out. multi CODE

1. Domestic projects in new buildings
2. Domestic projects in existing buildings e.g. retrofit
3. Commercial/ non-domestic projects in new buildings
4. Commercial/ non-domestic projects in existing buildings e.g. retrofit
5. Other (please specify)
6. Don't know
7. Prefer not to say

ASK ALL

C2 Do your heating and cooling installers typically work on the installation of new systems and/or maintenance or improvement of existing systems

read out. SINGLECODE

1. Mostly or solely on the installation of new systems
2. Mostly or solely on the refurbishment, maintenance or improvement of existing systems
3. A bit of both
4. Don't know
5. Prefer not to say

ASK ALL

C3 Which of the following areas relating to heating and cooling does your business have experience working with?

read out. MULTI CODE

1. Central heating systems (inc. wet / radiator, air)
2. Underfloor heating
3. Boilers (Gas)
4. Boilers (LPG)
5. Boilers (Oil)
6. Boilers (LPG)
7. Boilers (Biomass)
8. Boilers (Other)
9. Electric heaters (inc. Direct electric; Storage; Boilers)
10. Hot water tanks/ cylinders (Vented or unvented, low and mains pressure)
11. Heat pumps (e.g. Air Source or Ground Source wet systems (aka “hydronic”) not including air-to-air),
12. Solar thermal water heating (inc. evaluated tube, flat plate)
13. Solar photovoltaics
14. Air conditioning (inc. individual room units, whole building systems and air-to-air heat pumps)
15. Mechanical ventilation with heat recovery
16. Other, please specify
17. Don't know
18. Prefer not to say

ASK ALL

C4 Is your business certified by Microgeneration Certification Scheme (MCS) to install...?

READ OUT. MULTICODE

1. Heat Pumps (Air and/or Ground source)

2. Other technologies
3. No, not certified by MCS
4. Don't know
5. Prefer not to say

ASK ALL

C5 Is your business a member of any of the following Competent Person Schemes...

READ OUT. MULTICODE

1. Gas Safe
2. APHC
3. BESCA
4. Blue Flame
5. Certsure
6. HETAS
7. NAPIT
8. OFTEC
9. Stroma
10. Other
11. Don't know
12. Prefer not to say

ASK ALL

C6 Is your business certified to work with F-gases?

DO NOT READ OUT. SINGLE CODE.

1. Yes
2. No
3. Don't know
4. Prefer not to say

ASK ALL

C7 Some Government grant schemes require businesses to meet additional standards for building retrofit. For example, PAS2035 for retrofit of domestic buildings or PAS2038

for retrofit of non-domestic buildings. These standards set out an end-to-end process for energy retrofit of existing buildings.

Is your business able to deliver to either of these retrofit standards?

DO NOT read out. SINGLE CODE

1. PAS 2035 only
2. PAS 2038 only
3. Both
4. Neither
5. Not applicable
6. Don't know
7. Prefer not to say

ASK ALL

C8 Does your business offer different financing options for its heating and cooling services? This might be to help customers pay installation costs in instalments for example.

DO NOT read out. SINGLE CODE

1. Yes
2. No
3. Don't know
4. Prefer not to say

ASK ALL

C9 How do you typically generate business?

read out. MULTICODE

1. Referrals via manufacturer
2. Referrals from a leads generation company
3. Referrals from other tradespeople
4. Word of mouth e.g. from previous customers
5. Repeat business from existing customers
6. Contracts for ongoing maintenance with non-domestic/ commercial customers

7. Upselling opportunity
8. Participation in local or national schemes (e.g. Energy Company Obligation or various local authority funding schemes)
9. Invitations to tender from architects
10. Online promotion e.g. website
11. Other forms of promotion (e.g. leaflets)
12. Other (please specify)
13. Don't know
14. Prefer not to say

The rest of the survey is focused on your business's views on heat pumps. Even if heat pumps are not important to your business, we're still really interested in your responses to the following set of questions.

ASK ALL

D1 Does your company offer heat pump installation services?

DO NOT read out. SINGLE CODE

1. Yes
2. No
3. Don't know
4. Prefer not to say

ASK IF DO NOT INSTALL HEAT PUMPS (D1=2-4)

D2 How likely is your company to begin offering heat pumps installation services in the future?

DO NOT read out. SINGLE CODE

1. Very unlikely
2. Somewhat unlikely
3. Neither likely nor unlikely
4. Somewhat likely
5. Very likely
6. Don't know
7. Prefer not to say

ASK ALL UNLIKELY TO INSTALL (D2=1-2)

D3 Why is your company unlikely to begin installing heat pumps in future?

READ OUT. MULTICODE.

1. It's not something we've given any thought to
2. We don't have the time / resource to invest in upskilling our installers
3. Demand will remain for existing forms of heating
4. We don't believe heat pumps will increase in popularity
5. We think they are a risky option
6. It is too difficult to become accredited to install heat pumps
7. Heat pumps are not a good option for my clients
8. Other (Please specify)
9. Don't know
10. Prefer not to say

Ask IF INSTALL HEAT PUMPS (D1=1)

D4 How many employees do you currently have installing heat pumps [micro/small businesses: in your business; medium/ large businesses: at your branch/ location]?

This number does not have to be exact; a rough estimate is fine. Please consider all individuals who installed heat pumps at least once in the last year, whether or not they also spend their time working on other things.

numeric value.

DS: NUMBER MUST BE SAME OR LESS THAN A2 OR A2DK RESPONSE

1. WRITE IN. MINIMUM 1.
2. Don't know
3. Prefer not to say

Ask IF NUMBER OF PEOPLE NOT KNOWN (D4 = code 1/2)

D4DK Would you be able to provide a rough estimate using the following options?

read out. single code

DS: NUMBER MUST BE SAME OR LESS THAN A2 OR A2DK RESPONSE

1. 1
2. 2-4
3. 5-9
4. 10-24
5. 25-49
6. 50-99
7. 100-249
8. 250 or more
9. Don't know
10. Prefer not to say

Ask if INSTALL HEAT PUMPS, or likely / very likely to begin installing heat pumps (d1=1 or d2=4-5)

D5 How many employees do you expect to have working on heat pumps by the following dates? This number does not have to be exact; a rough estimate is fine.

Grid, Numeric Value

1. 2023
2. 2025
3. 2028

COMPANY OFFERS HEAT PUMP INSTALLATION SERVICES (ASK IF D1=1)

**D6 How many heat pumps has your business installed in the last 12 months?
numeric value.**

1. WRITE IN.
2. Don't know
3. Prefer not to say

Ask if likely and very likely to begin installing heat pumps (d2=4-5)

D7 What new skills would your existing workforce need to develop to be able to transition into heat pump installation services?

read out. Multi CODE

1. Improving project management skills

2. Improving business development skills (training in how to sell them and finance options)
3. Train staff to be able to conduct installations
4. Train staff to be able to offer heat pump customer service (teaching how to operate systems)
5. Ability to recognise whether a building is suitable for head pump installation
6. Maintenance skills
7. Other (please specify)
8. Don't know
9. Prefer not to say

Ask all

D8 What would need to happen for you to transition into, or expand your existing, heat pump installation services?

read out. MULTICODE

1. Increase company's understanding of the heat pumps landscape
2. Employ (more) staff qualified in installing heat pumps
3. Ensure start-up costs can be met
4. Increased consumer demand
5. Increased government support
6. Advances in heat pump technology to increase quality
7. Heat pumps to become more affordable
8. Reduction in existing types of work
9. Support to train staff to install heat pumps
10. Other (please specify)
11. Not applicable – we have no plans to transition / expand
12. Don't know
13. Prefer not to say

Ask IF INSTALL HEAT PUMPS (D1=1)

D9 What challenges, if any, has your company faced in developing capacity for installing heat pumps?

read out. Multi CODE

1. Lack of customer demand
2. Not knowing what training was needed
3. Not knowing which training courses were suitable
4. Not having time alongside existing work
5. Not knowing which brands to trust
6. Not knowing enough about the technology to be able to recommend it
7. Our installers were reluctant
8. No relationships with heat pump manufacturers
9. Our usual distributor / builders merchant doesn't stock heat pumps
10. Other (please specify)
11. Not applicable - No challenges encountered
12. Don't know
13. Prefer not to say

D10 Government has recently announced proposals that could impact your industry. Examples include the proposals set out in the Heat and Buildings Strategy and Net Zero Strategy.

Government is keen to hear the views of installers on these proposals. Is there anything you haven't had a chance to say previously which you would like to feedback?

1. WRITE IN.
2. Don't know
3. Prefer not to say

ASK ALL

E1 We just have a final few more questions about your [if sizeband = 1 or 2: workforce; if size band 3 or 4: workforce, specifically those working at your branch/ location] What proportion of your heating and cooling installation workforce is...

read out.

DS: PERCENTAGES MUST SUM TO 100%

1. Female
2. Male

3. Other gender identity
4. Don't know
5. Prefer not to say

ASK ALL

E2 In what proportion are the following ethnicities represented in your heating and cooling installation workforce?

READ OUT. SINGLE CODE

DS: PERCENTAGES MUST SUM TO 100%

1. Asian or Asian British
2. Black, African, Caribbean or Black British
3. Mixed or Multiple ethnic groups
4. White
5. Any other ethnic background
6. Don't know
7. Prefer not to say

ASK ALL

E3 What percentage of your heating and cooling installation workforce has a disability?

By this we mean a physical or mental impairment that has a 'substantial' and 'long-term' (12 months or more) negative effect on individuals' ability to do normal daily activities.

1. INSERT PERCENTAGE
2. Don't know
3. Prefer not to say

THANK AND CLOSE

Ask if have multiple installers (a2>1 or a2=dk/ref or a2dk=code 2 and above)

F1 We are now at the end of the survey. Thank you very much for taking the time to speak to us today.

We have gathered your views today as an employer, but we are also interested in knowing the wider views of the workforce as a whole.

The next stage of our research is to contact heating and cooling installers in the sector, and coordination with employers would really help us achieve our objectives. The

survey will cover similar issues surrounding skills development and the future direction of the industry and will last approximately 15-minutes.

Another £5 will be given to Shelter for each installer who completes the survey. The installers who complete will also receive £5.

In addition, participants will be entered into a prize draw to win an iPad. As a thank you for your support we will return a summary of findings from this phase of the research.

All we need you to do is disseminate a survey link to your eligible employees. Would you be willing for us to contact you again in a few weeks' time for this next stage of our research?

SINGLECODE

1. Yes
2. No

Ask if have 1 installer (a2=1 or a2dk=code 1)

F1a We are now at the end of the survey. Thank you very much for taking the time to speak to us today.

We have gathered your views today as an “employer”, but we are also interested in understanding the views and perspectives of individual installers themselves. The survey will cover similar issues surrounding skills development and the future direction of the industry and will last approximately 15-minutes.

If you can take part in this next stage you'll receive £5 as a thank you for taking part and be entered into prize draw from which we will pick three participants to win an iPad.

Would you be willing for us to contact you again for this next and final stage of our research?

1. Yes
2. No

AGREED TO BE RECONTACTED (F1=1 OR F1a=1)

F2a Thank you for agreeing to be contacted for the workforce survey. Please provide your email address below so we can share the workforce survey link.

Remember, all you need you to do is disseminate a survey link to your heating and cooling installers employees.

If you can take part in this next stage, £5 will be given to Shelter for each installer who completes the survey. The installers who complete will also receive £5. In addition, participants will be entered into a prize draw to win an iPad. As a thank you for your support we will return a summary of findings from this phase of the research.

1. Email address

ASK ALL

F2b Can I just confirm your details so that we can contact you if necessary to clarify any information [IF AGREE TO WORKFORCE SURVEY]

1. Name
2. Job title
3. HIDE IF ((F1=1 OR F1a=1)
4. Email address
5. Phone number
6. PREFER NOT TO SAY

ASK ALL

F3 And finally, it would be great to get your thoughts on how you found the survey? In particular if you had any difficulty with any of the questions.

1. WRITE IN.
2. Prefer not to say

IF NOT WILLING TO TAKE PART IN THE WORKFORCE SURVEY (F1=2 OR F1a=2 OR A2=1 OR A2DK=CODE 1)

You have now reached the end of the survey. Thank you again for taking the time to complete the Heating and cooling installers study for employers, your contribution to this research is very much appreciated.

The information you have provided will be used by BEIS for research purposes only.

If you have any queries about the survey or how the data will be analysed, please email IFF Research at IFF_HaCIS@iffresearch.com or phone 0800 804 8039. Alternatively, you can email BEIS at (insert)..

Just to confirm, we'll be keeping your responses to the interview for analysis purposes and if you'd like a copy of your data, to change your data, for your data to be deleted or to lodge a complaint, then please follow the process outlined on our webpage <http://www.iffresearch.com/gdpr/>.

ADD IF NECESSARY: You also have a right to lodge a complaint with the Information Commissioners Office (ICO) and you can do so by calling their helpline on 0303 123 1113.

IF WILLING TO TAKE PART IN THE WORKFORCE SURVEY (F1=1)

You have now reached the end of the survey. Thank you again for taking the time to complete the Heating and cooling installers study for employers, your contribution to this research so far is very much appreciated.

We will be in touch shortly with a survey to distribute to your installer / engineering employees with an email template.

The information you have provided will be used by BEIS for research purposes only.

If you have any queries about the survey or how the data will be analysed, please email IFF Research at IFF_HaCIS@iffresearch.com or phone 0800 804 8039. Alternatively, you can email BEIS at (insert).

Just to confirm, we'll be keeping your responses to the interview for analysis purposes and if you'd like a copy of your data, to change your data, for your data to be deleted or to lodge a complaint, then please follow the process outlined on our webpage <http://www.iffresearch.com/gdpr/>.

ADD IF NECESSARY: You also have a right to lodge a complaint with the Information Commissioners Office (ICO) and you can do so by calling their helpline on 0303 123 1113.

IF WILLING TO TAKE PART IN THE WORKFORCE SURVEY THEMSELVES (F1a=1)

You have now reached the end of the survey. Thank you again for taking the time to complete the Heating and cooling installers study for employers, your contribution to this research so far is very much appreciated.

We will be in touch shortly with a survey that will wish to hear your views as an installer / engineering employee.

The information you have provided will be used by BEIS for research purposes only.

If you have any queries about the survey or how the data will be analysed, please email IFF Research at IFF_HaCIS@iffresearch.com or phone 0800 804 8039. Alternatively, you can email BEIS at (insert).

Just to confirm, we'll be keeping your responses to the interview for analysis purposes and if you'd like a copy of your data, to change your data, for your data to be deleted or to lodge a complaint, then please follow the process outlined on our webpage <http://www.iffresearch.com/gdpr/>.

ADD IF NECESSARY: You also have a right to lodge a complaint with the Information Commissioners Office (ICO) and you can do so by calling their helpline on 0303 123 1113.

Appendix D: Workforce survey invite email (non-sole traders)

Subject line: Help us understand your heating and cooling workforce.

Dear [Contact],

On behalf of the Department for Business, Energy and Industrial Strategy; thank you for taking the time to complete the heating and cooling employers survey.

At the time of taking part in this survey, **you agreed to forward a follow up 'workers survey' to your employees.** This short (15-minute) survey is now ready, and we'd really appreciate the participation of as many of your heating and cooling installers/engineers as possible. The survey will cover similar issues surrounding skills development and the future direction of the industry.

What do I need to do?

1. Please **forward the survey link in the green box below** (or this entire email) to all of your employees who are heating or cooling engineers/ installers.
2. If you are an installer or engineer yourself, please also take part in the survey by clicking this link.

As a thank you for participating, all participants will be entered **into a prize draw to win an iPad.**

**SHARE THIS LINK WITH YOUR
WORKFORCE**

We're looking forward to receiving your workforce's responses. We will use the results from both surveys to build a comprehensive picture of the industry, and the views of both employers as well as the workforce.

Installers/engineers have until 24th December 2021 to complete the survey. Depending on their answers, it should take about 15 minutes to complete.

Yours faithfully,



Laura Edwards,
Head of Heat Systems
Research, BEIS



Andrew Skone
James, Director, IFF
Research

Appendix E: Workforce survey invite email (sole traders)

Subject line: Help us understand your heating and cooling work.

Dear [Contact],

On behalf of the Department for Business, Energy and Industrial Strategy; thank you for taking the time to complete the heating and cooling employers survey.

At the time of taking part in this survey, you agreed to also take part in the follow up 'workers survey'. **This short (15-minute) survey is now ready and we'd really appreciate your participation.** As a thank you for participating, you will be entered into a prize draw to win an iPad.

As a sole trader within the heating and cooling industry we're especially keen to hear your thoughts. The survey will cover similar issues surrounding skills development and the future direction of the industry. We will use the results from both surveys to build a comprehensive picture of the industry, and the views of the installers, such as yourself.

Please complete the survey by following the link below:

CLICK HERE TO ACCESS THE SURVEY

If you agree to take part, you have until 24th December 2021 to complete the survey. Depending on your answers, it should take about 15 minutes to complete.

Yours faithfully,



Laura Edwards,
Head of Heat Systems
Research, BEIS



Andrew Skone
James, Director, IFF
Research

Appendix F: Workforce survey reminder example

Subject Line: Email to forward: Final chance to help your workforce have their say on the future of your industry

Dear [Contact],

On behalf of the Department for Business, Energy and Industrial Strategy; thank you for taking the time to complete the heating and cooling employers survey.

Please can you follow up with all heating and cooling installers within your workforce encouraging them to take part in the workforce survey. We have provided a **draft email below** for you, or another colleague, to forward to your installers.

We appreciate you might have already asked your workforce to fill in this survey and thank you for your support so far. We're keen to **maximise responses** though so would be grateful if you could forward the email below to any installers who you don't think have taken part yet.

Many thanks in advance,



Laura Edwards,
Head of Heat Systems
Research, BEIS

Andrew Skone
James, Director, IFF
Research



Hello,

The Government are inviting you to take part in a quick online survey, which is open until Tuesday 25th January. They need to hear your views on the future of the heating and cooling sector.

As a thank you for completing the survey, they will:

- **Pay you £5** (via PayPal)
- Enter you into a prize draw to **win one of three iPads**
- **Donate £5** to the charity Shelter

To complete the survey, you simply need to click the link below:

[CLICK HERE TO ACCESS INSTALLER SURVEY](#)

Why should you complete this survey?

- It only takes 15 minutes to complete.
- It will help Government to better understand the views and experiences of heating and cooling installers and engineers.
- Your responses will help shape Government decisions on decarbonising the economy.
- Your responses will be anonymous with results reported at an aggregate level.

If you have any issues or queries about completing the survey, you can email IFF Research (who are conducting the research on behalf of the Department for Business, Energy and Industrial Strategy) at HAC-mailbox@iffresearch.com or call them on 0800 804 8039.

Many thanks for taking part in the survey!

Appendix G: Workforce survey

ASK ALL

S1 Roughly, how long have you worked in the heating and/or cooling industry as an installer/engineer?

SINGLECODE

1. Less than 2 years
2. 2 – 4 years
3. 5 – 9 years
4. 10 – 19 years
5. 20 + years
6. Not applicable – I do not install heating or cooling technologies

Thank you for your interest in participating. This survey is only for those working as a heating and/or cooling industry installer or engineer.

If you have any issues or queries about completing the survey, please email IFF Research at HAC-mailbox@iffresearch.com or phone 0800 804 8039.

ASK ALL (S1 1 thru 5)

S1B And do you primarily work with...?

SINGLECODE

1. Heating technologies
2. Cooling technologies
3. Both

ASK ALL

S2 Approximately, how many employees are employed at the organisation that you work for, excluding owners and partners, across all sites in England?

SINGLECODE

1. I am a sole trader
2. 2-9 employees
3. 10-49 employees
4. 50-99 employees

5. 100-249 employees
6. 250+ employees
7. Don't know

ASK ALL

S3 Which of the following regions do you work in?

MULTICODE

1. East Midlands
2. East of England
3. London
4. North East
5. North West
6. South East
7. South West
8. West Midlands
9. Yorkshire and The Humber
10. Scotland
11. Wales
12. Northern Ireland
13. Outside the UK
14. Don't know
15. Prefer not to say

Thank you for your interest in participating. The survey focusses on those operating in England only.

If you have any issues or queries about completing the survey, please email IFF Research at HAC-mailbox@iffresearch.com or phone 0800 804 8039.

ASK ALL

A1 To what extent, do you agree or disagree with the following statements:

Single code per row. Randomise order

__1 [EXCLUDE SOLE TRADERS: S2 = 1] My employer is good at providing me the training I need to do my job

_2 Keeping my skills up to date is important to me

_3 I enjoy learning about new [IF S1B=1: heating technologies, IF S1B=2: cooling technologies, IF S1B=3: heating and/or cooling technologies]

_4 I am confident my current skills will remain in demand in the next 10 years

_5 I am confident my current skills will remain in demand in the next 5 years

_6 [EXCLUDE SOLE TRADERS: S2 = 1] I have a lot of choice in what training I do and do not attend

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree
6. Don't know

ASK ALL

A2 To what extent, do you agree or disagree with the following statements:

Singlecode per ITERATION. Randomise order

_1 I want to continue doing the same kind of work I do now in the future

_2 I have a good understanding of [IF S1B=1: heating technologies, IF S1B=2: cooling technologies, IF S1B=3: heating and/or cooling technologies]

_3 I would like to learn more about additional energy efficiency technologies

_4 I have a lot of choice in what types of [IF S1B=1: heating technologies, IF S1B=2: cooling technologies, IF S1B=3: heating and/or cooling technologies] I install

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree
6. Don't know

ASK ALL

A2B To what extent, do you agree or disagree with the following statements:

SINGLECODE per ITERATION. Randomise order

_1 I am confident advising my customers on a range of low carbon options

_2 I am confident advising my customers on a range of energy efficiency options e.g. insulation

_3 I have lots of skills that would be transferable to heat pump installation

_4 I would be interested in receiving training that would enable me to install and/or maintain heat pumps

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree
6. Don't know
7. Not applicable

ASK ALL

A3 To what extent, do you agree or disagree with the following statements:

Singlecode per ITERATION. Randomise order

_1 Heat pumps will play an important role in heating homes by 2050

_2 Hydrogen will play an important role in heating homes by 2050

_3 Heat pumps will be the most common way to heat a domestic home by 2050

_4 I know how a heat pump works and the types of buildings it is suitable for

_5 Climate change is the most important issue facing the UK

_6 It is important to me that my work helps to address climate change

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

6. Don't know

ASK ALL

B1 How skilled, if at all, would you say you are in the following technologies...

SINGLECODE per iteration

_1 Central heating systems

_2 Vented hot water systems

_3 Unvented hot water systems

_4 Air conditioning systems

_5 Oil boilers

_6 Gas boilers

_7 Heat pumps

1. Not skilled at all

2. Not very skilled

3. Fairly skilled

4. Very skilled

5. Don't know

ASK ALL

B2 Which of the following technologies, if any, would you like to receive more training on?

MULTICODE

_1 Central heating systems

_2 Vented hot water systems

_3 Unvented hot water systems

_4 Air conditioning systems

_5 Oil boilers

_6 Gas boilers

_7 Heat pumps

8. None of the above

9. Don't know

ASK ALL

B3 And how regularly do you install or maintain the following technologies?

SINGLECODE PER ITERATION

- _1 Central heating systems
- _2 Vented hot water systems
- _3 Unvented hot water systems
- _4 Air conditioning systems
- _5 Oil boilers
- _6 Gas boilers
- _7 Heat pumps

1. Never
2. Sometimes
3. Frequently
4. All the time
5. Don't know

ASK ALL

B4 To what extent, do you feel you have sufficient skills in the following to do your job effectively?

SINGLECODE PER ITERATION

- _1 Health and safety
- _2 Customer service skills
- _3 Communications
- _4 Project management
- _5 Sales

1. Not at all
2. Not very much
3. To some extent
4. To a great extent
5. Don't know

ASK ALL

B5 Do you have the specialist training required to handle F-gases? If you are unsure, select "don't know".

SINGLECODE

1. Yes
2. No
3. I am currently receiving specialist training on F-gases
4. Don't know

ASK ALL

B6 Have you ever received/attended training on heat pump installation?

single code

1. Yes
2. No
3. I am currently receiving training on heat pump installation
4. Don't know

If they haven't received training on heat pump installation (B6 = 2)

B7 Why have you not received/attended heat pump installation training?

1. WRITE IN
2. Don't know

If they have received training on heat pump installation (B6 = 1,3)

B8 What [IF B6=1: was, IF B6=3: is] this heat pump installation training called?

1. WRITE IN
2. Don't know

If they have received training on heat pump installation (B6 = 1,3)

B8a And who [IF B6=1: delivered, IF B6=3: is delivering] this heat pump installation training?

1. WRITE IN
2. Don't know

ASK ALL

B9 What types of projects/buildings do you typically work on currently? By domestic we mean homes.

MULTICODE

1. Domestic projects in new buildings
2. Domestic projects in existing buildings e.g. retrofit
3. Non-domestic projects in new buildings
4. Non-domestic projects in existing buildings e.g. retrofit
5. Other (please specify)
6. Don't know
7. Prefer not to say

ASK ALL

B10 Excluding the heating/cooling systems you install/maintain, do you regularly work on any of the following?

MULTICODE

1. Other plumbing work
2. Other ventilation work
3. Other energy efficiency work
4. None of the above
5. Don't know

ASK ALL

C1 Have you installed a heat pump in the last 2 years?

SINGLECODE

1. Yes
2. No - but I have received training to do so
3. No - but I am confident I could do so (despite not receiving training to do so)
4. No - and I would not be confident installing one
5. Don't know
6. Prefer not to say

ASK THOSE WHO CURRENTLY PROVIDE HEAT PUMP INSTALLATION SERVICES (C1 =1)

C2 Which of the following heat pumps have you installed in the last 2 years?

MULTICODE

1. Air Source Heat Pump(s) (hydronic)
2. Ground source heat pump(s)
3. Water source heat pump(s)
4. Hybrid heat pump(s)
5. Air to air heat pump(s)
6. Other (please specify)
7. Don't know

Ask those who currently provide heat pump installation services (c1 =1)

C3 How long have you personally been installing heat pumps?

SINGLECODE

1. Under 1 year
2. Between 1 and 2 years
3. Between 2 and 5 years
4. Between 5 and 10 years
5. Between 10 and 20 years
6. More than 20 years
7. Not sure

Ask those who currently provide heat pump installation services (c1 =1)

C4 Approximately, what percentage of your work, over the last 2 years, has been spent installing heat pumps? If you are not sure, please provide your best estimate.

SINGLECODE

1. Under 5%
2. Between 5-25%
3. Between 26-50%
4. Between 51-75%

5. Between 76% and 90%
6. More than 90%
7. Not sure

Ask those who currently provide heat pump installation services (c1 =1)

C5 In the next 5 years, do you expect this percentage to...

SINGLECODE

1. Increase a lot
2. Increase a little
3. Stay the same
4. Decrease a little
5. Decrease a lot
6. Not sure

Ask those who don't currently provide heat pump installation services (c1=2-4)

C6 Why do you not currently install heat pumps?

MULTICODE

1. I have enough work without offering heat pumps
2. My customers are not asking for them / customer demand is low
3. I don't think the technology is good enough / they work well enough
4. I do not feel confident that my customers will like them
5. I am not fully qualified to install and maintain heat pumps
6. I do not have time to learn about them
7. This isn't relevant to my business / employer
8. My current work pays better than installing heat pumps
9. I intend to retire or change industry and so learning these skills is not a priority
10. I do not know enough about when heat pumps would be suitable
11. Other (please specify)
12. Don't know

Ask those who currently provide heat pump installation services (c1=1)

C6B Why do you currently install heat pumps?

MULTICODE

1. It increases my job security
2. My customers are asking for them / there is customer demand
3. I want to work on low carbon technologies
4. It increases what I can earn / my wages
5. I think heat pumps are a good solution for my customers' needs
6. It's part of my job role with my employer
7. Other (please specify)
8. Don't know

Ask all IF not sole trader (S2 ≠1)

C8 Thinking about all types of training, who pays for the cost of your training?

SINGLECODE

1. I do
2. My employer does
3. Both
4. Other (please specify)
5. Don't know

Ask all IF not sole trader (S2 ≠1)

C9 Do you get paid time to do training?

SINGLECODE

1. Yes
2. No
3. Don't know

ASK ALL

C10 Which of the following, if any, would increase the number of heat pumps you install?

SELECT UP TO THREE OPTIONS

1. Increase understanding of the heat pumps landscape
2. Increased consumer demand
3. Increased government support
4. Advances in heat pump technology to increase quality
5. Heat pumps to become more affordable
6. Reduction in existing types of work
7. Increased availability of training and support
8. Other (please specify)
9. Not applicable / None
10. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) and install Air source heat pumps (B3_7 = 2-4)

C11A We are now interested in how long it takes to install certain technologies in a domestic setting. Roughly, how long on average does it take to install Domestic Air source heat pumps?

If two installers are typically required, please double the time to install (e.g. 1 day for two installers = 2 installation days)

Please only include the time taken to install these technologies and not the time taken to do associated paperwork. If you are unsure, please provide a best estimate.

SINGLECODE

1. Less than half a working day
2. Between half and 1 working day
3. 1-2 working days
4. 2-4 working days
5. 4-6 working days
6. 6-8 working days
7. More than 8 working days
8. Not applicable
9. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) and install GAS BOILERS (B3_6 = 2-4)

C11B We are now interested in how long it takes to install certain technologies in a domestic setting. Roughly, how long on average does it take to install Domestic Gas boilers?

If two installers are typically required, please double the time to install (e.g. 1 day for two installers = 2 installation days)

Please only include the time taken to install these technologies and not the time taken to do associated paperwork. If you are unsure, please provide a best estimate.

SINGLECODE

1. Less than half a working day
2. Between half and 1 working day
3. 1-2 working days
4. 2-4 working days
5. 4-6 working days
6. 6-8 working days
7. More than 8 working days
8. Not applicable
9. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) and install oil boilers (B3_5 = 2-4)

C11C We are now interested in how long it takes to install certain technologies in a domestic setting. Roughly, how long on average does it take to install Domestic Oil boilers?

If two installers are typically required, please double the time to install (e.g. 1 day for two installers = 2 installation days)

Please only include the time taken to install these technologies and not the time taken to do associated paperwork. If you are unsure, please provide a best estimate.

SINGLECODE

1. Less than half a working day
2. Between half and 1 working day
3. 1-2 working days
4. 2-4 working days
5. 4-6 working days

6. 6-8 working days
7. More than 8 working days
8. Not applicable
9. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) install Air source heat pumps (B3_7 = 2-4)

C12A And how long on average does it take to complete the paperwork associated with a typical Domestic Air source heat pump installation?

SINGLECODE

1. Up to 30 minutes
2. More than 30 minutes, but less than 1 hour
3. 1-2 hours
4. 2-4 hours
5. 4-8 hours
6. 8 hours
7. Not applicable
8. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) install gas boilers (B3_6 = 2-4)

C12B And how long on average does it take to complete the paperwork associated with a typical Domestic Gas boiler installation?

SINGLECODE

1. Up to 30 minutes
2. More than 30 minutes, but less than 1 hour
3. 1-2 hours
4. 2-4 hours
5. 4-8 hours
6. 8 hours
7. Not applicable
8. Don't know

Ask IF WORK DOMESTICALLY (B9=1,2) install oil boilers (B3_5 = 2-4)

C12C And how long on average does it take to complete the paperwork associated with a typical Domestic Oil boiler installation?

SINGLECODE

1. Up to 30 minutes
2. More than 30 minutes, but less than 1 hour
3. 1-2 hours
4. 2-4 hours
5. 4-8 hours
6. 8 hours
7. Not applicable
8. Don't know

ASK ALL

C13 Do you expect the number of units sold in the UK, of the following technologies, to increase or decrease in the next 10 years?

SINGLECODE PER ITERATION

1. Gas boilers
2. Oil boilers
3. Heat pumps
4. Hydrogen boilers

Increase a lot

Increase a little

Stay the same

Decrease a little

Decrease a lot

Don't know

ASK ALL

D1 To what extent do you agree or disagree with the following statement: "I think it is important to self-certify that work complies with Building Regulations e.g. through a Competent Person Scheme"

SINGLECODE

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree
6. Don't know

ASK ALL

D2 How aware, if at all, are you of how current Building Regulations apply to your work?

SINGLECODE

1. Very aware
2. Fairly aware
3. Not very aware
4. Not aware at all
5. Don't know

ASK ALL

D3 Thinking about the industry as a whole, do you think work is generally done to...?

SINGLECODE

1. A very good quality
2. A fairly good quality
3. Neither a good nor bad quality
4. A fairly bad quality
5. A very bad quality
6. Don't know

ASK ALL

D4 Typically speaking, does someone else check, sign-off or approve your installation work?

SINGLECODE

1. Yes, someone more senior / or with more experience in the business

2. Yes, someone in the business but not senior to me
3. Yes, someone from outside the business
4. No, I am usually responsible for checking, signing-off or approving my own work
5. Not applicable
6. Don't know

ASK ALL

D5 Are you responsible for checking, signing off or approving work done by other installers?

SINGLECODE

1. Yes, regularly
2. Yes, occasionally
3. No
4. Don't know
5. Prefer not to say

ASK ALL

E1 Which of the following best describes your qualification level as a heating and/or cooling installer /engineer?

SINGLECODE

1. No formal qualifications
2. Level 1 qualifications (e.g., D or below at GCSEs graded D-G, or 3-1s, NVQ Level 1)
3. Level 2 qualifications (e.g., GCSEs at A*-C or 9-4, NVQ Level 2, CSE, or O levels)
4. Level 3 (e.g., A level, advanced apprenticeship, AS level, level 3 diploma, level 3 NVQ)
5. Level 4 (e.g., certificate of higher education (CertHE), higher apprenticeship, level 4 diploma, level 4 NVQ)
6. Level 5 (e.g., diploma of higher education (DipHE), foundation degree, higher national diploma (HND), level 5 NVQ)
7. Level 6 or above (e.g., degree apprenticeship, master's degree, doctorate)
8. Don't know
9. Prefer not to say

ASK ALL

E2 Are you currently undertaking a heating and/or cooling apprenticeship?

SINGLECODE

1. Yes
2. No

ASK those currently undertaking a heating and/or cooling APPRENTICESHIP (E2 = 1)

E3 What type of heating and/or cooling apprenticeship are you currently undertaking?

1. WRITE IN
2. Don't know

ASK ALL

E4 In the next 5 years, do you think your business should take on more, fewer or about the same number of apprentices they currently take on each year? Please think about new staff joining your company as an apprentice.

1. More
2. About the same number as currently
3. Fewer
4. Don't know

ASK ALL

E5 Overall, how would you currently describe your view of apprenticeships in your industry?

SINGLECODE

1. Very positive
2. Fairly positive
3. Neither positive nor negative
4. Fairly negative
5. Very negative
6. Don't know

ASK ALL

E6 Would you like the opportunity to mentor an apprentice?

SINGLECODE

1. Yes, and I currently do / have in the past
2. Yes, although I haven't before
3. No, although I have in the past
4. No, and I never have
5. Don't know

ASK ALL

E7 Typically speaking, how long, on average, does it take you to travel to where you undertake work or between jobs?

SINGLECODE

1. Less than 30 minutes
2. Between 30 minutes and 1 hour
3. Between 1 and 2 hours
4. More than 2 hours
5. Too varied to provide an average
6. Don't know
7. Prefer not to say

ASK ALL

E8 And how long would be the most you would be prepared to regularly travel to undertake work or between jobs?

SINGLECODE

1. Less than 30 minutes
2. Between 30 minutes and 1 hour
3. Between 1 and 2 hours
4. More than 2 hours
5. Don't know
6. Prefer not to say

ASK ALL

E9 What is your age?

SINGLECODE

1. 16-24
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. 65+
7. Prefer not to say

ASK ALL

E10 Do you have any plans to leave the industry, either to retire or to do something different in the next 10 years?

SINGLECODE

1. Yes – to retire
2. Yes – to do something different
3. No – but I want to work in a different part of the industry
4. No – not currently
5. Not sure

Ask those who have plans to leave the industry (e10 = 1 or 2)

E11 When do you have plans to leave the industry?

SINGLECODE

1. In the next 1-2 years
2. In the next 2-3 years
3. In the next 3-5 years
4. In the next 5-10 years
5. In more than 10 years
6. Not sure

ASK ALL

E12 Which of the following best describes your gender?

SINGLECODE

1. Female

2. Male
3. Other gender identity
4. Prefer not to say

ASK ALL

E13 What is your ethnic group?

SINGLECODE

1. English/Welsh/Scottish/Northern Irish/British
2. Irish
3. Gypsy or Irish Traveler
4. Any other White background, please describe (specify)
5. White and Black Caribbean
6. White and Black African
7. White and Asian
8. Any other Mixed/Multiple ethnic background, please describe (specify)
9. Indian
10. Pakistani
11. Bangladeshi
12. Chinese
13. Any other Asian background, please describe (specify)
14. African
15. Caribbean
16. Any other Black/African/Caribbean background, please describe (specify)
17. Arab
18. Any other ethnic group, please describe (specify)
19. Prefer not to say

ASK ALL

E14 Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?

SINGLECODE

1. Yes
2. No
3. Don't know

Thank you and close

ASK ALL

F1 Thank you very much for taking the time to complete this heating and cooling survey for the Department for Business, Energy and Industrial Strategy (BEIS).

The next stage of this study will include interviews and focus groups with heating and cooling installers and engineers which will expand on the findings from the survey you have just completed.

As a thank you, those who take part in an interview would receive £50 and those who take part in a focus group would receive £75. The interviews will be conducted via telephone/Zoom/Teams and the focus groups via Zoom.

Would you be happy to be contacted in the next few months to invite you to this next stage of the study? You can change your mind about participating if, and when, we contact you.

SINGLECODE

1. Yes – I would be happy to be invited to this next stage
2. No – I would prefer not to be invited to this next stage
3. Don't know

ASK THOSE WHO AGREE TO BE CONTACTED (F1 = 1)

F2 Would you be interested in taking part in a focus group or in-depth telephone interview on this subject?

The interviews are expected to take part in January and February 2021 and the focus groups in February 2022.

SINGLECODE

1. An interview
2. A focus group
3. Either
4. Don't know

ASK ALL

F2A Can you please confirm your details below.

If you do not provide these then we will be unable to send you £5 via PayPal or Amazon or include you in the prize draw.

1. Name (essential for payment of £5)
2. Job title
3. Email address (essential for payment of £5)
4. Phone number
5. PREFER NOT TO SAY

ASK ALL

F3 And finally, it would be great to get your thoughts on how you found the survey? In particular if you had any difficulty with any of the questions.

1. WRITE IN.
2. Prefer not to say

Those with Email Address and Name at F2A

F4 As a thank you for completing, would you prefer to receive £5 via PayPal or a £5 Amazon Voucher?

You will receive payment at the start of February. We will also be in touch at the start of February if you have won one of the iPads in our prize draw.

SINGLECODE

1. £5 via PayPal
2. £5 Amazon Voucher

ASK ALL

You have now reached the end of the survey. Thank you again for taking the time to complete this heating and cooling survey for the Department for Business, Energy and Industrial Strategy (BEIS).

You will receive your £5 incentive in the first week of February.

If you have any issues or queries about completing the survey, please email IFF Research at HAC-mailbox@iffresearch.com or phone 0800 804 8039. Alternatively, you can email BEIS at (insert).

Just to confirm, we'll be keeping your responses to the interview for analysis purposes and if you'd like a copy of your data, to change your data, for your data to be deleted or to lodge a

complaint, then please follow the process outlined on our webpage
<http://www.iffresearch.com/gdpr/>.

You also have a right to lodge a complaint with the Information Commissioners Office (ICO) and you can do so by calling their helpline on 0303 123 1113.

Appendix H: In-depth interview topic guide

A. Interview purpose and principles (internal use)

This guide is for conducting one-to-one depth interviews with 50 heating and cooling installers, lasting 45-60 minutes. These will be conducted via telephone, Zoom or MS Teams. Interviews will take place in February and March.

Insight from these discussions will contribute to the Heating and Cooling Installer Study (HACIS), the aim of which is to develop understanding of the existing heating and cooling installer workforce, with a view to increasing installations of heat pumps to heat buildings.

The research objectives and questions relevant for this stage of the research are:

No	Research objectives	Research questions
1	Expand upon / triangulate survey findings RE characteristics, activities, attitudes and experiences of heating and cooling installers	<p>What skills, specialisms, experience, and qualifications do installers have?</p> <p>What proportion of installers' activities is spent on heat pumps and other heating technologies? How do they expect this to differ in 5- and 10-years' time and why?</p>
2	Support development & refinement of installer archetypes	<p>How can an understanding of these distinct archetypes be used to target engagement and support for installers through the low carbon transition?</p> <p>What factors could encourage these groups to upskill, install more heat pumps or take on heat pump apprentices?</p> <p>Do any groups consider themselves specialists, distinct from the wider sector?</p> <p>What are the attitudes of these groups to diversity in the sector?</p> <p>Which sources of information do installers trust or rely on (to shape their attitudes)?</p> <p>How far would installers travel to undertake work?</p> <p>How can installers be encouraged to advise on and recommend heat pumps as appropriate to their customers?</p>

No	Research objectives	Research questions
3	To understand the extent to which heating and cooling installers can be upskilled to work on heat pumps in the future.	<p>What factors influence willingness and suitability for upskilling for heat pumps?</p> <p>What influences installers' attitudes towards training and apprenticeships?</p> <p>What factors influence these archetypes' decisions to upskill or increase the number of heat pump installations? How far would they be willing to travel, pay or spend time doing so?</p> <p>What are experiences of those who have undertaken specific training in heat pumps? How can these courses be improved? (cost, affordability, time, content, ease of identification of courses)</p> <p>Would installers prefer to specialise, or remain flexible across technologies? What factors influence this?</p> <p>What factors influence their willingness to take on an apprentice, and who they take on (incl. diversity)?</p> <p>How confident would an installer be explaining to a consumer how to choose the right electricity tariff for their heat pump or signposting them to someone who could? (Or explaining how to use related technology such as solar panels, batteries or electric vehicle chargers?) What additional information or resources could be provided to support this?</p>
4	To explore heating and cooling installers' attitudes towards standards and accreditation for low carbon heating and identify what factors influence these views.	<p>What accreditation bodies do installers belong to, why do they belong to these bodies and what are their experiences of accreditation?</p> <p>What factors influence decisions to join schemes/not?</p> <p>Would they like these schemes to change, or be consolidated/replaced?</p> <p>What perceptions do installers have of installation quality issues within these schemes? What steps can be taken to ensure high quality heat pump installations and good customer experiences?</p>
5	To understand how installer business models may need to adapt in the future to effectively install heat pumps, and explore potential challenges arising from these changes.	<p>What are the challenges faced by different types of installation businesses to install heat pumps?</p> <p>What are the potential approaches, risks, opportunities & business planning considerations for transitioning to becoming a heat pump installation business over time?</p> <p>Does the installer offer smart controls, radiators or other additional energy efficiency measures?</p>

No	Research objectives	Research questions
		<p>How do installers work alongside other professions? Which of these are in-house, which are external? Do they see this changing in future?</p> <p>What are the main factors driving cost and time to install a heat pump? How could these be reduced?</p> <p>How far should we expect businesses to specialise in certain technologies?</p> <p>How can businesses take steps to improve diversity within the sector?</p>

This guide is intended to be used with a mix of individuals with varying characteristics and backgrounds. As such, it does not contain pre-set questions, but rather lists the key themes and sub-themes to be explored with participants in each interview. Words or short phrases are instead used to indicate the study issues and allows the researcher to determine the formulation of questions and how to follow up. This encourages the researcher to be responsive to the situation and most crucially to the terms, concepts, language and behaviours used by the participants.

Follow-up questions like ‘why’, ‘when’, ‘how’, etc. are not always included, as participants’ contributions will be fully explored in response to what they tell us throughout in order to understand how and why views and experiences have arisen. The order in which issues are addressed and the amount of time spent on different themes will vary between interviews but the key areas for discussion are the same.

Questioning and probing will be framed to ensure we understand participants’ situations as they view them. Researchers will adapt the approach, as much as possible, to suit the needs of each participant. The prompts provided are not exhaustive, but rather indicate the types of content we would expect to be covered – this may vary across participants with different characteristics.

B. Research Introduction (2 minutes)

Interviewer and IFF introduction / background / purpose: Thank you for agreeing to take part in this research. I'm [name] from IFF Research. We've been commissioned by the Government, to find out about the current heating and cooling installer workforce.

In this interview, we'll be talking about your current knowledge of heating technologies, and your attitudes towards low carbon heating technologies such as heat pumps. There are no right or wrong answers, we're just interested in hearing what you think.

The interview is likely to take between 45-60 minutes, depending on the length of your answers.

MRS Code of Conduct and Confidentiality: IFF Research is an independent market research company, operating under the strict guidelines of the Market Research Society's Code of Conduct. This means that anything you tell us will be treated in the strictest confidence. Although we may share extracts of this interview with BEIS, you won't be named individually. We may also include anonymised quotations from you in published reports to reinforce findings. Would that be okay?

1. Yes
2. No

GDPR statement: Additionally, under data protection law (GDPR), you have the right to have a copy of your data, change your data, or withdraw from the research at any point. Further information about this can be found on our website at: iffresearch.com/gdpr

1. Yes
2. No

Consent to record interview: We like to audio record all interviews, so we fully capture what's said and can focus on the conversation versus note taking - the recording will only be used for analysis purposes. All audios will be stored securely, and only the project team at IFF will have access to these. Is this okay?

Based on this, are you happy to take part?

1. Yes
2. No

C. Warm up (2 minutes)

C1. Firstly, could you tell me a bit about your work.

INSTRUCTION FOR INTERVIEWER: USE THESE AS A BRIEF WARM UP TO INTERVIEW

Could you tell me...?

How long you've been working in the heating and/or cooling industry?

Do you primarily work with heating or cooling technologies, or both?

Do you typically work on domestic properties, commercial properties or a bit of both?

INTERVIEWER: CHECK BOOKING SHEET COLUMN AB TO SEE IF THEY WORK ON COMMERCIAL PROJECTS. IF SO, ASK:

Would you say you work more on domestic or commercial properties? IF MORE COMMERCIAL, NOTE FOR SECTION BELOW

Which region you work in?

Do you work as a sole trader, or for a larger business? [MODERATOR, NOTE ANSWER TO THIS FOR BUSINESS CONSIDERATIONS SECTION BELOW]

D. Views on domestic heat pumps & other technologies (15 minutes)

FOR THOSE WHO HAVE UPSKILLED TO INSTALL DOMESTIC HEAT PUMPS:

D1. I understand you have experience of installing domestic heat pumps?

D2. Why did you decide you wanted to work on domestic heat pump installation?

D3. IF INTERESTED IN LOW CARBON: Can you tell me about that?

What got you interested in low carbon technologies [driven by concern over climate change / interest in technology / both / something else?]

How did that process of becoming interested in low carbon happen for you?

Can you tell me about any steps along the way?

Did anyone or anything influence you?

Were there any key trigger or tipping points?

D4. What about demand from customers for low carbon heating options – was that a factor?

IF SO: Can you tell me about that?

How much demand is there for heat pumps, or low carbon options?

IF NOT MUCH: Why do you think this is?

PROBE: Potentially customers just wanting to replace their boilers could lead to low demand. What do you think about that?

What kinds of customers are interested in low carbon heating technology?

What kinds of buildings do they live in?

Where do they live? [i.e. urban vs rural / which region?]

D5. IF NOT ALREADY COVERED: Customer demand is one factor some installers think about when making decisions about whether to work in low carbon heating.

D6. What do you think needs to happen to increase customer demand for heat pumps?

Allow top of mind, then prompt with:

Is there anything the Government could do to help this?

Is there anything industry could do to help this?

Anything they could do to help this?

Anything else?

D7. Thinking about training you have been on to install domestic heat pumps, was there anything that influenced or enabled you to seek and access this training?

IF YES: Could you tell me about that?

How did you find this training?

What was involved in your training? (i.e. how many sessions, how long, homework, who delivered it, if/how assessed)

Who provided your training?

Do you have any suggestions for how your training course, or ones like it, could be improved? (e.g. cost, affordability, time, content)

What about the content of the course you went on, did you feel this covered the key aspects involved in low carbon heating [Listen out for any mention of system design]

IF NOT: What do you think courses like this should include?

D8. LOWER PRIORITY: When did you receive training on heat pump installation?

D9. Did you get a qualification or certificate? What was this?

D10. Have you, or will you, need to supplement this training at any point?

D11. Is there anything that would make it quicker or easier to install domestic heat pumps?

Does it / would you expect it to make a difference if the heat pump was being installed in a new build or an existing home?

D12. What types of heat pumps have you been trained to install? [e.g. Air Source, Ground Source, Air-to-Air heat pumps – any others?]

LOW PRIORITY: Are there any heat pumps you'd be interested in training on to be able to install, in addition to the above?

Why/why not that one/those ones?

Would you consider training to be able to install more than one type? Why/why not?

What would influence your decisions on which type to install and get training on? (E.G. COST, TRUST IN TECH/TRAINING BRANDS, TIME REQUIREMENT, ANYTHING ELSE?)

D13. How would you feel about providing an annual check-up or service for a heat pump?

On a scale of 1-10, with 1 being not at all confident, and 10 being very confident, how confident would you feel providing an annual check-up?

Is there anything you'd want to learn more about in order to provide an annual check-up?

IF SO:

Can you tell me about that?

What would you need?

What would be helpful?

D14. How would you feel about repairing a heat pump if something went wrong?

On a scale of 1-10, with 1 being not at all confident, and 10 being very confident, how confident would you feel about repairing a heat pump if something went wrong?

Is there anything you'd want to learn more about in order to provide an annual check-up?

IF SO:

Can you tell me about that?

What would you need?

What would be helpful?

D15. What about the heat system as a whole, how would you feel about attending to the various aspects of a heat system if something went wrong?

Are there some aspects you'd feel more comfortable with than others?

IF SO: Which aspects would you feel more comfortable with?

And which would you feel less comfortable with?

OPTIONAL PROMPTS: PIPES, RADIATORS, ELECTRICITY TARIFF

On a scale of 1-10, with 1 being not at all confident, and 10 being very confident, how confident would you feel about this if something went wrong?

Is there anything you'd want to learn more about in order to provide an annual check-up?

IF SO:

Can you tell me about that?

What would you need?

What would be helpful?

D16. LOWER PRIORITY: Do you know how long it takes to maintain a domestic heat pump, for example, if something went wrong, or for an annual check-up?

IF YES: Is this longer or shorter than the time required for boilers?

IF UNSURE: Would you expect this to be longer or shorter than the time required to for boilers?

D17. FOR THOSE TRAINED TO INSTALL HEAT PUMPS BUT HAVE NOT INSTALLED ONE IN LAST 2 YRS: I understand you have been trained to install heat pumps, but haven't installed one in the last two years. Is that right?

Why haven't you installed one?

Is there anything preventing you from installing one?

IF SO: How could any barriers be overcome?

D18. FOR THOSE WHO HAVE NOT UPSKILLED TO INSTALL DOMESTIC HEAT PUMPS: I understand you haven't undertaken training to install heat pumps, is that right?

D19. Are there any reasons for this? [Probe if not mentioned. work commitments, COVID-19, not needed to before, too busy, not many courses on offer, close to retirement – not worth it, cost, lack of demand, not interested in, need more Government support]

IF THEY MENTION NEED MORE GOVERNMENT SUPPORT TO BE ABLE TO INSTALL:
Can you tell me about that?

What do you need exactly

How would that help?

D20. Is this something you intend to do? Why/why not?

D21. IF INTENDS TO UNDERTAKE TRAINING: Is there anything preventing or getting in the way of you taking training on domestic heat pump installation?

PROBE IF NOT MENTIONED:

Lack of Government support [if yes, ask what they have in mind]

Lack of time/money

Employer won't pay for

Other work commitments

Don't want to or see value in heat pumps

Don't anticipate much / enough work installing them

Don't anticipate much/enough work installing them locally

Lack of consumer demand)

Do you feel any of these barriers could be overcome?

IF SO: How do you see that working? What needs to happen?

D22. Is there anything that would encourage or motivate you to undertake domestic heat pump training?

IF YES: Can you tell me about that?

Allow unprompted response, listen out to see if climate change / low carbon technologies are mentioned, AND if customer demand is mentioned

D23. IF INTERESTED IN LOW CARBON – ASK ALL: Can you tell me about that?

What got you interested in low carbon technologies [driven by concern over climate change / interest in technology / both / something else?]

How did that process of becoming interested in low carbon happen for you?

Can you tell me about any steps along the way?

Did anyone or anything influence you?

Were there any key trigger or tipping points?

D24. What about demand from customers for low carbon heating options – was that a factor?

IF SO: Can you tell me about that?

What kinds of customers are interested in low carbon heating technology?

What kinds of buildings do they live in?

Where do they live? [i.e. urban vs rural / which region?]

D25. IF NOT ALREADY COVERED: Customer demand is one factor some installers think about when making decisions about whether to work in low carbon heating.

D26. What needs to happen to increase customer demand for heat pumps?

Allow top of mind, then prompt with:

Is there anything the Government could do to help this?

Is there anything industry could do to help this?

Anything they could do to help this?

Anything else?

D27. ASK ALL SEGMENT 3: Would you be interested in training to be able to install heat pumps if there was more demand?

Why / why not?

Any barriers? [Listen out for having to self-fund this]

D28. Would you be willing to spend one week on training to become a certified domestic heat pump installer? Please bear in mind that the cost of a one-week training course is around £600, though this isn't necessarily something you'd pay yourself, for example, your employer may pay.

IF NO: Can I ask what makes you say that?

Would a financial incentive to train make a difference?

Is there anything other than finances that would be a barrier for you?

IF YES:

Would £250 be a sufficient incentive to spend one week training?

IF NO: Would an incentive of £500 be sufficient?

IF NO: What level of financial incentive would be required?

ASK ALL: Can I just check, is this something you would expect to pay for yourself?

D29. LOWER PRIORITY: FOR THOSE WILLING TO TRAIN: Do you anticipate that installing domestic heat pumps will be part of your work in the next five years?

As a rough estimate, how many do you think you could be delivering weekly or monthly

FOR THOSE WILLING TO TRAIN – KEY SEGMENTS: 1& 5. IF SEGMENT 3, ASK THEM FIRST IF THEY WOULD BE INTERESTED IN TRAINING TO UPSKILL ON HEAT PUMP INSTALLATION:

D30. To be able to install domestic heat pumps, and other new technologies, installers will need to make decisions about where to invest their resources into training and accreditation. What do you think are the most important aspects that any training should cover?

Allow unprompted response. If they mention system design follow up with:

Can you tell me more about that? What's important with system design and why?

What are the key aspects any training course should cover?

Who do you think is best placed to deliver this training?

D31. There are different types of heat pumps, for example:

Air Source Heat Pumps

Ground Source Heat Pumps

Air-to-Air heat pumps

D32. Do you think it matters which types installers learn to install? Why/why not?

D33. Which of these, if any, would you consider learning how to install?

Why that one/those ones?

Are there any other types you've heard of?

Would you be interested in installing them? Why/why not?

Would you consider training to be able to install more than one type? Why/why not?

What would influence your decisions on which type to install and get training on? (e.g. cost, trust in tech/training brands, time requirement, anything else?)

D34. ASK ALL: What are your views on the quality of domestic heat pumps currently available in the UK?

IF NEGATIVE: Is this something you think will change in the future? Why/why not?

D35. Are there any particular skills you'd want to develop to [be able to transition to provide / in relation to] domestic heat pump installation services?

IF SO:

Can you tell me about these?

Any specific skills?

Why would those be important?

IF STRUGGLING TO THINK OF PARTICULAR SKILLS, COULD SUGGEST: e.g. Specific technical skills relating to heat pumps and their maintenance, sales i.e. developing knowledge around the low carbon transition and costs associated with heat pumps, and also around making recommendations for electricity tariffs when using heat pumps.

D36. ASK SEGMENTS 2 & 4 ONLY: Over the course of your career as an installer, have you ever had to make a transition to a new kind of technology?

Allow unprompted response then probe:

How about combi boilers, did you have to learn about them?

IF SO: Can you tell me about that? What was it like transitioning to installing combi boilers?

What motivated you to make this change? What were the benefits of upskilling/transitioning?

Were there any challenges?

Did you have to learn any new skills?

Did you have to go on any training courses?

How could the transition have been improved?

E. Attitudes towards standards & accreditation (10 minutes)

I'd now like to understand what you think about work standards in your industry, as well as your experience with training and accreditation in your industry. I'm interested in both what you've experienced so far, and what would be important to you if you were to engage with domestic heat pump training and accreditation in the future.

MODERATOR: CHECK BOOKING SHEET FOR SURVEY RESPONSE PRIOR TO INTERVIEW

E1. You answered in the survey that you think work in your industry is done to a [very/good / neutral / fairly/bad] quality. Could you tell me more about that?

What made you say that?

IF GOOD: What are the key aspects that keep standards high in your industry?

IF BAD: How do you think standards could improve in your industry?

E2. Are you/Is your employer accredited in any way related to your work as a heating or cooling installer? (E.g. Gas Safe, MCS, competent person schemes)

IF YES:

Which organisation gave you/your employer that accreditation? [LISTEN OUT FOR MCS. FOR CONTEXT, MCS CERTIFIES LOW-CARBON PRODUCTS AND INSTALLATIONS]

IF MCS NOT MENTIONED: What about MCS, do you/your employer have that accreditation?

IF NOT: Why not?

IF THEY ARE MCS ACCREDITED:

What do you think about MCS as an organisation?

Do you have much contact with them?

How would you describe your relationship with them?

Can you tell me what they offer?

Are you aware they run apprenticeship programmes?

Is that something you'd be interested in taking up? Why/why not?

E3. Thinking back to the accrediting bodies you mentioned, how did you/your employer decide which body to get accreditation from?

What were your/their key considerations? (e.g. time, quality/reputation of course, how they heard about it, when it was on offer, how quickly they could train)

What was less important?

E4. Tell me about how you/your employer got accredited

What happened?

How long did it take to get accreditation?

Are there any ongoing requirements associated with your/their accreditation? [e.g. an annual audit]?

IF YES: Do you/your employer feel this is an effective way to ensure accreditation is up to date?

Were there assessments?

How much did it cost?

What worked well?

Any areas for improvement?

E5. How would you rate the current accreditation schemes on offer? Why do you say that?

IF ROOM FOR IMPROVEMENT: Do you have any suggestions for improvement to these accreditation schemes?

E6. Why do you think your business chooses to be certified by [their answer as per above]. MODERATOR NOTE: DO NOT ASK ABOUT GAS SAFE AS THIS IS A LEGAL REQUIREMENT THEY WILL ALL HAVE

Have they/their employer stayed a member of some accrediting organisations over others?

IF SO:

Why those?

Do you feel they add value to your work? (e.g. engender trust with customers, add prestige, keep them up to date with developments in their industry?)

E7. What would be the key considerations for your business, if you were to get accreditation to install domestic heat pumps?

Is the customer's experience something that comes up on training courses?

F. Business model (5 minutes)

I'd now like to understand how installing domestic heat pumps [does / could] affect your business.

MODERATORS: CHECK IF RESPONDENT IS A SOLE TRADER OR WORKS FOR LARGER BUSINESS (SEE WARM-UP ABOVE), AND ADAPT ACCORDINGLY BELOW

F1. ASK SOLE TRADERS WHO DON'T CURRENTLY INSTALL: What would you need to think about if you were to start installing domestic heat pumps?

What steps would you take?

What would the opportunities be?

What would the risks be?

F2. ASK SOLE TRADERS WHO CURRENTLY INSTALL: What enabled you to start installing domestic heat pumps?

What were or have continued to be the risks?

F3. ASK BUSINESS OWNERS WHO EMPLOY OTHERS: If you were thinking about adapting your business model to be able to install domestic heat pumps, what would you need to think about?

What steps would you take?

What would the opportunities be?

What would the risks be?

F4. LOWER PRIORITY: ASK THOSE WHO ARE EMPLOYED BY OTHERS: How do you think you would be affected if your employer decided that the business would start installing domestic heat pumps?

How would you feel about this?

Would you have any concerns?

Are there any steps you think you'd need to take?

F5. Do you currently work alongside any other professions as part of your day-to-day work? (e.g. retrofit advisors, builders, electricians, plumbers, renewables installers)

IF YES: Which of these are part of your business or organisation?

Which are external to your business or organisation?

Do you expect this to change in the future? Why/why not?

How do you find working with other professions in this way? What opportunities does it create? What challenges are there?

F6. Do you ever employ apprentices to work with you / [FOR MANAGERS] in your business with your staff?

IF YES: What do you think about when taking on an apprentice?

What are your priorities?

Any other considerations?

Do you ever think about diversity when hiring apprentices?

F7. Where do you find apprentices to work with you?

Are you in touch with any colleges or educational institutions that help you find apprentices?

IF SO: Could you tell me how this works?

ASK SEGMENT 4 ONLY

F8. Thinking about retirement, have you thought about what will happen to your business?

OPTIONAL PROBES:

Have you thought about passing your business onto someone else?

What about your client base, who do you think that will go to when you retire?

G. Engaging with customers (5 minutes)

I'd now like to understand how you'd feel about advising customers on domestic heat pumps and related technologies.

G1. ASK SEGMENT 5 ONLY: Some installers believe that heat pumps are a good solution to customers' needs. What do you think about that?

What makes you say that?

Do you think this will change over time? [i.e. they'll be good solution to more customers' needs]
Why/why not?

G2. At this point, how confident would you feel advising your customers about how to reduce their energy usage?

G3. How confident would you feel advising them about low carbon heating or cooling systems that would be most appropriate for them [e.g. a heat pumps, solar hot water or biofuel boilers]

G4. How confident would you feel explaining to customers how to choose the right electricity tariff for their domestic heat pump, or signposting them to someone who could?

G5. LOWER PRIORITY: How confident would you feel explaining how to use a domestic heat pump alongside other related technology such as solar panels, batteries or electric vehicle chargers?

G6. What, if any, additional information or resources that would help you with this?

What would be helpful in terms of content for these resources?

What would be the best format for these resources?

G7. LOWER PRIORITY: Is there anything else that would encourage installers to advise and make recommendations to customers, about the domestic heat pumps that would work best for them? (e.g. financial incentive, inspiring them to play a role in the low carbon transition i.e. through campaigns in trade press/at training courses).

H. Views on diversity (10 minutes)

I'd like to ask a few questions about what's happening in your industry. Please think about everything that's going on in your industry, not just what we've been talking about so far – low carbon and heat pumps.

H1. When thinking about what's happening in your industry, what do you think is the most important issue at the moment? If struggling to think of ideas, could suggest: recruitment drive for younger workforce as large group set to retire, the changes likely due to drive for low carbon transition

What makes you say that?

H2. I'm now going to read out a few statements, I'd like to get your reactions to them.

H2a. The heating and cooling workforce is currently very male dominated.

Why do you think this is the case?

H2b. The heating and cooling workforce is not ethnically diverse.

Why do you think this is the case?

Do you think the heating and cooling sector is appealing to young people?

What could be done to encourage more young people to join?

Do you think the heating and cooling industry is a good industry to work in? [See what they say top of mind, prompt with pay and working conditions if not mentioned].

H3. Are there any other groups of people who you feel are underrepresented in the industry?

IF YES: Who are these people?

H4. When thinking about what's going on in your industry, how important is diversity compared to some of the other things we've been talking about?

What makes you say that?

Do you think some aspects of diversity (e.g. age, gender, ethnicity) are more important than others?

IF SO:

Which are the most important? What makes you say that?

H5. LOWER PRIORITY: What benefits, if any, do they think having a more diverse workforce would provide to:

Yourself?

Your industry?

Society

H6. IF MANAGERIAL LEVEL: Do you ever think about equality, diversity and/or inclusion when you're recruiting? How does this affect your processes? (e.g. taking on an apprentice?)

I. Information sources (5 minutes)

In this last section, we're looking to understand where you find out about developments in the heating and cooling industry.

I1. On a scale of 1-10, with 1 being you feel you know nothing, and 10 being you feel you know everything, how knowledgeable do you feel about plans to make heating in buildings less carbon intensive?

What have you heard about? (E.g. new technologies)

Is this an area you take an interest in? Why/why not?

What do you understand the current Government strategy to be in this space?

I2. ASK ALL BUT KEY SECTION FOR SEGMENTS 1, 3 & 5: Where do you tend to find out about information like this, i.e. new technologies in heating and cooling / low carbon transition plans?

Are there any media sources you pay attention to? (e.g. trade magazines, websites, social media)

I3. Are there information sources you trust more than others?

IF YES:

Which ones?

Why those?

I4. Are there information sources you don't trust, or trust less than others?

IF YES:

Which ones?

Why those?

J. Wrap-up (2 minutes)

J1. We've reached the end of the interview now, is there anything else you'd like to add related to what we've been talking about?

MODERATOR NOTE: REMIND RESPONDENT THEY WILL RECEIVE £50 AS A THANK YOU FOR THEIR TIME. CHECK IF THEY WOULD LIKE THIS VIA PAYPAL OR CHARITY DONATION, AND THAT WE HAVE THE CORRECT EMAIL ADDRESS FOR THEM

Appendix I: Archetype model statistics

The R-square values shown in the table below give an indication of how well each of the underlying questions used to create the segments are explained by each model.

It varies for 0 - 100%. Higher numbers mean the question is better explained by the model. Guidelines are:

- 0-5%: Poor
- 6-10%: Weak
- 11-20%: Fair
- 21-30%: Good
- 31-40%: Very good
- 41%+: Excellent

Variable	Question description	Final model
A1_2_rec	Keeping my skills up to date is important to me	37%
A1_3_rec	I enjoy learning about new heating and cooling technologies	52%
A1_4_rec	I am confident my current skills will remain in demand in the next 10 years	3%
A2_3_rec	I would like to learn more about additional energy efficiency technologies	53%
A2b_2_rec	I am confident advising my customers on a range of energy efficiency options e.g. insulation	5%
A3_1_rec	Heat pumps will play an important role in heating homes by 2050	26%
A3_2_rec	Hydrogen will play an important role in heating homes by 2050	1%
A3_6_rec	It is important to me that my work helps to address climate change	47%
C1_rec2	Have you installed a heat pump in the last 2 years?	5%
C6_1_rec	I have enough work without offering heat pumps	38%

Variable	Question description	Final model
C6_2_rec	My customers are not asking for them / customer demand is low	48%
C6_3_rec	I don't think the technology is good enough / they work well enough	6%
C6_6_rec	I do not have time to learn about them	15%
C6_8_rec	My current work pays better than installing heat pumps	2%
C6_9_rec	I intend to retire or change industry and so learning these skills is not a priority	28%
C6_10_rec	I do not know enough about when heat pumps would be suitable	3%
C8_employer_rec	Who pays for the cost of your training?	12%
C10_2_rec	Increased consumer demand	22%
C10_3_rec	Increased government support	15%
C10_4_rec	Advances in heat pump technology to increase quality	6%
C10_5_rec	Heat pumps to become more affordable	3%
C10_6_rec	Reduction in existing types of work	19%
C10_7_rec	Increased availability of training and support	6%

Appendix J: Screener for externally recruited installers for depth interviews

The 15 installers who were recruited externally for depth interviews (and therefore hadn't been assigned an archetype via the workforce survey) were screened using the following questions.

ASK ALL

C1 Have you installed a heat pump in the last 2 years? (single code)

1. Yes
2. No - but I have received training to do so
3. No - but I am confident I could do so (despite not receiving training to do so)
4. No - and I would not be confident installing one
5. Don't know

ASK THOSE WHO HAVEN'T INSTALLED A HEAT PUMP IN THE LAST 2 YEARS

C6 Why do you not currently install heat pumps? (multi-code)

1. I have enough work without offering heat pumps (Assign to 'Demand influenced' segment)
2. My customers are not asking for them / customer demand is low (Assign to 'Demand influenced' segment)
3. I don't think the technology is good enough / they work well enough (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
4. I do not feel confident that my customers will like them (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
5. I am not fully qualified to install and maintain heat pumps (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
6. I do not have time to learn about them (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
7. This isn't relevant to my business / employer (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
8. My current work pays better than installing heat pumps (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)
9. I intend to retire or change industry and so learning these skills is not a priority (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)

10. I do not know enough about when heat pumps would be suitable (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)

11. Other (please specify) (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)

12. Don't know (ASK A1_2, A2_3 and A3_6 if they ONLY select an answer between 3 and 12)

ASK THOSE WHO DIDN'T SELECT 1, 2 OR 5 ABOVE

To what extent, do you agree or disagree with the following statements: (single- code)

A1_2 Keeping my skills up to date is important to me

A2_3 I would like to learn more about additional energy efficiency technologies

A3_6 It is important to me that my work helps to address climate change

1. Strongly disagree (Screen out if not already allocated a segment)
2. Disagree (Screen out if not already allocated a segment)
3. Neither agree nor disagree (Screen out if not already allocated a segment)
4. Agree (Assign to 'Keen to learn' segment)
5. Strongly agree (Assign to 'Keen to learn' segment)
6. Don't know (Screen out if not already allocated a segment)

Appendix K: Stakeholder workshops

Runsheets for Workshop 1 – Trade Associations and Energy Industry

Delegates: industry, trade associations (potentially academics depending on their focus)

Aims: covering three RQs, but core focus on RQ2a and RQ5

Runtime: 120 minutes

Time	Session	Description
10 mins	Welcome	<p>Welcome</p> <ul style="list-style-type: none"> • Team introduction • Competition Law • Housekeeping and ground rules • Teams' functions • Recording reminder
25 mins	Introduction to HaCIS	<p><i>This session will introduce the HaCIS project (policy background and research objectives)</i></p> <p>Emerging findings from the Literature Review</p> <p>Q&A</p>
20 mins	Session 1: Research Question 2 (Archetypes)	<p><i>This session will explore stakeholders' views on how installers be categorised into distinct archetypes.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • Do delegates agree with the draft archetypes? • Would delegates make any changes? (e.g. merging of archetypes, overlapping archetypes or do they agree there are archetypes with a clear distinction) • What 'factors' have we not considered? • Is there any commentary to add to each archetype description? <p>High level feedback from each breakout room.</p>
30 mins	Session 2: Research Question 2a	<p><i>This session will explore how to target engagement and support for installers between the different archetypes, and</i></p>

Time	Session	Description
	(Targeting support and engagement)	<p><i>what has been learnt from previous transitions within the sector.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • How do delegates (and the wider sector) engage with installers? • How do installers engage with the wider supply chain? • What messaging needs to be considered regarding heat pumps (e.g. broader policy direction and impact on demand, customer messaging). • What support do delegates (and the wider sector) offer to installers? (e.g. support could be defined as training, partnerships, hand holding support) • What are delegate views on how this may need to change with the decarbonisation agenda? <p>High level feedback from each breakout room.</p>
30 mins	Session 3: Research Question 5 (Business models)	<p><i>This session will explore how installer business models may need to change, and what challenges could this pose for installers?</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Considerations of topic areas:</p> <ul style="list-style-type: none"> • Business development (acquisition) • Design and install • Project management • Operation and maintenance • Accreditation • Training and skills • Working with other trades. <p>High level feedback from each breakout room.</p>
5 mins	Close	Thank you and next steps

Runsheet for Workshop 2 – Training and Standards (inc. academics)

Delegates: training and standards stakeholders (potentially academics depending on their focus)

Aims: covering three RQs, but core focus on RQ2a and RQ3

Runtime: 120 minutes

Time	Session	Description
10 mins	Welcome	<p>Welcome</p> <ul style="list-style-type: none"> • Team introduction • Competition Law • Housekeeping and ground rules • Teams' functions • Recording reminder
25 mins	Introduction to HaCIS	<p><i>This session will introduce the HaCIS project (policy background and research objectives)</i></p> <p>Emerging findings from the Literature Review</p> <p>Q&A</p>
20 mins	Session 1: Research Question 2 (Archetypes)	<p><i>This session will explore stakeholders' views on how installers be categorised into distinct archetypes.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • Do delegates agree with the draft archetypes? • Would delegates make any changes? (e.g. merging of archetypes, overlapping archetypes or do they agree there are archetypes with a clear distinction) • What 'factors' have we not considered? • Is there any commentary to add to each archetype description? <p>High level feedback from each breakout room.</p>

Time	Session	Description
30 mins	Session 2: Research Question 2a (Targeting support and engagement)	<p><i>This session will explore how to target engagement and support for installers between the different archetypes, and what has been learnt from previous transitions within the sector.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • How do delegates (and the wider sector) engage with installers? • How do installers engage with the wider supply chain? • What messaging needs to be considered regarding heat pumps (e.g. broader policy direction and impact on demand, customer messaging). • What support do delegates (and the wider sector) offer to installers? (e.g. support could be defined as training, partnerships, hand holding support) • What are delegate views on how this may need to change with the decarbonisation agenda? <p>High level feedback from each breakout room.</p>
30 mins	Session 3: Research Question 3 (upskilling)	<p><i>This session will explore to what extent can heating and cooling installers be upskilled to work on heat pumps?</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Miro to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • What has been learnt from other transitions? • What sort of cost and time uplift are installers looking at in relation to accreditation? • What sort of cost and time uplift are installers looking at in relation to technical training? • What sort of cost and time uplift are installers looking at in relation to business development training? <p>High level feedback from each breakout room.</p>
5 mins	Close	Thank you and next steps

Runsheet for Workshop 3 – BEIS

Delegates: BEIS teams

Aims: covering three RQs, but core focus on RQ2a and RQ5

Runtime: 90 minutes

Time	Session	Description
10 mins	Welcome	<p>Welcome</p> <ul style="list-style-type: none"> • Team introduction • Competition Law • Housekeeping and ground rules • Teams' functions • Recording reminder
25 mins	Introduction to HaCIS	<p><i>This session will introduce the HaCIS project (policy background and research objectives)</i></p> <p>Emerging findings from the Literature Review</p> <p>Q&A</p>
25 mins	Session 1: Research Question 2 (Archetypes)	<p><i>This session will explore stakeholders' views on how installers be categorised into distinct archetypes.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Google Jamboard to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • Do delegates agree with the draft archetypes? • Would delegates make any changes? (e.g. merging of archetypes, overlapping archetypes or do they agree there are archetypes with a clear distinction) • What 'factors' have we not considered? • Is there any commentary to add to each archetype description? <p>High level feedback from each breakout room.</p>

Time	Session	Description
25 mins	Session 2: Research Question 2a (Targeting support and engagement)	<p><i>This session will explore how to target engagement and support for installers between the different archetypes, and what has been learnt from previous transitions within the sector.</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Google Jamboard to add commentary to pre-prepared white boards.</p> <p>Questions to answer:</p> <ul style="list-style-type: none"> • How do delegates (and the wider sector) engage with installers? • How do installers engage with the wider supply chain? • What messaging needs to be considered regarding heat pumps (e.g. broader policy direction and impact on demand, customer messaging). • What support do delegates (and the wider sector) offer to installers? (e.g. support could be defined as training, partnerships, hand holding support) • What are delegate views on how this may need to change with the decarbonisation agenda? <p>High level feedback from each breakout room.</p>
30 mins	Session 3: Research Question 5 (Business models)	<p><i>This session will explore how installer business models may need to change, and what challenges could this pose for installers?</i></p> <p>Introduction to the session</p> <p>Breakout rooms and use of Google Jamboard to add commentary to pre-prepared white boards.</p> <p>Considerations of topic areas:</p> <ul style="list-style-type: none"> • Business development (acquisition) • Design and install • Project management • Operation and maintenance • Accreditation • Training and skills • Working with other trades. <p>High level feedback from each breakout room.</p>

Time	Session	Description
5 mins	Close	Thank you and next steps

Appendix L: Stakeholder Workshop pre-reading documentation

Workshop 1: Trade Associations & Energy Industry and Workshop 2: Skills, Standards and Academics

Introduction

Government commissioned IFF Research and ACE Research (ACE-R) at the Association for Decentralised Energy (ADE), to deliver the Heating and Cooling Installers Study (HaCIS) to help BEIS develop their understanding of the existing heating and cooling installer workforce in England. This study will inform Government policy on:

- Increasing the uptake and quality of training for current and future heat pump installers.
- Removing barriers to diversity in the sector.
- Ensuring all heat pumps are installed to a good quality.
- Support for installers and businesses as they transition to installing low carbon heating, creating new green jobs, and supporting the Government's levelling up agenda.

Methodology

The project consists of 6 major activities which span from December 2021 to April 2022 and include:

Literature Review:

Provides a strong context for the study, inform content of employer and workforce surveys, assess where the gaps are in existing literature / research and explore any information conveying the profile and characteristics of this workforce

Employer Survey:

Surveying employers to collect information on workforce characteristics, employer training, offerings and business model as well as views on heat pumps. At end of survey employers asked if they'd be happy to help share workforce survey with their installers.

Workforce Survey:

Surveying installers/engineers themselves on their attitudes to training, current skills, views and experience of heat pumps, accreditation bodies as well as demographic information. Will also be used to design the workforce 'archetypes' (based on their willingness to install heat pumps, and the upskilling required to enable this)

Workforce in-depth Interviews:

Will expand on, and delve into survey findings that cover the characteristics, activities, attitudes and experiences of heating and cooling installers.

Stakeholder workshops:

This is where we are now.

Aimed at BEIS, industry experts and wider stakeholders. Discussion will focus on the categorisation of installers into distinct archetypes and how this can be used to then target engagement and support as the UK transitions to net zero, how organisations' business models may need to change, and the challenges that this may pose for the sector.

Focus Groups:

Archetype specific focus groups, concentrating on testing and gathering feedback on archetype specific policy recommendations and wider government and industry strategies to support the workforce through the net zero transition; explore attitudes towards training, accreditation, new business models and ways of working, and potential challenges for the future.

Research Questions:

The study is examining evidence linked to five key research questions:

- What are the characteristics and activities of heating and cooling installers?
- How can installers be categorised into distinct archetypes based on their willingness to install heat pumps, and upskilling required to do so?
- To what extent can heating and cooling installers be upskilled to work on heat pumps?
- What are heating and cooling installers' attitudes towards standards and accreditation for low carbon heating and what factors influence these views?
- How might installer business models need to change to effectively install heat pumps, and what challenges could this pose for installers?

Sub-Questions Explored in the Workshop:

Each workshop focuses on answering different sets of questions and sub-questions based on stakeholders' expertise and field of work.

At this workshop we will be examining the following sub-questions:

- "How might different groups of installers vary in their willingness and ability to install heat pumps?"
- "How can an understanding of these differences be used to provide targeted support for these groups?"
- "How might installer business models need to adapt to effectively install heat pumps?"

We look forward to welcoming you to our workshop. If you have any questions or concerns, don't hesitate to contact [NAME] via Email or [NUMBER]

Workshop 3: BEIS

Introduction

Government commissioned IFF Research and ACE Research (ACE-R) at the Association for Decentralised Energy (ADE), to deliver the Heating and Cooling Installers Study (HaCIS) to help BEIS develop their understanding of the existing heating and cooling installer workforce in England. This study will inform Government policy on:

- Increasing the uptake and quality of training for current and future heat pump installers.
- Removing barriers to diversity in the sector.
- Ensuring all heat pumps are installed to a good quality.
- Support for installers and businesses as they transition to installing low carbon heating, creating new green jobs, and supporting the Government's levelling up agenda.

Methodology

The project consists of 6 major activities which span from December 2021 to April 2022 and include:

Literature Review:

Provides a strong context for the study, inform content of employer and workforce surveys, assess where the gaps are in existing literature / research and explore any information conveying the profile and characteristics of this workforce

Employer Survey:

Surveying employers to collect information on workforce characteristics, employer training, offerings and business model as well as views on heat pumps. At end of survey employers asked if they'd be happy to help share workforce survey with their installers.

Workforce Survey:

Surveying installers/engineers themselves on their attitudes to training, current skills, views and experience of heat pumps, accreditation bodies as well as demographic information. Will also be used to design the workforce 'archetypes' (based on their willingness to install heat pumps, and the upskilling required to enable this)

Workforce in-depth Interviews:

Will expand on, and delve into survey findings that cover the characteristics, activities, attitudes and experiences of heating and cooling installers.

Stakeholder workshops:

This is where we are now.

Aimed at BEIS, industry experts and wider stakeholders. Discussion will focus on the categorisation of installers into distinct archetypes and how this can be used to then target engagement and support as the UK transitions to net zero, how organisations' business models may need to change, and the challenges that this may pose for the sector.

Focus Groups:

Archetype specific focus groups, concentrating on testing and gathering feedback on archetype specific policy recommendations and wider government and industry strategies to support the workforce through the net zero transition; explore attitudes towards training, accreditation, new business models and ways of working, and potential challenges for the future.

Research Questions:

The study is examining evidence linked to five key research questions:

- What are the characteristics and activities of heating and cooling installers?
- How can installers be categorised into distinct archetypes based on their willingness to install heat pumps, and upskilling required to do so?
- To what extent can heating and cooling installers be upskilled to work on heat pumps?
- What are heating and cooling installers' attitudes towards standards and accreditation for low carbon heating and what factors influence these views?
- How might installer business models need to change to effectively install heat pumps, and what challenges could this pose for installers?

Sub-Questions Explored in the Workshop:

Each workshop focuses on answering different sets of questions and sub-questions based on stakeholders' expertise and field of work.

At this workshop we will be examining the following sub-questions:

- "How can installers be categorised into distinct archetypes based on their willingness to install heat pumps, and upskilling required to do so?"
- "How can an understanding of these distinct archetypes be used to target engagement and support for installers through the low carbon transition?"

We look forward to welcoming you to our workshop. If you have any questions or concerns, don't hesitate to contact [NAME] via Email or [NUMBER]

Appendix M: Stakeholder Workshop attendees

Workshop 1: Trade Associations & Energy Industry

Association for Decentralised Energy (ADE)

Bosch

British Electrotechnical and Allied Manufacturers' Association (BEAMA)

British Gas

Energy UK

Federation of Environmental Trade Associations (FETA)

Gemserv (2)

Genius Energy

Ground Source Heat Pump Association (GSHPA)

Groundtherm

Heat Pump Association (2)

Heat Pump Federation

Heating and Hot Water Industry Council

Imperial College

Industrial and Commercial Heating Equipment Association (ICOM) (2)

Jonsson Consultants

Matrix Energy Systems

National Association of Professional Inspectors and Testers (NAPIT)

Solid Energy

Vaillant Group

Workshop 2: Skills, Standards and Academics

Association of Colleges (AoC)

Association of Plumbing and Heating Contractors (APHC)

Certsure

Construction Industry Training Board (CITB)

Department for Environment, Food & Rural Affairs (DEFRA) (5)

Elmhurst Energy

Energy Institute, University College London (2)

Energy Systems Catapult

Environmental Change Institute, University of Oxford

Federation of Master Builders (FMB) (2)

Gas Safe Register

Imperial College

Institute for Apprenticeships & Technical Education

Institute for Public Policy Research (IPPR)

MCS

MCS Foundation (2)

Oil Firing Technical Association

Trades Union Congress (TUC)

Trustmark

Workshop 3: BEIS

BEIS policy and analysts working on heat systems, installers and the wider supply chain attended.

Appendix N: Focus group topic guide

Time	Session	Description
10 mins	Welcome	<p>Welcome</p> <ul style="list-style-type: none"> • Team introduction • Competition Law • Housekeeping and ground rules • Teams' functions <p>Recording reminder</p>
5 mins	Introduction to HaCIS	<p><i>This session will introduce the HaCIS project (policy background and research objectives)</i></p> <p>Q&A</p>
10 mins	Team and delegate introductions	<p><i>This session provides an opportunity for the attendees to introduce themselves to the team and the wider group.</i></p> <p>Prompts:</p> <ul style="list-style-type: none"> • Name • Length of time in the sector <p>Details of your organisation (name, number of employees and location)</p>
7 mins	Installer archetypes (segment 1 or 3)	<p><i>This session will introduce installer archetypes following installer responses to a “workforce” survey, seeking feedback from attendees.</i></p> <p><i>Group questions:</i></p> <ul style="list-style-type: none"> • Do you feel that the segments are an accurate representation of your installer workforce/your organisation? • What segment describes your workforce? • What rings true? • What isn't true?

Time	Session	Description
5 mins	Diversity	<p><i>This session will ask attendees about diversity within the sector</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> Thinking about the organisation you work in and the sector as a whole, would you say that this is diverse in terms of age, gender, race and disability (physical or mental)? What do you think about diversity in the sector?
5 mins	Skills, specialisms, experience and qualifications	<p><i>This session will ask attendees to share information on current skills and qualifications.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> Describe your qualifications. Describe what technologies you work on and does this include heat pumps? Do you consider yourself as a specialist?
10 mins	An average business day	<p><i>This session will ask attendees to share information on their typical business day and how they operate.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> What do you do on an average day? What technologies do you work on? What elements are covered? (e.g. does this include sales and business development, design and install of technologies, and service and maintenance, and what level of engagement to you have with consumers. What types of buildings do you work on? (e.g. domestic and non-domestic buildings and new build and existing buildings, domestic buildings – houses, flats, and off gas grid buildings) What is your geographic reach? How could this change in the future? (e.g. look ahead to 5-10 years' time)

Time	Session	Description
10 mins	Engagement and support	<p><i>This session will ask attendees to share information on how they engage with the sector. This could be across a range of areas including training and skills, accreditation, sales and the wider supply chain (sourcing materials), and information and support (handholding).</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • What support do you receive from the wider sector or other installers/businesses? Is there a specific individual whose role it is to engage in such an area? • Is there a particular source of information that you trust or rely on that shapes your attitude to the sector? • What are your touch points? Face to face (meetings, events, merchants, manufacturers) or online (social media, websites, emails) • What more could these “services”/ touch points do for you? • How has this changed over the last 5 years? <p>Prompts: Gas Safe, MCS, Competent Persons Scheme, trade and skills bodies.</p>
5 mins	Attitudes to climate change and the role of heat pumps	<p><i>This session will ask attendees to share information on their attitudes to climate change and the role of heat pumps. This question was tailored to the segment responses from the workforce survey.</i></p> <p>Group questions:</p> <p>To what extent, do you agree or disagree with the following statements:</p> <ul style="list-style-type: none"> • Climate change is the most important issue facing the UK. • Heat pumps will play an important role in heating homes by 2050.

Time	Session	Description
5 mins	Attitudes to heat pump installations	<p><i>This session will ask attendees to share information on their attitudes to installing heat pumps.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • What are your thoughts on installing heat pumps in the future? • Do you have any specific concerns, and how could these be alleviated? • What are your thoughts regarding taking on apprentices and what further support may you need to do so? • What factors would encourage your organisation to upskill, and ultimately install more heat pumps? • (For those that already install HPs, what influenced your decision to train in this area?)
5 mins	Attitudes to training	<p><i>This session will ask attendees to share information on their attitudes to training.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • For those whose workforce have undertaken specific training in heat pumps, how can these courses be improved? (e.g. cost, affordability, time, content) • Do you take on apprentices and what support can be given to encourage you to do this? • What resources/contacts do you use/trust to find out about courses? • For those that haven't trained, how far would you be willing for your installer workforce to travel, pay or spend time doing so? How does this compare to other available options? • Would you prefer your organisation to specialise, or remain flexible across technologies? What factors would influence this decision, and whose decision is this? • Would you feel able to take on an apprentice? If not, why not?

Time	Session	Description
5 mins	Attitudes to engaging with consumers	<p><i>This session will ask attendees to share information on their attitudes to engaging with consumers.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • Whose role is it to educate consumers on heat pumps? • How confident would you be (or for one of your installers) to explain to a consumer how to choose the right electricity tariff for their heat pump or signposting them to someone who could? • How confident would you be (or for one of your installers) to explain to a consumer how to use a heat pump alongside other related technology such as solar panels, batteries or electric vehicle chargers? • How confident would you be (or for one of your installers) to explain to a consumer what energy efficiency changes they would need to make (e.g. insulation, radiator size, smart heating tools) in order to install a heat pump. • What additional information or resources could be provided to support this?
10 mins	Attitudes to standards and accreditation	<p><i>This session will ask attendees to share information on their attitudes to standards and accreditation (e.g. Gas Safe, MCS, competent person schemes, consumer codes such as RECC and HIES, TrustMark).</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • What accreditation bodies do you or your organisation belong to? • Why do you belong to these bodies and what are your experiences of accreditation? • What factors influence decisions to join/not join specific schemes? • Would you like these schemes to change, or be consolidated/replaced? • What perceptions do you have of installation quality issues within these schemes? What steps can be taken to ensure high quality heat pump installations and good customer experiences?

Time	Session	Description
5 mins	Policy and communications	<p><i>This session will ask attendees to share information on their thoughts for policy and wider government communications can support the workforce through the net-zero transition.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • What policy levers and/or government communications can support segment 1? • What policy levers and/or government communications can support segment 3? • What policy levers and/or government communications can support segment 5?
10 mins	Business models	<p><i>This session will ask attendees to share information on their thoughts around how business models may need to change to effectively install heat pumps.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • What are the risks, opportunities and considerations that need to be made? • Is your business associated with a specific manufacturer or merchant? • To what extent would your organisation specialise solely in heat pump installations? • Thinking about your current geographic area of work, how far would you be willing to travel to undertake heat pump work? • How can installers such as yourselves, work with other professions, and do you expect this to change into the future?
5 mins	Heat pump logistics	<p><i>This session will ask attendees to share information on the logistics around installing heat pumps</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • Do you install smart controls, radiators or additional energy efficiency measures? • What are the main factors driving to cost and time of installing heat pumps?

Time	Session	Description
5 mins	Plans for the future	<p><i>This session will ask attendees to share information on how long they plan to work in the sector.</i></p> <p>Group questions:</p> <ul style="list-style-type: none"> • How long you think you'll be in the sector? • How will you get involved in heat pumps? What is your (or your organisation's) plans?
2 mins	Thank you, next steps and close	At the end of the session, the team will thank participants and note how they will receive their incentives.

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