



Department for
Business, Energy
& Industrial Strategy

Heat Pump Ready Programme

Initial Stakeholder Engagement:
Programme Engagement Document

November 2021



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Section 1: Purpose of this document

The purpose of this document is to provide potential applicants and bidders with an overview of the Heat Pump Ready Programme. The document is being shared before publication of the formal invitations to tender and competition documents for Heat Pump Ready to enable stakeholders to provide feedback and comments on the specific programme proposals set out in the document.

All details of this document are subject to change and may **not** reflect the final, published competition documents for the Programme.

Please submit **all substantive comments by Thursday 2nd December** to ensure they are reviewed by BEIS and considered for potential inclusion as part of the future competition design. BEIS will continue to accept comments submitted after 2nd December, but they may not be reviewed in time to affect the final design of the Heat Pump Ready Programme.

Please note that this is not a consultation paper and BEIS will not be providing individual responses or publishing responses. The final details and format of the Heat Pump Ready Programme may not reflect feedback provided on this document.

This document provides an overview of the overall Heat Pump Ready Programme, followed by separate sections with specific details for each of the three Programme Streams.

How to provide feedback:

To provide feedback on the Heat Pump Ready Programme proposals set out in this document, please complete the survey <https://forms.office.com/r/Rh6ifuiBf6>, by **2nd December 2021** to ensure your feedback is considered before the design of the Heat Pump Ready Programme is finalised.

If you have any questions, please email: heatinnovation@beis.gov.uk

Section 2: Overview

The Heat Pump Ready (HPR) Programme forms part of BEIS's £1 billion [Net Zero Innovation Portfolio](#) (NZIP), which aims to accelerate the commercialisation of innovative clean energy technologies and processes through the 2020s and 2030s. As a key solution for decarbonising homes, heat pumps will be critical for meeting the UK's legally binding commitment to achieve net zero by 2050. The Heat Pump Ready Programme will support the development of innovative solutions across the heat pump sector.

The Programme is aligned with other BEIS NZIP Programmes, and Ofgem's Network Innovation Fund (NIC) and Strategic Innovation Fund (SIF). Key to the success of Heat Pump Ready is the highly collaborative approach which will be fostered between the Heat Pump Ready Programme; the complementary BEIS Net Zero Innovation Portfolio programmes; and the broader heat pump sector.

The recently published Heat and Buildings Strategy sets out several key commitments for how we will ensure the transition to low carbon buildings is affordable and achievable for all, including delivering a package of measures to scale up heat up deployment to 600,000 heat pumps a heat by 2028 and support industry to reduce the costs of heat pumps. We set out our ambition to work with industry to reduce the upfront costs of heat pumps by 25-50 per cent by 2025 and to parity with boilers by 2030, as well as making them as cheap to run as a gas boiler. The Heat Pump Ready Programme will support the delivery of these commitments, by developing innovative solutions to:

- Reduce the upfront and running costs of heat pumps.
- Improve the consumer journey.
- Reduce the environmental impact, and
- Ready the electricity network for the widescale deployment of heat pumps.

- Programme Objectives

The overarching objective of the HPR Programme is to create an enabling environment for heat pump deployment at a significantly increased density and scale than the current deployment level. This enabling environment - to stimulate and support the high-density⁹ deployment of domestic heat pumps in the UK - will be achieved through the development and trial of innovative technology and tools to address barriers faced across the landscape, in parallel to the development and trial of innovative methodologies and solutions for local coordination of high-density heat pump deployment, consumer engagement and network upgrades.

This translates into the following primary objectives:

- Reduce the lifetime costs of domestic heat pumps (including capital equipment costs, installation costs and operating costs).
- Improve the lifetime consumer experience of heat pumps (including the experiences of learning about and choosing a heat pump and how to pay for it; having a heat pump installed in the home; and living with it)
- Stimulate innovative research and solutions to address the impact of domestic heat pumps on the electricity system.
- Improve the interoperability of domestic heat pumps with other smart technology in the home
- Develop and strengthen partnerships between the many players involved in the domestic heat pump sector
- Develop effective approaches and products to engage stakeholders effectively on heat pump issues with homeowners and with the key players who can help to deliver high-density heat pump deployment across the UK
- Establish an evidence base to enable effective design and development of future heat pump policy and regulation.

The Heat Pump Ready Programme is split into three, separate delivery streams:

- ***Stream 1: Solutions for High-Density Heat Pump Deployment.***
- ***Stream 2: Developing Tools and Technology.***
- ***Stream 3: Trial Support and Learning.***

Stream 1, Solutions for High-Density Heat Pump Deployment, will support the deployment of heat pumps through the **development and trial of solutions and methodologies for the optimised deployment of domestic heat pumps, at high-density**, in the UK. Projects supported in this stream will need to demonstrate the cost savings that are secured from the optimised deployment solutions and how the approaches can be sustainable beyond the lifetime of the Programme. A Small Business Research Initiative (SBRI) pre-commercial procurement process will be used to deliver *Stream 1 - Solutions for High Density Heat Pump Deployment*.

Stream 2, Developing Tools and Technology will support the **development of tools, technology and processes to overcome specific barriers to domestic heat pump deployment** in the UK. This stream will support solutions aiming to reduce the life time cost and increase the performance of domestic heat pumps, minimise home disruption whilst providing high quality installations, develop and trial financial models to support heat pump deployment, improve the heat pump consumer journey and provide a smart and flexible home energy system. The solutions supported in this Stream are expected to be at Technology Readiness Levels 5 to 7 at the start of any funded projects. *Stream 2 - Tools &*

Technology will support development of these innovative tools and technology using grant funding.

Stream 3 - Trial Support and Shared Learnings, will **provide support to ensure knowledge transfer and shared learning across the Heat Pump Ready Programme and with external heat pump stakeholders**. This stream will capture and share progress, evidence, knowledge, and lessons between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects, coordinate interactions between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects and special interest working groups in support of areas of common delivery, and broker relationships between *Stream 1 - Solutions for High Density Heat Pump Deployment* project and the solutions being developed in *Stream 2 - Tools & Technology* and other NZIP programmes, such as the NZIP-Green Home Finance Accelerator programme¹. Three work packages will be delivered: the first will deliver activity related to programme and project learning and collaboration; the second will cover research and evaluation activity; and the third will focus on knowledge and evidence dissemination to external audiences throughout the lifetime of the programme.

The Heat Pump Ready also has strong links with other innovation programmes, including:

Ofgem Strategic Innovation Fund: the purpose of [Ofgem's Strategic Innovation Fund](#), which is delivered in partnership with Innovate UK, is to support network innovation that will contribute to achieving Net Zero rapidly and at lowest cost; to deliver real net benefits to network companies, energy users and consumers.

NZIP- Green Home Finance Accelerator (GHFA): The [GHFA](#) will provide up to £10million grant funding to support UK retail lenders to design, develop and pilot a range of finance propositions which encourage domestic energy efficiency and low carbon heating retrofits. The Green Home Finance Accelerator is intended to drive innovation in the green lending market and support the establishment of a diverse range of green finance products which incentivise domestic energy performance improvements for both owner occupiers and private landlords.

NZIP- Alternative Energy Markets (AEM) Programme: [The Alternative Energy Markets \(AEM\) Programme](#) is exploring what an alternative system of network and policy price signals might look like, whether those signals could be trialled in a real-world environment, how to undertake any potential trial, and how energy suppliers and consumers may respond within a trial.

¹ <https://www.gov.uk/government/publications/green-home-finance-accelerator>

NZIP- Longer Duration Energy Storage Demonstration (LODES): [The Longer Duration Energy Storage Demonstration](#) competition (closed to applications) is an innovation competition aiming to accelerate commercialisation of innovative longer duration energy storage projects.

Thematic Evaluation: In addition to the evaluation activity carried out in *Stream 3 - Trial Support and Shared Learnings* of Heat Pump Ready, there will be a separate NZIP research project looking beyond the Programme. This Thematic Evaluation work will look at the impacts which HPR has had on the broader heat pump sector and at how the Programme has changed the perceptions, intentions and actions of participating and non-participating heat pump stakeholders. More information on the evaluation activities is provided in the 'Programme Evaluation' Section later in this document.

Figure 1 below visualises how the programme's three streams align with one another and with Ofgem's funding and the Green Home Finance Accelerator.

Section 2: Overview

	FY 22/23	FY 23/24	FY 24/25
Heat Pump Ready - Stream 1: Solutions for High-Density Heat Pump Deployment	Feasibility (up to £3m)	Mobilisation to Deployment (up to £27m)	
Support the development and trial of solutions and methodologies to deliver high-density heat pump deployment in localities across the Great Britain. .			
Heat Pump Ready - Stream 2: Developing Tools & Technology	Rapid Projects: Up to 18 months		
	Longer Duration: Up to 30 months		
Support the development of innovative technology and tools solutions which overcome barriers to heat pump deployment. (Up to £25m)			
Heat Pump Ready - Stream 3: Trial Support and Learning	Phase 1	Phase 2	
Contract (up to £5m) to support the knowledge sharing, collaboration and evaluation across the Heat Pump Ready programme.			
Ofgem Funded Programmes	Network Innovation Competition (NIC)		
	Strategic Innovation Fund (SIF)		
Programmes outside of Heat Pump Ready, which support innovation across the electricity grid required for the high density deployment of heat pumps.			
NZIP - Green Home Finance Accelerator	Funded by Net Zero Innovation Programme		
Outside of Heat Pump Ready, NZIP Green Home Finance Accelerator programme supports the development of innovative green financial products and service offerings to homeowners			

Figure 1: Competition overview and timeline, including key innovation programmes which are delivered and funded outside the Heat Pump Ready Programme.

- Conflict of interest

Applying for Multiple Heat Pump Ready Streams and Related Activity

For research and analysis, conflict of interest is defined as the presence of an interest or involvement of the contractor, subcontractor (or consortium member) which could affect the actual or perceived impartiality of the research or analysis.

The appointed supplier for Heat Pump Ready *Stream 3 - Trial Support and Shared Learnings* will be partly responsible for assessing effectiveness and impact of *Stream 1 - Solutions for High Density Heat Pump Deployment* and *Stream 2 - Tools & Technology* projects and disseminating the work of these Streams.

BEIS therefore considers that there is potential for an actual or perceived conflict of interest if companies who bid for this *Stream 3 - Trial Support and Shared Learnings* work were to bid for other work in or related to this Programme, for example, for the *Stream 1 - Solutions for High Density Heat Pump Deployment* or *Stream 2 - Tools & Technology* roles or for the Thematic Evaluation Contractor. In their tender response, all tenderers (regardless of which competition they are bidding for) are required to ensure that any actual or perceived conflict is declared and satisfactorily mitigated.

Organisations may submit bids for both *Stream 1 - Solutions for High Density Heat Pump Deployment* and *Stream 2 - Tools & Technology* funding but they must declare that they have made applications to more than one stream; and ensure that satisfactory mitigation to any potential conflict of interest is identified in their tender responses.

BEIS reserves the right to exclude any proposals where the bidder has an actual or perceived conflict of interest that cannot be mitigated to the satisfaction of BEIS.

Section 3: Stream 1 - Solutions for High Density Heat Pump Deployment

- Scope

The Solutions for High-Density Heat Pump Deployment

Competition aims to design and demonstrate innovative, optimised solutions and methodologies which deliver more cost-effective and high-density deployment of domestic heat pumps. Through the deployment of heat pumps at a high density, BEIS aims to support innovation and learning on the implications of high density deployment across the local energy network, the supply chains and the approaches used to engage with consumers.

In the context of the Heat Pump Ready Programme, deployment in *Stream 1 - Solutions for High Density Heat Pump Deployment* includes: household recruitment, survey and design, heat pump installation, commissioning, monitoring, ongoing consumer support and maintenance. The intention is that Phase 1 will include up to 15 feasibility studies with at least 3 solutions to be trialled in Phase 2, each in a different location within Great Britain.

Different deployment solutions are likely to be needed for different types of location, for example, reflecting the level of housing density in a location. Therefore, in *Stream 1 - Solutions for High Density Heat Pump Deployment*, projects will be classified in one of three separate categories – predominantly urban, urban with significant rural and predominantly rural - depending on the location proposed for the high-density deployment trial (see information on ‘Application Category’ below for further details). BEIS expects to trial at least one solution for each of these three categories, subject to proposed solutions being of sufficient quality and meeting the trial scope requirements.

This stream will focus on developing and trialling heat pump deployment solutions which deliver:

- Cost-savings relative to current average deployment costs for domestic heat pumps².

² BEIS and the Stream 3 supplier will work with the Stream 1 project teams to agree baseline costs and other indicators and evaluation methodologies. Indicative baseline costs can be found at: <https://www.gov.uk/government/publications/cost-of-installing-heating-measures-in-domestic-properties>

- High density deployment of domestic heat pumps³ – i.e. transition a large proportion of domestic consumers within a single area over a short period of time (before the end of the trial project, end March 2025).
- An enhanced ‘consumer journey’ – providing high levels of consumer satisfaction throughout the deployment.

We expect successful solutions to take a ‘joined up’ approach to heat pump roll-out, working across stakeholders, involving, for example, local authorities, energy suppliers, distribution network operators, manufacturers, consumers groups, installers and finance providers within a given locality.

The solutions which are selected for trial within *Stream 1 - Solutions for High Density Heat Pump Deployment* must meet the ‘Trial Scope Requirements’ set out below.

The Competition will be delivered over two phases:

Phase 1 (total budget up to £3m) will support multiple projects to scope and develop feasible methodologies for the high-density deployment of heat pumps in different locations across Great Britain.

Phase 2 (total budget up to £27m) takes the most promising projects from Phase 1 and supports the proposed phase 2 trial of these methodologies for high density heat pump deployment.

Phase 1: Feasibility Phase (6 months) – The intention is that in Phase 1, up to 15 project teams will produce feasibility studies which detail an innovative approach for the roll-out of a high density of heat pump installations within their chosen GB location and explain how the team will develop and optimise their deployment solution. Towards the end of this phase, the project teams will have access to and will be encouraged to include in their Phase 2 applications the solutions emerging from Heat Pump Ready’s *Stream 2 - Tools & Technology*. Projects will also be expected to work with DNOs to access funding through Ofgem’s Network Innovation Competition (NIC) and Strategic Innovation Fund (SIF). Formal networking opportunities to facilitate these collaborations will be organised by the *Stream 3 - Trial Support and Shared Learnings* supplier. The *Stream 3 - Trial Support and Shared Learnings* supplier will also be undertaking consumer research in all selected local authorities to support *Stream 1 - Solutions for High Density Heat Pump Deployment* projects in understanding consumer attitudes to heat pump.

Phase 2a: Trial Mobilisation Phase (12 months) – the intention is to select at least 3 approaches from Phase 1 to progress to Phase 2. In Phase 2a, projects will

³ Details of the Stream 1 high density deployment requirements are set out in the Eligibility section.

begin mobilising for their deployment trial, to the point where the project teams are ready to start installation, carrying out activities which include:

- Detailed co-ordination planning.
- Detailed plan for quality assurance, consumer satisfaction and monitoring processes.
- Selection of Suppliers.
- Working with installer training providers to ensure installer capacity.
- Finalising the operational heat pump data to be collected (in line with methodology developed).
- Recruitment of consumers.
- Identify funding route for heat pump installation and capital costs.
- Confirming network connection readiness.

The transition from Phase 2a to Phase 2b will require the project teams to successfully pass a tailored stage gate in their project, the details of which will be defined by the teams in their application to Phase 2 and which will require minimum thresholds to be secured, including confirmation of finance route and consumer recruitment and approval of quality assurance, consumer satisfaction and monitoring processes.

All Phase 2a projects which meet the stage gate requirements will move to Phase 2b. Any projects which do pass their Stage gate, will be given a 1 month extension to meet the minimum thresholds, as per the above. Failure to meet these thresholds will result in project termination.

Phase 2b: Trial Deployment Phase (18 months) – In this stage, project teams will finalise consumer recruitment, complete the roll-out (installation and commissioning) of the high-density cluster of heat pumps within each project locality, in line with the project team's optimised deployment methodology, and collect an initial set of operational data. This phase will include:

- Finalising installation logistics.
- Confirming finance options for households.
- Installing heat pumps and relevant energy efficiency and supporting measures (e.g. thermal storage), ensuring the solution is optimised for each home, with a focus on achieving the highest possible heat pump efficiencies which is affordable to the consumer.
- Supporting consumers to adapt to their new heating system (e.g. how to use the system, advice on energy tariffs) and ensuring they are satisfied with and are confident using their system.

- Monitoring and quality assuring the heat pump operation, including the reliable provision of agreed heat pump data.

- Procurement Route

The Competition funding will be awarded using the Small Business Research Initiative (SBRI) approach. SBRI is a well-established pre-commercial procurement process that enables the development of innovative products and services in response to specific challenges faced by government departments and public-sector bodies. Successful business partners receive finance to develop their innovative ideas, generating new business opportunities and routes to market. This competition and the SBRI approach is not limited to small and medium sized organisations.

An SBRI will fund 100% of eligible costs up to the maximum of £200k per project for Phase 1. The minimum cost per project for Phase 1 is £50k. For Phase 2, the maximum funding available per project is £4.5m.

The sharing of *risks and benefits* is an important aspect to the SBRI approach. Projects receive financial support and retain any intellectual property generated, with certain rights of use retained by BEIS. Project outputs are also expected to be shared widely and publicly and project teams are not permitted to include profit in the eligible project costs.

- Eligibility

To be eligible for funding, proposed projects must meet all the following eligibility criteria:

1) Regional Location

The competition supports the development of heat pump deployment methodologies specific to [one local administrative unit \(LAU\) Level 1 area](#).

2) Location Definition

This competition requires each application to specify the Rural-Urban definition for the location of their high-density deployment.

- **Category 1: Urban Location** – Locations with less than 26% of population living in rural settlements and hub towns.
- **Category 2: Rural Location** – Locations with at least 50% of population living in rural settlements and hub towns.
- **Category 3: Urban with Significant Rural** – Locations with at least 26% but less than 50% of population living in rural settlements and hub towns.

Further details on definitions is available for [England](#), [Scotland](#) and [Wales](#).

3) Trial scope requirements

a. High density deployment requirement

A key focus for Heat Pump Ready is demonstration of effective methodologies for roll out of high density of heat pumps in a locality – to reflect the density of heat pumps that may be required to meet Net Zero requirements. Therefore, *Stream 1 - Solutions for High Density Heat Pump Deployment* project teams must deploy heat pumps to either:

- At least 25% of the domestic buildings on at least one low-voltage network within their chosen LAU Level 1 deployment trial locality; and/or
- At least 25% of domestic buildings served by a single secondary sub-station within their chosen LAU Level 1 deployment trial locality.

Applicants may deliver multiples of the above requirements, for example, target 25% of domestic buildings on 3 different low-voltage network cables within their chosen LAU, as long as 25% of each low-voltage network is achieved. Likewise, a project may choose to look to deploy heat pumps at homes connected to 5 different secondary sub-stations within their chosen LAU. This would be eligible as long as heat pumps were deployed into 25% of homes connected to each of the 5 sub-stations.

b. Number of heat pumps deployed

Reflecting the high density deployment requirement (8d) and the variation of numbers of properties on any single low voltage network, there are no fixed minimum numbers of heat pumps to be deployed in the *Stream 1 - Solutions for High Density Heat Pump Deployment* trial. However, project teams are encouraged to propose total deployment numbers which represent a significant increase beyond trials carried out to date in the UK and the *Stream 1 - Solutions for High Density Heat Pump Deployment* assessment will take this into account when considering the value-for-money and social value of the trial.

c. Housing and building types

Table 1 sets out the permitted limits for housing and building eligible under Heat Pump Ready *Stream 1 - Solutions for High Density Heat Pump Deployment*. BEIS is unable to fund projects which do not focus on domestic heat pumps. Where non-domestic heat pumps are included in the methodology (within the limits provided in Table 1), credible evidence must be provided that the inclusion of non-domestic heat pumps increases the viability of the installation of domestic heat pumps and that the methodology is replicable.

Table 1: Permitted housing/building type and deployment limits under Heat Pump Ready *Stream 1 - Solutions for High Density Heat Pump Deployment*.

Building type	Permitted in Stream 1 trial?	Limit for Stream 1 trial (as % of total heat pumps deployed in trial)
Social housing New Build (pre-occupancy) Non-domestic	Yes	Maximum of 30% in total (i.e. for all three categories)
Off-gas grid homes	Yes	Maximum of 15%

4) Technology Deployment

Table 2, below, sets out the heating technologies eligible under Heat Pump Ready *Stream 1 - Solutions for High Density Heat Pump Deployment* and where applicable, the limits on their inclusion in the trial. The aim of this programme is to support the deployment of the optimal heat pump technology for individual homes, where heat networks are not suitable. Priority for *Stream 1 - Solutions for High Density Heat Pump Deployment* is air source (ASHP) and ground source (GSHP) heat pumps. However, BEIS recognise that ASHP and GSHP are suited to ~80% of homes, therefore for inclusion (where deemed appropriate) of other types of heat pumps and direct electric heat solutions is accepted up to the limits below.

Table 2: Permitted heating technologies and deployment limits under Heat Pump Ready *Stream 1 - Solutions for High Density Heat Pump Deployment*.

Heat pump / source type	Permitted in Stream 1 trial?	Limit for Stream 1 trial (as % of total heat pumps deployed in trial)
Low temperature* hydronic ASHP	Yes	No limit

Low temperature* hydronic GSHP	Yes	No limit
Non low temperature heat pumps. For example, hybrid heat pump, high temperature hydronic heat pump, air-to-air heat pump, other direct electric heating solution	Yes – but with limit	net maximum of 20% of trial buildings.
Shared ambient temperature ground loop	Yes	No Limit
Shared high temperature ground loop	No	N/A
Heat Network	No	N/A
Other domestic heating technologies not listed in this table	No	N/A

* For the purposes of the Heat Pump Ready Programme, low temperature heat pumps are defined by the Microgeneration Certification Scheme [Microgeneration Product Standard: MCS 007](#) as ‘A heat pump space heater that is specifically designed for low-temperature application, and that cannot deliver heating water with an outlet temperature of 52 °C at an inlet dry (wet) bulb temperature of -7 °C (-8 °C) in the reference design conditions for average climate (88% part load condition for water/brine-to-water units).’

4) Innovation & Commercialisation

This is a pre-commercial procurement competition to support the development of innovative methodologies to optimise high density heat pump deployment. These innovative methodologies must not have previously been tested in the market or commercialised.

5) Eligible project costs and funding exclusions

a. Project size

Phase 1 – Feasibility study (SBRI): The maximum funding available per feasibility study is £200k and the full project cost must be a minimum of £50k (this must cover 100% of project costs).

Phase 2 – Demonstration phase (SBRI): The maximum funding available Phase 2 project is up to £4.5m and the full project cost must be a minimum of £2m (this must cover 100% of project costs).

b. Eligible costs.

- SBRI is aimed at organisations working on research, development and demonstration (RD&D) of an innovative process, material, device, product, or service prior to commercialisation. Funding is available for RD&D activities only, including related dissemination activity.
- Projects requesting funding for commercialisation activities (for example, advertising and marketing of their developed solution as a commercial product to other heat pump coordinating organisations) are not eligible.
- To meet the risk-benefit sharing requirements of the SBRI delivery method, project teams are **not** permitted to include profit in the eligible project costs (for Phase 1 or Phase 2).

The focus for this Stream of the Heat Pump Ready Programme is to develop optimised deployment solutions for high-density deployment of heat pumps. To test the effectiveness of the solutions, they must be trialled in realistic conditions, based on current or announced deployment funding mechanisms, including: government support schemes, such as the Boiler Upgrade Scheme and the Social Housing Decarbonisation Fund; private finance, such as green mortgages and loans; innovative finance models, such as heat-as-a-service; and consumer savings. Therefore, for this competition, the following costs are ineligible.

c. Ineligible costs

- General training of heat pump installers – but the costs of training installers to use tools or approaches which are developed specifically for this Programme are eligible.
- Development of heat pump or associated technology (see Heat Pump Ready *Stream 2 - Tools & Technology* information below for details of innovation support available to fund the development of heat pump tools and technology).
- Capital costs of heat pumps, including installation costs.

6) Project status

Any **retrospective work** on a *Stream 1 - Solutions for High Density Heat Pump*

Deployment project (i.e. work completed before the formal project start) **cannot be funded by BEIS.**

7) **Additionality**

Projects can only be funded where evidence can be provided that innovation would not be taken forwards (or would be taken forwards at a much slower rate) without public sector funding.

8) **Project end date** (based on current timelines – subject to change)

Phase 1 Feasibility Studies must be completed and approved by BEIS **by 12 noon BST, 29th September**. Projects need to allow for time for the BEIS monitoring officer to review the feasibility study and amend accordingly, this process can take up to a month and should be included in your project plan. Phase 2a mobilisation projects must be completed by 30th September 2023 and Phase 2b demonstration projects must be completed and final reports submitted **by 31st January 2025** based on the current timeline.

Note: Projects need to allow for time for the BEIS monitoring officer to review final reports, and for project teams to action any required amendments at the end of each stage. This process can take up to a month and the deadlines listed above reflect this review period requirement.

9) **Knowledge transfer and collaboration**

Each project funded within this stream must participate in the knowledge transfer, collaboration and dissemination activities facilitated by the *Stream 3 - Trial Support and Shared Learnings* provider or by BEIS.

10) **Multiple applications and delivery**

If you intend to submit multiple applications, you must comply with the following limits of entry into the competition:

- Lead organisations may only submit **one** application into each of the three urban/rural/urban with significant rural Application Categories as the project lead (see below for details).
- Lead organisations may only submit one application for any single LAU Level 1 as the project lead.

See also separate guidance on 'Conflict of interest' (Section 2).

If project consortium member(s) are part of multiple successful applications, they must have sufficient capacity to be able to deliver all of them, if selected for funding by BEIS.

Applicants must not submit multiple applications for the same project.

11) Agree to published Terms & Conditions

Applicants must agree to the published Terms and Conditions, including clauses on Intellectual Property and participation in *Stream 3 - Trial Support and Shared Learnings* activities to be eligible.

- Assessment Process

All applications will be considered initially against all the competition eligibility criteria and then against the assessment areas outlined below which are based on the competition's objectives and the likelihood of effective project delivery.

The eligible projects will be assessed against the assessment criteria below to determine an overall ranking list for each of the three Application Categories (defined below) which will be used to allocate the funding for the competition. To be eligible to receive funding, a project must also be allocated a minimum total threshold score (55% for Phase 1 and 65% for Phase 2) against these assessment criteria. Details of how funding will be allocated to projects is set out in the 'Funding allocation process' section of this document.

If there is remaining budget in a Category (due to insufficient applications or applications failing to score above the minimum total threshold score), this budget will be transferred to a central pot, where all remaining/unfunded projects across the Categories will be combined and ranked in order of merit and funding will be assigned in ranked order of merit to the remaining projects which have scored above the minimum total threshold score until the budget is used up.

The application form and guidance notes are designed to inform you about the types of information you should provide to BEIS for your application to be assessed.

Application Categories

Application into this competition will be split into three Categories.

Category 1: Urban Location – Locations with less than 26% of population living in rural settlements and hub towns.

Category 2: Rural Location – Locations with at least 50% living in rural settlements and hub towns.

Category 3: Urban with Significant Rural – Locations with at least 26% but less than 50% living in rural settlements and hub towns.

Further details on definitions is available for [England](#), [Scotland](#) and [Wales](#).

Assessment Criteria – Phase 1

The assessment criteria for the **Heat Pump Ready: Stream 1 - Solutions for High Density Heat Pump Deployment Phase 1** competition is broken down into 6 separate

criteria. Each criterion will be scored independently and will be given a scoring between 1-5. Further details on each of these Criteria will be provided in the Invitation to Tender when the competition opens.

Criteria	Description
<p>1. Innovative, cost-effective methodology for coordinated high-density deployment of heat pumps within a given location</p>	<p>This criterion will be used to assess the novel approach to coordinated, high density deployment, of heat pumps within a given location in the proposed demonstration project, which the project team is looking to develop in the feasibility phase.</p> <p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Explain why their methodology is innovative • Provide evidence to demonstrate that the proposed approach is technically and commercially feasible, providing justifications where appropriate • Outline the project expected to be carried out in phase 2, highlighting, including: <ul style="list-style-type: none"> • Their ambition for the number of heat pumps they are expecting to deploy in Phase 2 and their justification for how they will achieve this deployment rate • The cost reduction of heat pumps to the consumer and the justification for how they will achieve this cost reduction through their methodology • Describe the deployment challenges expected to be overcome by the coordinated methodology. • Describe the approach that will be taken towards consumer engagement <p>Detailing the anticipated cost of the Phase 2 methodology trial and how the feasibility study phase will firm up these costs.</p>
<p>2. Understanding of the location requirements</p>	<p>This criterion will be used to assess the applicant’s understanding of the location in which they are seeking to develop and trial their methodology.</p> <p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Demonstrate an understanding of the location in which they are applying to develop their methodology for • Demonstrate why heat pumps are the most suitable net zero solution for this area (i.e. this is not an area suitable for a heat network) • Provide justification on why their methodology will be suitable for this specific area • Demonstrate an understanding of the network constraints and opportunities in this specific area • Demonstrate any alignment to Local Authority heat pump deployment ambitions and policy • Demonstrate an understanding of the local installer base, supply chain and training providers <p>Applicants may provide letters of support as part of this criterion which will be used in the scoring of this criterion to show strong collaboration between stakeholders not part of the project team.</p>

<p>3. Social Value</p>	<p>This criterion will be used to assess the plans for the social value gained from supporting the project.</p> <p>Applicants are expected to provide a method statement which demonstrates how the proposed deployment methodology will:</p> <ul style="list-style-type: none"> • Improve community integration • Increase supply chain resilience and capacity. <p>The method statements provided at Phase 1 may include the identification of gaps which the applicant is looking to address during Phase 1's feasibility activities.</p>
<p>4. Long Term Impact</p>	<p>This criterion will be used to assess the long-term impact for the project, including:</p> <ul style="list-style-type: none"> • the sustainability of the deployment methodology, beyond the lifetime of the project; • replicability of the methodology in other similar locations. • estimated carbon emission reduction achieved through their project
<p>5. Project Funding</p>	<p>This criterion will be used to assess the demonstration costs, including assessing whether the project delivers fair market value and provides additionality.</p> <p>This criterion will assess:</p> <ul style="list-style-type: none"> • Phase 1 feasibility study project costs, to ensure that all eligible costs represent a fair market value (NB. Profit for the project team members should not be included in the eligible project costs). <p>Robustness of the Phase 1 feasibility study project costs, i.e., whether the proposed eligible project costs are realistic and justified in terms of the proposed project plans, <u>and</u> sufficient to provide the deliverables sought. In recognition of the fact that the risks of the project development are shared with HM Government, but the applicant stands to gain all of the benefits occurring after completion of the project, the applicant is asked to explain what cost savings, from the point of view of HM Government, will be provided from the total project (Phase 1 and Phase 2) compared to the costs if the project was carried out under an exclusive development contract where HM Government retained exclusive rights to all the IP.</p> <p>Robustness of the high level Phase 2 costs, ie. whether the proposed high-level costs are realistic to provide the proposed Phase 2 activities.</p>
<p>6. Project Delivery</p>	<p>This criterion will be used to assess the expected effectiveness</p>

	<p>and efficiency of delivery of the feasibility study; and will also consider the indicative plan, and the project team’s potential capacity and capability to deliver a Phase 2 demonstration project in the time available.</p> <p>This will be assessed by looking at a range of factors, including:</p> <ul style="list-style-type: none"> • The capacity, experience, and capability of the project team. • The completeness and quality of the proposed project delivery plans both for the feasibility study and for the proposed demonstration project. • The appropriateness and realism of the project milestones and deliverables, including those to develop the costs and delivery plan for Phase 2. • Applicants who are involved in multiple applications to the Heat Pump Ready Programme, should detail how they will ensure they have capacity to deliver if each application is awarded a contract. • The project’s access to the necessary skills, facilities, and materials. • The quality of risk assessment and contingency planning, including consideration of health and safety and other regulatory requirements.
<p>Minimum total threshold score for Phase 1</p>	<p>55%</p>

Assessment Criteria – Phase 2

The assessment criteria for the **Heat Pump Ready: Stream 1 - Solutions for High Density Heat Pump Deployment Phase 2** competition will be based on a separate application form to Phase 1 and is broken down into 5 separate criteria. Each criterion will be scored independently and will be given a scoring between 1-5. Whilst the criteria is similar to the Phase 1 application process, for the Phase 2 application it is expected that applicants use the knowledge and information gained during of their feasibility project to **provide certainty and clarity around their proposed methodology.**

<u>Criteria</u>	Description
<p>1. Innovative, cost-effective methodology for coordinated high-density deployment of heat pumps within a given location</p>	<p>This criterion will be used to assess the novel approach to coordinated, high density deployment, of heat pumps within a given location in the proposed demonstration project.</p> <p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Explain why their methodology is innovative • Provide evidence to demonstrate that the proposed approach is technically and commercially feasible, providing justifications where appropriate • Outline the project expected to be carried out in phase 2, highlighting, including: <ul style="list-style-type: none"> • The number of heat pumps they are expecting to be deployed and their justification for how they will ensure this deployment rate is achieved • The cost reduction of heat pumps to the consumer and the justification for how they have achieved this cost reduction through their methodology • Describe the deployment challenges expected to be overcome by the coordinated methodology. • Describe the approach that will be taken towards consumer engagement <p>Detailing the anticipated cost of the Phase 2 methodology trial and how the feasibility study phase will firm up these costs.</p>

<p>2. Understanding logistics for heat pump deployment</p>	<p>This criterion will be used to assess the applicants understanding of the logistics required to trial their methodology.</p> <p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Provide a method statement detailing their approach to quality assurance, monitoring, ongoing maintenance and ensuring consumer protection, both during the project and for the lifetime of the heat pump. • Detail why their methodology will be suitable for this specific location (i.e. demographic, archetype, local supply chain etc) • Detail the network constraints and innovation needs, alongside the opportunities available in this specific area • Detail the local installer base, supply chain, training providers and any other stakeholders required for the trial, and how they will support the methodology trial <p>Supporting evidence, where required for the success of the proposed project, for this criterion from:</p> <ul style="list-style-type: none"> • Either Local Authority part of consortium or letter of support from Local Authority detailing their planned engagement with the project • Either DNO part of consortium or letter of support from DNO detailing their planned engagement with the project to ensure deployment targets can be met • Energy supplier(s) • Community groups • Installer group(s) • Manufacture(s) <p>This evidence will be used in the scoring of this criterion.</p>
<p>3. Social Value</p>	<p>This criterion will be used to assess the plans for the social value gained from supporting the project.</p> <p>Applicants are expected to provide a method statement which demonstrates:</p> <ul style="list-style-type: none"> • Improved community integration • Increase supply chain resilience and capacity. <p>These method statements should be further developed to those submitted as part of Phase 1 applications with any gaps identified having been addressed during Phase 1's feasibility activities.</p>
<p>4. Long Term Impact</p>	<p>This criterion will be used to assess the long-term impact for the project, including its sustainability beyond the life time of the project and replicability in other similar locations.</p>

5. Project Financing	This criterion will be used to assess the demonstration costs, including assessing whether the project delivers fair market value and provides additionality.
6. Project Delivery	This criterion will be used to assess the expected effectiveness and efficiency of delivery of the feasibility study; and will also consider the indicative plan, and the project team’s potential capacity and capability to deliver a Phase 2 demonstration project in the time available.
Minimum total threshold score for Phase 2	65%

Phase 2 Stage Gate Approval

All successful Phase 2 projects will be subject to a stage gate, between Phase 2a and Phase 2b, prior to the installation of heat pumps as part of their solution trial. Funding will be available for all successful Phase 2 projects which pass the Stage Gate, i.e. there is no further down selection at this point. To pass the Phase 2 Stage Gate, projects will be required to:

- Confirm the project has recruited the minimal viable number of consumers set out in the Phase 2 application.
- Confirm to BEIS the system design (including estimated space heating demand, hot water demand, electricity use and cost, and heat pump capacity design flow temperatures (separately for space heating and DHW heating mode)), for each heat pump install, showing a focus on achieving the highest possible heat pump efficiencies which is affordable to the consumer. This should be demonstrated with reference to appropriate consideration of equipment, energy efficiency measures, supporting measures (e.g. thermal stores), and overall system design.
- Provide BEIS with their Quality Assurance and Consumer Protection plan and received approval for their approach. During Phase 1, projects will receive guidance from BEIS and the *Stream 3 - Trial Support and Shared Learnings* provider, on the minimum requirements for Phase 2 Quality Assurance and Consumer Protection.
- Submit anonymised, high-level details of the consumers’ financial arrangements, confirming that funding routes have been finalised to fund the costs of the heat pump and any required heating system components, installation, and auxiliary technologies.
- Confirm GDPR-compliant data sharing agreements are in place between *Stream 3 - Trial Support and Shared Learnings* provider and installers to enable *Stream 3 - Trial Support and Shared Learnings* to complete their evaluation.

Applicants will be asked to set out, in their Phase 2 application delivery plan, the timing of their Phase 2 Stage Gate (which must be no later than 12 months from the start of Phase

2) and their evidenced targets against the above criteria. These targets must be realised within the applicant defined timeline, with a maximum allowable delay of 1 month. The targets set out by the applicant will be used as part of the Phase 2 assessment process. Any project that fails to meet their target within the timeframe will be terminated by BEIS.

Funding allocation process

BEIS is looking to fund a diverse and varied range of solutions which work for the whole of Great Britain. Applicants must focus their solutions within one [Local Administrative Unit \(LAU\) 1 area](#), in order to meet the high density of heat pump deployment targeted in the programme, however allocation of funding will be carried out at [Nomenclature of Territorial Units for Statistics \(NUTS\) 1 regional level](#), to help to secure a sufficiently diverse range of solutions which together are representative of much of Great Britain.

For **Phase 1, funding allocation stays within the Application Category** with an example of the funding allocation process for Phase 1 provided in Table 1.

In this example 15 projects were allocated funding. The steps taken to allocate this funding were:

- 1) All projects are ranked in merit order, based on their moderated assessment score, within their Application Category.
- 2) Any projects scoring below the threshold score of 55% are eliminated.
- 3) The highest scoring project in each NUTS1 region is then allocated funding, with the highest overall scoring project funded first.
- 4) In each category, if the next highest scoring project is in a NUTS1 region in which a project has already been allocated funding (i.e. in the same NUTS1 region as a higher-scoring project), then that project will not be allocated funding initially, the next highest scoring project will be considered to see if it is a different NUTS1 region to the projects which have already been allocated funding in that category. (For example, in Table 3, this situation is illustrated by Projects S4 and S5 in the Semi-Urban Application Category: they are in NUTS1 region D, but project S3 is also in region D and has been allocated funding, so funding is allocated instead to projects S6 and S7 which are in different NUTS1 regions in this Application Category.)
- 5) If there is any funding remaining within the category, the second highest scoring projects in each NUTS region are then allocated funding, and then the third etc. In the example below, the Category funding ran out before the projects ranked 6 and 7 were funded.
- 6) If funding remains after all projects scoring >55% has been funded within a category, the funding will be allocated to the next highest scoring project from the other categories.

Table 3: Heat Pump Ready Stream 1 - Solutions for High Density Heat Pump Deployment, Phase 1 funding allocation process

Urban Applications				Rural Applications				Semi-Urban Applications			
Order of funding allocation	Project ID	NUTS Area	Score	Order of funding allocation	Project ID	NUTS Area	Score	Order of funding allocation	Project ID	NUTS Area	Score
1 - funded	U1	A	89%	1 – funded	R1	A	82%	1 – funded	S1	A	81%
5 - funded	U2	A	88%	2 – funded	R2	C	80%	2 – funded	S2	E	80%
7	U3	A	87%	3 – funded	R3	D	78%	3 – funded	S3	D	79%
2 – funded	U4	B	85%	5 – funded	R4	C	77%	6	S4	D	76%
3 – funded	U5	G	84%	4 – funded	R5	H	60%	7	S5	D	75%
4 – funded	U6	J	83%	N/A <55%	R6	K	54%	4 – funded	S6	J	61%
8	U7	A	80%	N/A <55%	R7	A	52%	5 - funded	S7	I	60%
6	U8	J	77%	N/A <55%	R8	H	50%	N/A <55%	S8	D	52%

For **Phase 2, funding allocation moves across the application category (urban to rural to semi-urban)**, with an example of the funding allocation process for Phase 2 provided in Table 4.

- 1) All projects are ranked in merit order, based on their moderated assessment score, within their application category.
- 2) Any projects scoring below the threshold score of 65% are eliminated.
- 3) The highest scoring project in the urban category is allocated funding.
- 4) The highest scoring project in the rural category is allocated funding. Should this project be in the same NUTS region as the funded urban project, funding is award to the next unique NUTS region within that category.
- 5) The highest scoring project in the semi-rural category is allocated funding. Should this project be in the same NUTS region as the funded urban or rural project, funding is award to the next unique NUTS region within that category.

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- 6) This process continues across the categories, funding the next unique NUTS region within the category until funding runs out.
- 7) If any funding remaining once all unique NUTS regions have received funding, the second highest scoring projects in each NUTS region are then allocated funding, and then the third etc.

Table 4: Heat Pump Ready Stream 1 - Solutions for High Density Heat Pump Deployment, Phase 2 funding allocation process

Urban Applications				Rural Applications				Semi-Urban Applications			
Order of funding allocation	Project ID	NUTS Area	Score	Order of funding allocation	Project ID	NUTS Area	Score	Order of funding allocation	Project ID	NUTS Area	Score
1 – funded	U1	A	92%	11	R1	A	82%	6	S3	D	81%
12	U2	A	88%	2 – funded	R3	D	80%	9	S1	A	80%
4	U5	G	85%	5	R4	C	78%	3 – funded	S2	E	79%
7	U6	J	84%	8	R5	H	77%	N/A <65%	S7	I	61%
10	U4	B	83%	N/A <65%	R2	C	60%	N/A <65%	S6	J	60%

Project Monitoring and Reporting

A BEIS-appointed Project Monitoring Officer (PMO) will be assigned to each project and will be their main point of contact with BEIS during delivery. Projects will meet with their PMO at project start to agree the delivery plan, the milestones, and the specific outputs that will be delivered, as well as an invoicing schedule, with oversight from BEIS. PMOs will be responsible for reviewing evidence submitted as part of an invoicing claim before the invoice payment is approved.

Projects are required to submit monthly written progress reports to their PMO, and to meet with them monthly to discuss project progress. The *Stream 3 - Trial Support and Shared Learnings* contractor shall also attend these meetings to allow them to stay up to date on project progress, capture lessons and support in overcoming risks and issues. Projects should raise risks and issues promptly with their PMO as they arise, within and outside of these meetings. The PMOs will report to and meet with BEIS regularly and will escalate project issues to BEIS as necessary.

Projects will also be required to report on the NZIP Key Performance Indicators, a set of portfolio-level indicators that help BEIS consistently track, measure, and report on results and progress achieved by NZIP. Templates for reporting KPIs and project progress will be provided to each project.

Additional information on project monitoring and reporting will be included in the Competition Guidance.

Section 4: Stream 2 - Tools & Technology

- Scope

Heat Pump Ready – Stream 2: Developing Tools and Technology will support applied research and development projects, focused on driving down the lifetime costs of domestic heat pump deployment, improving the domestic consumer experience and acceptability of heat pumps through technology and process innovation and improving the home suitability and interoperability of heat pumps with other smart technology and within the wider electricity system.

Up to £25m has been allocated in total to this stream of the programme, with applicants expected to demonstrate that their project proposals fall into one of the following 5 different categories (example eligible projects are provided in Table 2 below):

- 1. Reducing lifetime cost and increasing performance of domestic heat pumps (indicative category budget: up to £8m)** – This category supports innovation on the **heat pump hardware**. This could include:
 - technology innovation for heat pumps themselves, such as improving the performance of heat pumps with natural/low greenhouse gas refrigerants.
 - improving their form factor, reducing size, minimising noise, improving the aesthetics.
 - works with existing home heating systems (e.g. micro-bore pipes).
 - improving their efficiency to provide consumers with reduced lifetime costs.
 - heat pump monitoring systems which allow optimisation of the heat pump system including any element of the heating system which could cause inefficiencies.
- 2. Minimising home disruption whilst providing high quality installation and supporting high quality installs (indicative category budget: up to £5m)** – This category supports innovation on **auxiliary equipment**:
 - Cost reduction / increased performance of auxiliary equipment (such as radiators).And innovation aimed at **supporting personnel involved in installation**, including innovative tools & technology for:
 - those conducting home surveys / specifying heat pumps.
 - Installation process.
 - maintenance for heat pumps.
- 3. Financial models to increase heat pump deployment (indicative category budget: up to £6m)** – This category supports innovation in business models (such

as heat or comfort as a service) which provide a 'bundle' of heat products and services in return for a regular charge. At a minimum, the services developed for this category must include the installation and maintenance of domestic heat pumps and necessary home energy efficiency measures. Project teams will be expected to **develop and test (at small scale) novel business models** which are applicable to a range of homeowners or householders.

4. Improving the consumer journey (indicative category budget: up to £3m) –

This category supports innovation for **consumer facing tools and platforms** to:

- help create a more seamless consumer experience.
- reduce barriers such as understanding different heat pump options, finding trusted installers and installation configurations.
- make it less time-intensive for homeowners to adopt heat pumps.
- help post-install performance monitoring and fault detection systems and ensure systems continue to operate at an optimum performance through continuous optimisation.

5. Smart and flexible home energy system (indicative category budget: up to £3m) –

This category supports innovation to demonstrate in practice how smart heat pump deployment can:

- optimise running costs and reduce carbon for consumers through operation at times of clean and cheap electricity generation.
- provide reliable local, in home, flexibility services through load shifting and demand side response services.
- to help manage distribution networks, at times of peak and prolonged heating, and as wider sectors also electrify towards net zero, for example transport.
- Projects in this category will require an element of coordination across devices and can help support the deployment of Home Energy Management Systems (HEMS) to optimise demand across assets beyond heat pumps.

Successful *Stream 2 - Tools & Technology* projects may receive acceleration support through the Net Zero Innovation Portfolio (NZIP) Acceleration Support Services and be required to participate in *Stream 3 - Trial Support and Shared Learnings* activities. Further details will be provided in the Competition Guidance.

An individual organisation may submit as many different applications as they wish, however organisations cannot apply into more than category with the same technology/project. Each application must be for a significantly different project.

BEIS reserves the right to reallocate technologies to a different category where appropriate. This reallocation will be conducted following BEIS' initial eligibility check and applicants will be notified prior to commencement of technical assessment.

Table 5 sets out example projects which could fall within the 5 Project Categories – this is not an exhaustive list, other projects which meet the Category description are welcomed.

Table 5: Examples of Projects Supported

Project Category	Examples
<p>1. Reducing lifetime cost and increasing performance of domestic heat pumps</p>	<p>Developing a quieter, smaller heat pump unit</p> <p>Developing a heat pumps compatible existing home infrastructure, for example with micro-bore pipes</p> <p>Mass production and 3D printing of components such as heat exchangers</p> <p>Innovation to improve the resilience of the supply chain</p>
<p>2. Minimising home disruption whilst providing high quality installation</p>	<p>Developing an app to support installers conducting home surveys support accurate heat loss calculations</p> <p>Developing AI algorithms for optimisation, remote diagnostics & predictive maintenance</p> <p>Developing cheaper, easier to fit, higher performing radiators</p>
<p>3. Financial models to support heat pump deployment</p>	<p>Developing and trailing a domestic heat/comfort as a service business model</p> <p>Developing and trailing a domestic heat pump installation, maintenance and energy efficiency finance package.</p>
<p>4. Improving the customer journey</p>	<p>Developing a virtual reality for visualisation app for in-home design for future heat pump installation to allow consumer to ‘see’ their home post install</p> <p>Develop a consumer app to support them through the heat pump journey from fundamental education through to finding a trusted installer and troubleshooting operational issues.</p> <p>Innovation for the user interface of heat pump systems to significantly improve how easy the systems are to</p>

	operate, maintain, and troubleshoot.
5. Smart and flexible home energy system	<p>Tools to optimise home energy system – linking/integrating the heat pump to other technologies such as a thermal store, PV etc.</p> <p>Tools to support decision making around home energy system i.e. sizing of a heat pump when combined with thermal store, home battery, etc.</p>
<p>Note: This programme does not support projects focusing innovation solely on associated heat pump technology such as heat storage, solar pv or other electric heating technologies.</p>	

- Delivery route

The Competition funding will be awarded using a grant funding approach. BEIS will provide funding, under the terms and conditions of grant agreements, in line with UK Subsidy Control and other Government policy.

- Eligibility

To be eligible for funding, proposed projects must meet all of the following criteria:

1) Innovation and technology readiness:

We expect projects to be at Technology Readiness Level (TRL) 5 or above (Critical Function or Proof of Concept Established) as it is expected to reach TRL 8/9 at the end of their projects.

Projects must fall within the definitions of industrial research or experimental development set out below.

Experimental Development involves acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aiming at the conceptual definition, planning and documentation of new products, processes or services. Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real-life operating conditions where the primary objective is to make further technical improvements on products, processes or services that are not

substantially set. This may include the development of a commercially usable prototype or pilot which is necessarily the final commercial product, and which is too expensive to produce for it to be used only for demonstration and validation purposes. Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements.

Industrial Research involves the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services. It comprises the creation of components parts of complex systems and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation.

2) **Scope:**

Tools, technology, and processes developed in this Stream must support one of the five challenge areas (categories) described above.

3) **Project Status:**

BEIS is unable to fund retrospective work on projects. BEIS cannot fund the development of products which are already at commercial design (TRL 8 or 9) at the start of the project, or which are already commercially or widely deployed in the UK or internationally.

4) **Match-funding:**

In line with subsidy control principles, only a portion of the total eligible project costs can be funded with BEIS grant funding and applicants will need to have private funding in place to cover the balance of the eligible costs. Such funding may come from a company's own resources or external private sector investors but may not include funding attributable to any public authority.

Before the grant letter is issued, the applicant will need to demonstrate, with supporting evidence, a credible plan to raise the match-funding required for the whole lifetime of the project.

The Funding section below sets out the maximum grant funding levels.

5) **Additionality:**

Projects can only be funded where evidence can be provided that innovation would not be taken forwards (or would be taken forwards at a much slower rate) without public sector funding.

6) Project Location:

Over 50% of the project's activities (as measured by eligible project costs) must be conducted in the UK.

7) Grant size:

The total requested grant, per project, does not exceed £2m. Since BEIS is seeking to maximise the impact of government funding, projects looking for public funding intensities that are lower than the applicable maximum are likely to score higher in the appraisal process.

8) Terms & Conditions

Applicants must agree to the published Terms and Conditions to be eligible (See Annex).

9) Project duration:

Some of the tools and technology projects are expected to be completed more rapidly than others – for example, reflecting a higher Technology Readiness Level at the start or a project focused on an innovative process project which can be developed and prototyped more rapidly than a product development. Those projects which can be completed on more rapid timescales will have a greater opportunity of being trialled within the *Stream 1 - Solutions for High Density Heat Pump Deployment* co-ordination trial projects (See Timeline in Section 7).

When completing applications, it is necessary to indicate the project duration from the two options (Rapid and Standard) set out in the table below. Projects must be completed by the relevant project end-date listed in the table.

Project Duration	Completed by:
Rapid - Up to 18 months	End October 2023
Standard - Up to 30 months	End October 2024

10) Project Team Composition:

Projects must be delivered by individual UK-based⁴, private sector businesses (**sole applicants**) or by a consortium of UK-based project partners led by a UK-based private sector business (**consortium applicants**). Private sector businesses of any size are eligible for funding in this Programme.

Sole applicants: Any sole applicant must be a private sector business registered with Companies House with the necessary skills, experience and capacity to effectively lead the proposed project.

Consortium applicants:

- Consortium projects must be led by a UK-based private sector business registered with Companies House with the necessary skills, experience and capacity to effectively lead the proposed project.
- A single project application must be submitted to BEIS by the lead consortium partner (the project co-ordinator).
- The project team members in a consortium must be:
 1. UK-based private sector companies; or
 2. UK academic, research, public, third sector or community organisations working as part of a project consortium with private sector organisations.
- The eligible project costs incurred by all non-business partners, carrying out non-economic work (e.g. universities, Research and Technology Organisations (RTO), public sector, third sector and community organisations) in a consortium must be less than 30% of the total eligible project costs.

- Funding

Competition Budget

The total budget for *Stream 2 - Tools & Technology* of the Heat Pump Ready Programme is up to £25 million, although BEIS may allocate less than the total budget depending on the quality of the applications.

A single project can receive up to £2 million grant funding from BEIS in this Competition.

The number of projects funded will depend on the number of demonstration projects, the quality of the proposals and the cost of the proposals.

⁴ UK-based means the organisation must have an establishment or subsidiary registered in the UK.

Grant Intensity Limits

Maximum grant intensity as a Proportion of Total Eligible Project Costs

(The maximum grant intensity is the maximum proportion of eligible project costs which can be funded by public sector innovation support – that is the BEIS Heat Pump Ready grant and any other public sector funding)

Size of organisation	Type of innovation activity	
	Experimental Development	Industrial Research
Small	60%	80%
Medium	50%	75%
Large	40%	65%

Universities, research or third sector organisations who are consortium partners may be entitled to receive higher levels of funding for eligible project costs if they are not undertaking economic activities in the project.

Further details and relevant definitions will be provided in the Programme Engagement Document to be circulated for feedback before issue of the final Competition Guidance.

Business definitions

A business is defined as an organisation undertaking economic activities. Businesses are categorised as small, medium, or large depending on both their:

- staff headcount
- either turnover or balance sheet total

Company category	Staff headcount	Turnover	OR	Balance sheet total
Medium-sized	< 250	≤ £45m		≤ £39m
Small	< 50	≤ £9m		≤ £9m

Links with Other Funding

Successful applicants of other BEIS grant funding (Energy Entrepreneurs Fund for example) may apply for funding for additional activities or new projects under the HPR Programme. However, the proposed HPR project must extend the scope of the previously funded work to new applications or processes.

There will be no advantage for previous or current BEIS funded projects applying for further funding in HPR Programme; all applications will be treated on an equal basis in accordance with the competition criteria.

You will be asked to declare any relevant previous or current BEIS or other public sector funding applications during the application process.

- Assessment Criteria

All applications will be considered against the same assessment areas and ranked against all other projects in the same category. The online application form and guidance notes are designed to inform you about the types of information you should provide to BEIS for your proposal to be assessed.

For the avoidance of doubt, the individual questions listed under the headings below do not constitute assessment sub-criteria but are an indication of the kinds of factors that will be considered in assessing each aspect of a proposal.

We will select projects that offer the best value for money taking account of the following areas:

Criteria	Description
1. Business Proposition	The criterion will be used to assess the market opportunities of the projects proposed including plans for commercialisation of the final product.
2. Innovation	The criterion will be used to assess how innovative the product is relative to existing technologies.
3. Impact on Climate Change targets and/or security of supply	The criterion will be used to assess the project against the UK's Net Zero 2025 targets and UK emission costs.
4. Project Details	This criterion will be used to assess the appropriateness and effectiveness of the project planning.
5. Project Funding	The criterion will be used to assess the value for money of the project including budget allocation.
6. Experience and Skills	The criterion will be used to assess resource capability, capacity and management and skill gaps.

- Funding award

The funding award process is set out below:

1. Each project will fall into one of the five application categories and each of these categories will be assigned a **maximum budget, which may vary across the categories**.

2. Within each of the categories, projects will be ranked based on their final, moderated assessment score.
3. BEIS will assign funding in order of ranking to the projects which score above the threshold assessment score.
4. BEIS will review the list of projects to be funded, ensuring that no more than 3 projects per lead organisation have been allocated funding, across all the *Stream 2 - Tools & Technology* categories. Funding will be allocated to the 3 highest scoring, funded projects, which an organisation has submitted.
5. Where additional funding becomes available within a category, due to an organisation already receiving funding for 3 projects, funding will be allocated to the next highest scoring eligible project, within that category.
6. If there is any remaining budget within any Category, (due to insufficient applications or applications failing to score above the minimum threshold score), this budget will be transferred to a *Stream 2 - Tools & Technology* central pool of funding
7. Once the initial allocation has been completed, all remaining unfunded projects, which have scored above the threshold, from categories where funding has been fully allocated will be merged into one combined group, in rank order (based on their moderated assessment score).
8. BEIS will review the list of projects in the combined group and will remove any projects led by organisations which have already been allocated funding for leading three projects across all the *Stream 2 - Tools & Technology* categories.
9. The *Stream 2 - Tools & Technology* central pool of funding will then be allocated in rank order to this combined group of projects until funding runs out.

Project Monitoring and Reporting

A BEIS-appointed Project Monitoring Officer (PMO) will be assigned to each project and will be their main point of contact with BEIS during delivery. Projects will meet with their PMO at project start to agree the delivery plan, the milestones, and the specific outputs that will be delivered, as well as an invoicing schedule. PMOs will be responsible for reviewing evidence submitted as part of an invoicing claim before the invoice payment is approved.

Projects are required to submit monthly written progress reports to their PMO, and to meet with them monthly to discuss project progress. The *Stream 3 - Trial Support and Shared Learnings* contractor shall also attend these meetings to allow them to stay up to date on project progress, capture lessons and support in overcoming risks and issues. Projects

should raise risks and issues promptly with their PMO as they arise, within and outside of these meetings. The PMOs will report to and meet with BEIS regularly and will escalate project issues to BEIS as necessary.

Projects will also be required to report on the NZIP Key Performance Indicators, a set of portfolio-level indicators that help BEIS consistently track, measure, and report on results and progress achieved by NZIP. Templates for reporting KPIs and project progress will be provided to each project.

Additional information on project monitoring and reporting will be included in the Competition Guidance.

Section 5: Stream 3 - Trial Support and Shared Learnings

- Scope

BEIS views the ability to share learning within and outside of the programme, and ability to collaborate on common challenges and opportunities in deploying heat pumps in high density, as key to the success of Heat Pump Ready. *Stream 3 - Trial Support and Shared Learnings*, will be largely responsible for this knowledge gathering, sharing and collaboration.

Stream 3 - Trial Support and Shared Learnings has **two overarching objectives**:

1. **Improving Heat Pump Ready project and programme delivery** through:
 - a. the capture and sharing of progress, evidence, knowledge and lessons between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects during Phase 2 of project delivery
 - b. Establishing and coordinating interactions between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects and special interest working groups in support of areas of common delivery
 - c. Brokering relationships between *Stream 1 - Solutions for High Density Heat Pump Deployment* project and the solutions being developed in *Stream 2 - Tools & Technology* and other innovation programmes

2. **Incentivising actions among key heat pump stakeholders that advances the heat pump sector and contributes to increases in heat pump deployments, including as part of high-density, localised deployments**, through:
 - a. Developing and maintaining an understanding of stakeholder evidence and knowledge requirements, including the barriers that prevent actions taking place
 - b. Using this understanding of evidence needs to develop tailored knowledge, dissemination and other guidance products that demonstrate the feasibility of heat pump installations and the overcoming of known barriers and disseminating these products amongst key stakeholders

BEIS requires three work packages to be delivered to meet these objectives:

1. **Programme and project learning and collaboration** – this work package will support project delivery through the sharing of lessons and collaborations across the programme and with external stakeholders, including experts and projects from other innovation programmes (see Section 2)

- 2. Research and evaluation** – this work package will explore areas of programme delivery in order to understand and improve future high density heat pump deployment and support the dissemination of knowledge and evidence to the broader heat pump sector. Example areas of research include qualitative data collection with stakeholders directly involved in *Stream 1 - Solutions for High Density Heat Pump Deployment* deployments to understand experiences and perspectives, and the analysis of household energy use data to assess the impact of heat pump installations.
- 3. Knowledge and evidence dissemination** – this work package will disseminate and share learnings, knowledge, evidence, results and impacts from the programme with all key heat pump sector stakeholders in order to demonstrate the feasibility of high-density deployment and the reductions in barriers to taking action. Dissemination will be wider ranging, take multiple formats covering all forms of media, and occur throughout the lifetime of the programme.

Stream 3 - Trial Support and Shared Learnings will be delivered through one contract over two Phases, aligned to the timelines of *Stream 1 - Solutions for High Density Heat Pump Deployment*:

- Phase 1 will run from April 2022 to September 2022 and primarily focus on the design of a *Stream 3 - Trial Support and Shared Learnings* delivery plan for the required activities across the three work packages, as well as carrying out some early activities.
- Phase 2 will run from October 2022 to March 2025 and focus on the delivery of work package activities.

- Delivery route

BEIS is seeking to procure a Delivery Partner who will be required to deliver activities across the three work packages. This stream will be a single contract via open procurement on <https://www.delta-esourcing.com/suppliers/> .

BEIS will be looking for a supplier or consortium able to provide the breadth of expert knowledge, skills and experience required to deliver the activities outlined below. This is expected to include expertise in: quantitative and qualitative research design, data collection and analysis; Quasi-experimental and theory-based evaluation design and delivery, preferably of innovation programmes; management of complex research and evaluation projects; GDPR and data sharing processes; stakeholder engagement; expert knowledge of heat pumps, included the process of installing, quality assuring, and monitoring domestic heat pumps; and innovative evidence dissemination and knowledge transfer, including digital materials.

- Activities & Methodology

Phase 1 – Design and early activities (April 2022 to September 2022)

Phase 1 of *Stream 3 - Trial Support and Shared Learnings* will primarily focus on further defining the activities to be delivered under the three work packages in Phase 2, building on those included in the winning bid. **The main output from Phase 1 will be a *Stream 3 - Trial Support and Shared Learnings* delivery plan.** Other scoping activities expected from Phase 1 and their outputs are:

- Scoping the **data required to carry out the *Stream 3 - Trial Support and Shared Learnings* activities and how the data will be accessed**, including the data sharing agreements that need to be in place. Data sharing agreement will be included in contracts and Grant Agreements between BEIS and *Stream 1 - Solutions for High Density Heat Pump Deployment* and 2 projects, and so this specific activity should focus on stakeholders not covered by these agreements. In particular bidders will need to set out in their bid how they will access consumer smart meter data in order to analyse changes in energy use. This will inform the *Stream 1 - Solutions for High Density Heat Pump Deployment* application forms, and so should be conducted before these forms are submitted. The *Stream 3 - Trial Support and Shared Learnings* contractor will also review *Stream 1 - Solutions for High Density Heat Pump Deployment* delivery plans to ensure plans for data access, sharing and protection are suitable
 - Output: A data access and data sharing plan, including relevant text, templates and guidance that can be implemented by HPR projects during Phase 2 delivery, that ensures *Stream 3 - Trial Support and Shared Learnings* access to relevant data

- **Identifying and engaging key stakeholders in the heat pump sector to understand evidence needs** and where the Heat Pump Ready Programme can help meet these needs
 - Output: Findings from this engagement should influence the activities carried out in Phase 2 and be included in the *Stream 3 - Trial Support and Shared Learnings* delivery plan. This should include a stakeholder map.

- Develop a **methodology for costing the delivery plans developed by *Stream 1 - Solutions for High Density Heat Pump Deployment*** to support BEIS in assessing project applications ahead of *Stream 1 - Solutions for High Density Heat Pump Deployment* Phase 2
 - Output: Costing methodology

While the bulk of activity under the three work packages is expected in Phase 2, the following are required in Phase 1, in addition to design and scoping work:

- Research with households in all areas selected as part of the *Stream 1 - Solutions for High Density Heat Pump Deployment* feasibility phase (up to 15). **The aim of this research is to support Stream 1 - Solutions for High Density Heat Pump Deployment projects in understanding the attitudes toward heat pumps in the local authority in which they intend to install heat pumps**, and the barriers and opportunities these presents. This in turn will support *Stream 1 - Solutions for High Density Heat Pump Deployment* as they develop consumer engagement strategies for their Phase 2 application. The research should therefore commence within a month of *Stream 3 - Trial Support and Shared Learnings* commencing. The survey sample should be representative of each local authority's demographics and building types.
 - o Output: Report summarising findings in each local authority

- Identifying areas of common delivery across *Stream 1 - Solutions for High Density Heat Pump Deployment* projects based on a review of successful project bids, (such as quality assurance of heat pump installs and DNO engagement) **and establishing and facilitating workshops between Stream 1 - Solutions for High Density Heat Pump Deployment projects and external experts** to support *Stream 1 - Solutions for High Density Heat Pump Deployment* project design. The first workshop should be conducted two months after projects commence. This should include a workshop on data protection and access delivered by *Stream 3 - Trial Support and Shared Learnings* based on their scoping work
 - o Output: Guidance notes, based on the advice given in the workshop, drafted and disseminated to *Stream 1 - Solutions for High Density Heat Pump Deployment* projects shortly after each workshop.

- Running **three workshops to facilitate collaborations between projects**: one workshop between *Stream 1 - Solutions for High Density Heat Pump Deployment* and *Stream 2 - Tools & Technology* projects, another between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects and projects from relevant NZIP programme, and a third between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects and Ofgem's supported innovation projects and energy networks. These should be delivered in month three of *Stream 1 - Solutions for High Density Heat Pump Deployment*, Phase 1 project delivery. BEIS expects that challenges in *Stream 1 - Solutions for High Density Heat Pump Deployment* can be addressed by solutions being developed in other projects. *Stream 3 - Trial Support and Shared Learnings* contractors will be required to identify where the workshop has resulted in collaborations being taken forward.
 - o Output: Identifying and reporting back to BEIS the collaborations that have been made as a result of the workshops, based on Phase 2 applications and PMO meeting insights.

Phase 2 – Delivery (October 2022 to March 2025)

Phase 2 of *Stream 3 - Trial Support and Shared Learnings* will involve the delivery of activities under the three work packages, as detailed below.

1. Programme and project learning and collaboration

- Quarterly learning workshops between *Stream 1 - Solutions for High Density Heat Pump Deployment* projects starting from October 2022, where project leads and partners can share progress, successes, learning, challenges, risks, and upcoming work with other projects.
 - o Output: A write up of each workshop and discussion points to be circulated amongst project leads.
- Quarterly learning workshops between *Stream 2 - Tools & Technology* projects starting from October 2022, which project leads can share challenges they face in developing their technology and working in the heat pump sector
- Attendance at all *Stream 1 - Solutions for High Density Heat Pump Deployment* and *Stream 2 - Tools & Technology* project monthly meetings with Project Monitoring Officers to stay up to date on project delivery, including lessons learnt, risks and issues. Where risks and issues are identified, *Stream 3 - Trial Support and Shared Learnings* should facilitate collaborations to resolve either with another *Stream 1 - Solutions for High Density Heat Pump Deployment* project, a *Stream 2 - Tools & Technology* project, and/or an external expert
 - o Output: Insights from these meetings should be synthesised with the outputs from the learning workshops above.
- Continuing to facilitate regular workshops (bi-annual, or as appropriate) between *Stream 1 - Solutions for High Density Heat Pump Deployment* project and: *Stream 2 - Tools & Technology* projects, external experts, and relevant projects from other innovation programmes (NZIP and Ofgem's SIF),
 - o Output: A write up of each workshop and discussion points to be circulated amongst workshop participants.
 - o Output: Guidance notes, based on the advice given in the workshops, building on those developed in Phase 1 where appropriate.

2. Research and evaluation

The first activity expected will be working with projects to embed and implement the data sharing processes and requirements developed in Phase 1, in order to facilitate research and evaluation and provide access to relevant data:

- Output: Data sharing agreements in place that give *Stream 3 - Trial Support and Shared Learnings* access to relevant data.

The research and evaluation workstream is guided by a series of research and evaluation questions. Each of these are presented below, followed by the suggested approach to answering them.

What can we learn about undertaking heat pump deployment feasibility studies?

This is a process evaluation question exploring Phase 1 of *Stream 1 - Solutions for High Density Heat Pump Deployment*, where projects will be undertaking feasibility studies for high-density deployment in their selected areas. BEIS requires an understanding of how these are undertaken, and the lessons learnt.

Methodology - a desk review of *Stream 1 - Solutions for High Density Heat Pump Deployment* application form for Phase 2 (expected to be submitted by *Stream 1 - Solutions for High Density Heat Pump Deployment* projects in September 2022) and project closure report; qualitative data collection through in-depth interviews with *Stream 1 - Solutions for High Density Heat Pump Deployment* project leads (approx. 15) while application forms are being reviewed by BEIS; desk review of application form assessment documentation and qualitative data collection through a focus group in October 2022 with personnel involved with reviewing project application form (approx. 15), carried out after projects have been informed of whether they are proceeding to Phase 2.

Outputs

- Report for BEIS summarising findings of the research in November 2022
- External guidance note on undertaking feasibility studies by December 2022, to support future deployments in other locations outside of HPR.

How do the delivery, progress and results of *Stream 2 - Tools & Technology* projects compare with expectations, and what lessons can be drawn?

This is a process and impact evaluation question exploring delivery and impact of *Stream 2 - Tools & Technology* projects over the lifetime of the programme.

Timing – Research to answer this question will be carried out in four waves every ~9 months: in November 2022, September 2023, June 2024 and March 2025. Both ‘Rapid’ and ‘Longer-Term’ project are in scope of all four waves; however, the lines of enquiry should reflect the progress of the projects. For example, ‘Rapid’ projects are expected to end by October 2023, therefore waves 3 and 4 should examine the broader impact and further progress of these projects, rather than delivery.

Methodology – Data collected and synthesised from: insights from *Stream 1 - Solutions for High Density Heat Pump Deployment* learning workshops; insights from monthly meetings with Project Monitoring Officers; desk review of project management documents; short

(~30 mins) qualitative interviews with all *Stream 2 - Tools & Technology* project leads in each wave (approx. 25 projects).

Output:

- Report for BEIS summarising findings after each wave. Data collection and analysis should occur in the month highlighted above, with the report due the following month (e.g. Wave 1 primary data collection in November 2022, with a report due in December 2022).
- Case study for each project, summarising project progress, achievement, and next steps, for external dissemination. The same case study should be updated following each wave.

What is the experience of *Stream 1 - Solutions for High Density Heat Pump Deployment* projects during the mobilisation phase, and what lessons can be taken from their delivery?

This is a process evaluation question exploring Phase 2a of *Stream 1 - Solutions for High Density Heat Pump Deployment*, where projects will mobilise their delivery plans. BEIS requires an understanding of how these are undertaken, and the lesson learnt.

Methodology - Data collected and synthesised from: insights from *Stream 1 - Solutions for High Density Heat Pump Deployment* learning workshops; insights from monthly meetings with Project Monitoring Officers; desk review of project management documents; short (~30 mins) qualitative interviews with all *Stream 1 - Solutions for High Density Heat Pump Deployment* project leads and partners (approx. 6 interviews).

Timing – Undertaken from September 2023- December 2023, following the end of *Stream 1 - Solutions for High Density Heat Pump Deployment*, Phase 2a in September 2023.

Outputs

- Report for BEIS summarising findings of the research in December 2023
- External guidance notes on mobilising deployments, to support future deployments
- Insight material into specific mobilisation activities and outcomes, such as consumer recruitment, and DNO engagement. These would be for external audiences.

How do *Stream 1 - Solutions for High Density Heat Pump Deployment* projects deploy heat pumps, how successful are they, how does this compare to initial deployment plans, and what is the experience of stakeholders involved in the process?

This is a process evaluation question exploring Phase 2b of *Stream 1 - Solutions for High Density Heat Pump Deployment*, where projects will deploy heat pumps in high density in

accordance with their delivery plan. BEIS requires an understanding of how these are undertaken, and the lesson learnt.

Timing – Research to answer this question should be undertaken in two waves, in order to provide BEIS with early insights during deployment. Wave 1 will take place from May-June 2024, and wave 2 from January-March 2025.

Methodology - Data collected and synthesised from: insights from *Stream 1 - Solutions for High Density Heat Pump Deployment* learning workshops; insights from monthly meetings with Project Monitoring Officers; desk review of project management documents; qualitative interviews with all stakeholders involved in deployments, including but not limited to *Stream 1 - Solutions for High Density Heat Pump Deployment* project leads and partners, installers, training providers, DNOs, local authorities, and energy suppliers (approx. 50 interviews per wave); online survey of consumers post-install, sent to all households that granted consent (bidders should assume an indicative number of 1,000 installs by the time of Wave 1, and another 3,000 for wave 2, and a 40% response rate); follow-up qualitative interview with consumers (approx. 100 in wave 1 and 300 in wave 2).

Outputs

- Report for BEIS at the end of each wave summarising findings of the research
- External guidance notes on how to coordinate deployments
- Case study for each project, summarising project progress, achievements, lessons, and next steps, for external dissemination. The same case study should be updated following each wave.

What impact does a heat pump installation have on the consumer and the household?

This will explore impact on consumer satisfaction and comfort, household energy use (gas and electricity), and household energy bills, segmented by household demographic, home type, and location (and any other relevant breakdown) in order to draw comparisons.

Methodology – Data on consumer satisfaction should be collected through the consumer surveys and qualitative data collection with consumers throughout the deployment phase, as mentioned above.

Assessing the impact on energy use and bills is expected to require a quasi-experimental method, likely difference-in-difference, where households with heat pumps (experiment group) are compared to similar households without heat pumps (control group). Where sufficient data is available, energy use and bills before and after heat pump installs should also be analysed. Data will be derived from smart meter data and need to be linked to other information about the household, and bidders will need to detail how the data will be accessed, including linking to the data scoping exercise in Phase 1. Stream 1 projects do not have a target number of heat pump installs and are instead required to install heat

pumps in at least 25% of the domestic buildings on at least one low-voltage network or served by a single secondary sub-station. *Stream 3 - Trial Support and Shared Learnings* bidder should assume that this translates to an indicative 4,000 total installs in the experiment group, with a similar number required in the control group.

Timing – Data will be collected throughout the deployment phase in *Stream 1 - Solutions for High Density Heat Pump Deployment* (October 2023 – March 2025). Analysis and reporting will take place in early 2025, before the end of the programme in March 2025.

Outputs

- Report to BEIS detailing findings of the analysis and how it was conducted.
- Summaries of the findings for easy dissemination to external audiences.

What factors influence or contribute to successful clustered Heat Pump deployment?

BEIS requires a comprehensive understanding of what makes high-density deployment a success, and the factors that contribute to this, to allow for replication in other locations.

Methodology - A Qualitative Comparative Analysis approach should be undertaken, which allows for systematic comparisons across cases in order to explore causal factors in situation where the target outcome is the same, but the methodology and final results differ. This will be conducted in early 2025, when judgements can be made on the success of deployments.

Outputs:

- Report to BEIS detailing findings of the analysis and how it was conducted.
- Summaries of the findings for easy dissemination to external audiences.

3. Knowledge dissemination

Dissemination of knowledge, learning and evidence from Heat Pump Ready is key to influencing the attitudes, perceptions and behaviours of key heat pump stakeholders. BEIS require innovative and creative means of dissemination, tailored to the needs of different stakeholder groups (as identified in Phase 1 scoping activities) – for example a range of media such as report, videos, social media content and other digital mediums (such as podcasts). The following activities and outputs are required, some of which are mentioned under the research and evaluation workstream:

- Development of guidance and ‘how-to’ documents to support future heat pump deployments, such as how to undertake feasibility studies, how to engage DNOs, how to work with installers and how to successfully engage consumers. BEIS expects ten documents to be developed and published over the lifetime of the

programme. These outputs will derive from activities under the research and evaluation work packages.

- Regular presentations to stakeholder groups, including as part of three annual ‘Heat Pump Ready Conference’, followed by physical dissemination of evidence through reports, infographic and digestible summaries tailored to specific stakeholders and their evidence needs
- Case study of each *Stream 1 - Solutions for High Density Heat Pump Deployment* and *Stream 2 - Tools & Technology* project, covering project delivery, learning and successes – with a variety of digital and visual mediums used to communicate these to stakeholders.
- Online dashboard summarising quantitative project delivery data. Bidder should include in their bid the information that will be included.
- Presentation at Conferences and seminars, with the inclusion and attendance of *Stream 1 - Solutions for High Density Heat Pump Deployment* and 2 projects where relevant (online and in person)
- Development and management of a Heat Pump Ready website to aid dissemination activities
- Evaluation and research reports detailing the findings for each research questions, as detailed in the research and evaluation work package requirements.

Assessment Criteria and Contract Award

BEIS will award the contract to the bidder that scores highest against the criteria listed below:

Criteria	Description
1. Delivery Approach and Methods	This criterion will be used to assess the delivery approach to ensure that the Stream meets its requirements.
2. Skills and expertise	This criterion will be used to assess the skills, expertise and resources of the project team and whether these are sufficient to meet the contract’s requirements.

3. Price	<p>The pricing model for this Stream will be a combination of fixed and variable costs, with further details provided in the Invitation to Tender.</p> <p>Price will be marked using proportionate pricing, with the lowest priced bid receiving the maximum marks available, and all other bids receiving marks in proportion to that price to one decimal place.</p>
4. Social Value	<p>This criterion will be used to assess the commitment of your organisation to contribution of a Policy outcome to deliver social value.</p>
5. Project management	<p>This criterion will be used to assess the approach to project and resource management</p>

Section 6: Thematic Evaluation

BEIS is committed to undertaking comprehensive evaluations across all policies and programmes in order to support programme improvements through learning and provide accountability of public spend. Evaluation activity on Heat Pump Ready will occur in two ways. The first is through *Stream 3 - Trial Support and Shared Learnings*, where evaluation will support programme learning and dissemination activity, as detailed in Section 5.

Secondly, Heat Pump Ready will also be subject to a separate thematic evaluation project that identifies how this Programme and other programmes operating in the same ‘homes and buildings’ innovation theme, such as Green Home Finance Accelerator, have impacted the broader sector. The focus will be on understanding whether and how these programmes have influenced the perspectives, intentions and actions of key stakeholders, and the importance of this in the context of Net Zero targets. Though funded partly through the Heat Pump Ready Programme, the procurement of this Thematic Evaluation project will be a separate activity to the procurement of the three Heat Pump Ready Streams detailed in this document.

All Heat Pump Ready Programme participants will be required to support and participate in the thematic evaluation. This may be through the provision of monitoring data, ensuring relevant data sharing and GDPR-compliant agreements are in place and participating in

workshops and interviews. The *Stream 3 - Trial Support and Shared Learnings* contractor will be required to share their evidence with the thematic evaluation contractor.

Section 7: Timelines

All dates subject to change.

- Pre-award programme timelines

Please note that these timelines are indicative and subject to change

	Stream 1: Solutions for High Density Heat Pump Deployment [SBRI]	Stream 2: Developing Technology and Tools [Grant]	Stream 3: Trial Support and Levelling Up Learnings [Contract]
Questions to Programme Team	10-Nov 2021		
Questions are Published with responses	25-Nov 2021		
Competition Open to Applicants	December 2021		
Competition Closes	February 2021		
Grant Awards / Contracts Signed	April/May 2022	April 2022	March/April 2022
Delivery Starts	May 2022		

- Stream 1 - Solutions for High Density Heat Pump Deployment delivery timeline

Phase	Timing
Phase 1	May 2022 – September 2022
Phase 2 Application Window	August 2022
Phase 2 Delivery	September 2022 – March 2025
Phase 2 Stage Gate	By November 2023

- Stream 2 - Tools & Technology delivery timeline

Project Duration	Timing
Rapid Projects – up to 18month duration	By October 2023
Standard Project – up to 30month duration	Up to September 2024

- Stream 3 - Trial Support and Shared Learnings delivery timeline

Phase	Timing
Phase 1	May 2022 – September 2022
Phase 2	October 2022 – March 2025

Annex

The draft terms and conditions for all Streams of the Heat Pump Ready Programme are available here:

<https://www.gov.uk/government/publications/heat-pump-ready-programme>