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# Heat Pump Ready: Stream 1

## Net Zero Innovation Portfolio

Tuesday 2nd November 10:00am

The presentation will start soon.

**Slides and Q&A from this event will be available post-event, however no recording will be available.**

Any questions you have relating to these slides should be sent to:

[heatinnovation@beis.gov.uk](mailto:heatinnovation@beis.gov.uk) by 12pm, Wednesday 10<sup>th</sup> November 2021.

# Agenda

Item	Topic	Presenter
1	Welcome +Agenda	Sally Fenton
2	Policy Landscape	Sarah Bailey
3	Ofgem - SIF	Kate Jones
4	Q&A	Sally Fenton / All
5	BREAK	
6	HPR Overview	Nicola Lazenby
7	Stream 1 Overview	Nicola Lazenby
8	BREAK	
9	Evaluation	Adam Stiles
10	Commercial Issues	Julie-Anne De Thomasis
11	Application Process	Pinky Hayer
12	Q&A / Next Steps	Sally Fenton / All

# Why Hold an Engagement Event?

*The outcome of today's pre-market engagement day is for both suppliers and BEIS to have a better understanding of this requirement before we go to market*

# What would BEIS like to achieve today?



Suppliers have further knowledge of this requirement



Suppliers can plan ahead for this requirement and the procurement process



BEIS has a better understanding of this requirement from suppliers' perspective



Suppliers can offer innovation / previous lessons learned



The presentation and Q&A from today will be published



Opportunity for questions

# Policy Landscape Overview

Delivering 600k heat pumps per year by 2028.

- We will need to **grow heat pump deployment to 600k** per year by 2028 to remain on track for net zero.
- The Heat and Buildings Strategy announced a **comprehensive policy framework** to support this transformation – including regulation, public investment and market-based policy measures as well as action on key enablers.

## We are:

Consulting on ending the installation of new fossil fuel heating for non-domestic buildings and homes off the gas grid from 2024.

Consulting on a market-based mechanism for low-carbon heat to run from 2024.

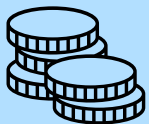
Aiming to phase out the installation of new and replacement natural gas boilers by 2035 at the latest.

Providing funding support to consumers, including Home Upgrade Grant, SHDF and a new £450m Boiler Upgrade Scheme from 2022.

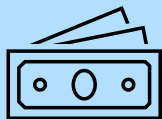


# Enabling Heat Pump Deployment:

How can innovation support policy mechanisms?



**Reduce Upfront Costs**



**Reduce the Running Costs**



**Improve the Consumer Journey**



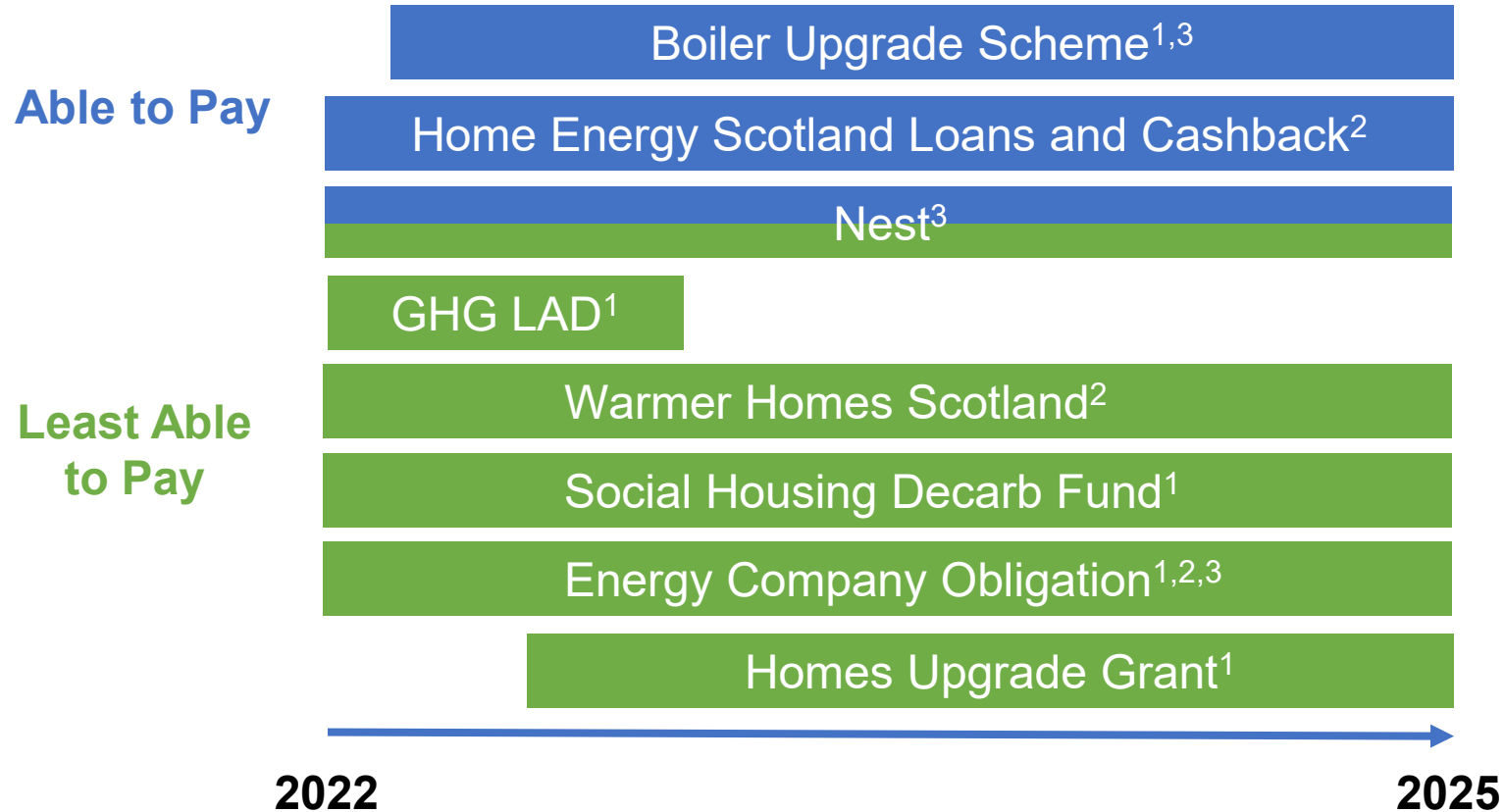
**Reduce Environmental Impact**



**Ready the Electricity Network**

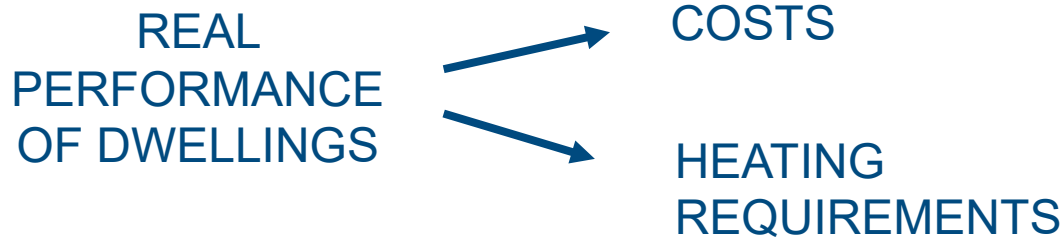


# Heat Pump Funding Schemes



# In-use Metrics — Emerging Policy Landscape

The [SMETER programme](#)



A 2021 BEIS stakeholder workshop gave high priority to the idea of metrics of heat pump suitability that assessed suitability for replacing existing heating for a heat pump (and indicating size specification):

- 1) based on standard assumptions.
- 2) reflecting current occupant behaviour and heating patterns.





# Ofgem Strategic Innovation Fund

**Kate L Jones | November 2021**  
**Innovation Lead – Ofgem Strategic Innovation Fund**

# What is the Strategic Innovation Fund?

- Paid for by consumers on their energy bills
- £450m available over the next five years
- Designed to help network users and consumers
- Aimed at energy network innovation



# Strategic Objectives

Ofgem and Innovate UK are collaborating to:

- 1. Deliver a net zero energy system at lowest costs to consumers**
- 2. Position the UK as the 'Silicon Valley' of energy systems**

We are interested in big, bold, ambitious ideas which will significantly accelerate delivery of net zero in the UK and be rolled out internationally.



# The 3 pillars of the Strategic Innovation Fund

## Strategic Alignment

Bring in the best businesses and academics from across energy and other sectors

Aligning energy innovation funding across government, UKRI and Ofgem

Enabling responsive policy and regulatory change informed by innovation

## Agile 'Challenges'

1. Whole system integration

2. Heat

3. Data and Digital

4. Zero emissions transport

**Discovery** Projects  
2 months / £150k

**Alpha** Projects  
6 months / £500k

**Beta** Projects  
c.4 yrs / c. £10m+

## Commercialisation

Network Roll Out

Investor Expert Panel

Utilities Expert Panel

International route to market  
(networks, utilities, investors)

# SIF and Heat Pump Ready Programme

- Coordinate energy networks to leverage greater value to both SIF and HPR.
- Define network innovation requirements





ofgem



**For information on the SIF visit**  
<https://www.ofgem.gov.uk/publications/sif-governance-document>

**Email: [Ofgem\\_SIF@Innovateuk.ukri.org](mailto:Ofgem_SIF@Innovateuk.ukri.org)**

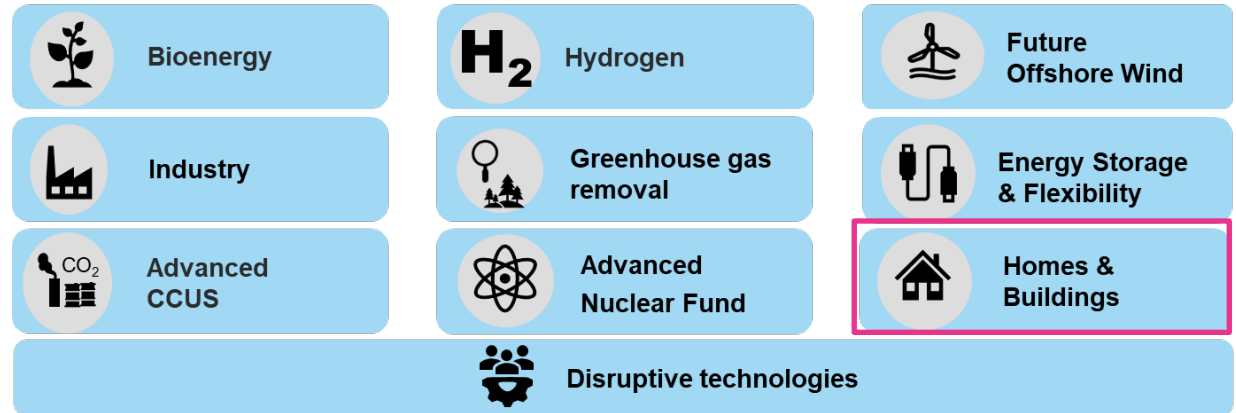
# Q&A

# BREAK



# NZIP Overview

- Announced in the Prime Minister's 10 Point Plan, the **£1 billion Net Zero Innovation Portfolio (NZIP)** will accelerate the commercialisation of innovative low-carbon technologies, systems and processes in the power, buildings and industrial sectors.
- NZIP will focus on technologies, business models and consumer innovation most needed for future Net Zero ambitions.
- The portfolio will focus on ten priority areas:



# Heat Pump Ready Overview

- The Heat Pump Ready Programme forms part of **BEIS' £1 billion Net Zero Innovation Portfolio (NZIP)**.
- The Programme is aligned with other BEIS NZIP Programmes, and Ofgem's Network Innovation Fund (NIC) and Strategic Innovation Fund (SIF).
- The aim for the Heat Pump Ready Programme is to help facilitate large-scale, high-density heat pump deployment across the UK.



# Heat Pump Ready Objectives



Reduce lifetime costs of domestic heat pumps



Improve lifetime consumer experience of heat pumps



Stimulate innovative research and solutions to address the impact of domestic heat pumps on the electricity system.



Develop and strengthen partnerships between the many players involved in the domestic heat pump sector

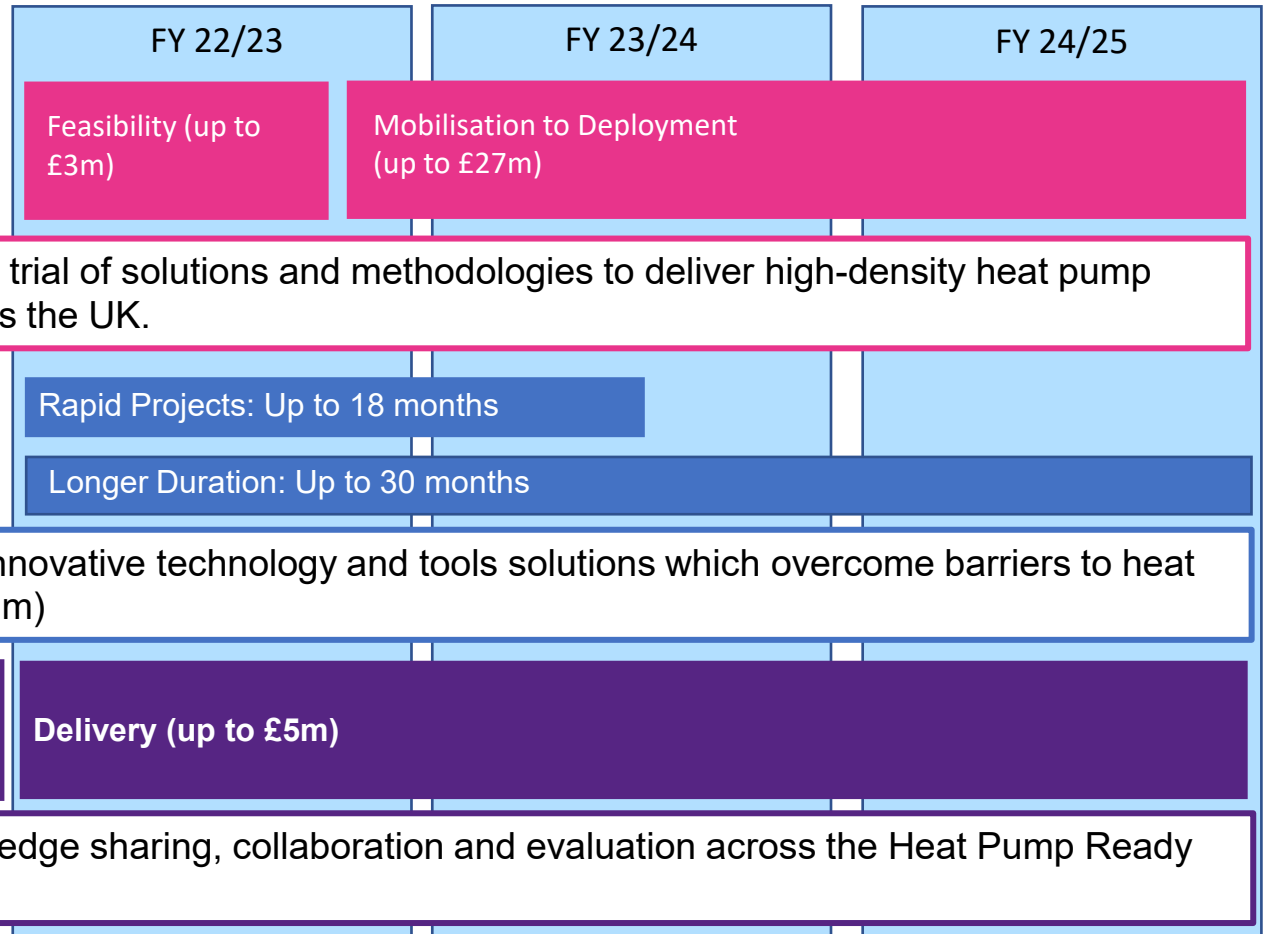


Develop effective approaches and products to engage effectively on heat pump issues with homeowners and with the key players .



Establish an evidence base to enable effective design and development of future heat pump policy and regulation

# Workstreams



# Related Workstreams

	FY 22/23	FY 23/24	FY 24/25
<b>Ofgem Funded Programmes</b>	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.			
<b>NZIP Green Home Finance Accelerator</b>	Funded by Net Zero Innovation Programme		
Outside of Heat Pump Ready, NZIP Green Finance programme supports the development of innovative green financial products to homeowners			

# Conflict of Interest - Applying to Multiple Streams

- The appointed supplier for the Heat Pump Ready Stream 3 will be partly responsible for **assessing effectiveness and impact of Stream 1 and Stream 2 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 work were to bid for other work in this programme, i.e. the Stream 1 or 2 roles or the Evaluation Contractor competitions. 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.
- 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.

# Stream 1: Optimised Solutions

The **Solutions for High-Density Heat Pump Deployment Competition (Stream 1)** aims to support the design and trial of innovative, optimised solutions which deliver more cost-effective and high-density domestic heat pump roll out.

This stream will focus on:

- **Developing and trialling solutions** which take a ‘joined up’ approach to heat pump deployment, working across the heat pump landscape.
- **Developing an enhanced ‘consumer journey’** as part of the solution – i.e. using the cluster projects to develop effective consumer engagement for all stages of roll out.



# Stream 1: Delivery Overview

The Competition will be delivered in two phases:

- **Phase 1** (total budget up to **£3m**, expected to support up to **15 feasibility** studies for locations across Great Britain) - feasibility studies of innovative methodologies for the high-density deployment of heat pumps.
- **Phase 2** (total budget up to **£27m**, expected to support up to **6 trials**, each in a different GB region) - takes the most promising projects from Phase 1 and supports the trial of the proposed roll out methodologies:
  - **Phase 2a:** Trial Mobilisation Phase (12 months).
  - **Phase 2b:** Trial Deployment Phase (18 months).

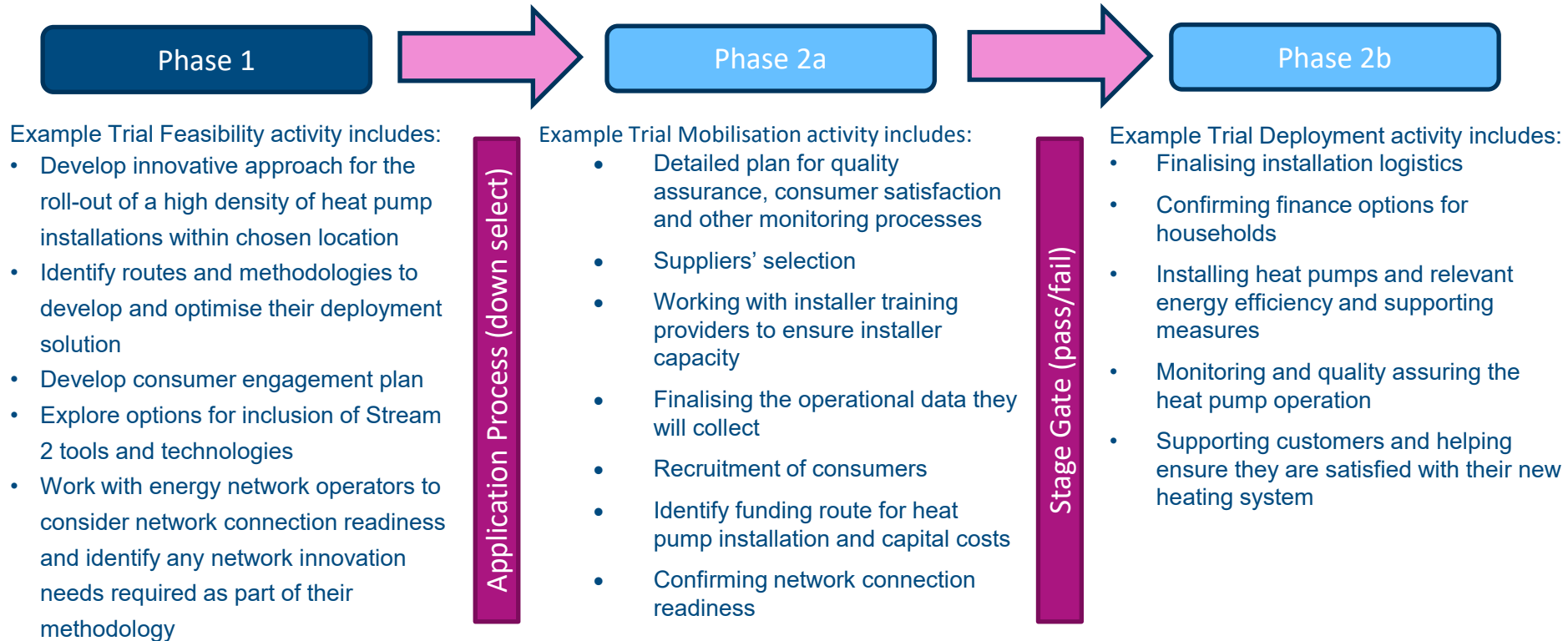
There will be a down-selection between Phase 1 and Phase 2a; only Phase 1 projects will be eligible to apply for Phase 2 of the programme.



# Stream 1: Expected Outcomes

- Optimised methodologies for high-density heat pump deployment which **reduce the costs** of roll out and are **replicable in other locations**.
- An **increase in the uptake of heat pumps** by domestic consumers.
- An **improved consumer journey**; consumers:
  - are aware that heat pumps are an effective alternative to gas boilers;
  - understand the installation process and funding options;
  - understand how to get the best out of their heat pump once installed;
- **Increased investment** to the heat pump sector.
- **Better evidence base**, including:
  - Evidenced methodologies and costs for optimised high-density heat pump deployment in a range of diverse locations.

# Example Activities



# Stream 1: Eligibility Criteria

*NB. Key eligibility criteria are outlined in these slides; full details of the criteria will be provided in the published ITT which may include additional criteria (not listed in these slides).*

## 1. Location Criteria:

The innovative methodology for high density heat pump deployment proposed in any application must be tailored to:

- An area within a single, named Local Administrative Unit (LAU) Level 1 area within Great Britain;
- An urban or rural population, determined by the dwelling density in the area. **BEIS will assess Stream 1 projects in separate Application Categories, determined by the urban-rural classification of the trial location.**

# Stream 1: Eligibility Criteria

## 2. Deployed Technology: Heat Pump Types

Heat pump type	Permitted in Stream 1 trial?	Limit for Stream 1 trial (as % of total heat pumps deployed in trial)
ASHP	Yes	No limit
GSHP	Yes	No limit
Hybrid Heat Pump	Yes – but with limit	< 10%
Air-to-Air Heat Pump	Yes – but with limit	< 10%

# Stream 1: Eligibility Criteria

## 3. Innovation & Technology Readiness:

Stream 1 is a pre-commercial procurement competition to support the development of innovative methodologies to optimise high density heat pump deployment.

To secure funding in this programme, these **innovative methodologies must not have been tested in the market or commercialised.**

## 4. Project Status:

Any **retrospective work** on a Stream 1 project (i.e. work completed before the formal project start) **cannot be funded by BEIS.**

# Stream 1: Eligibility Criteria

## 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 End Dates:

Project activity must be completed by the dates listed below.

*NB. All dates below are based on the current timeline and subject to change.*

Phase 2 Applications – **31<sup>st</sup> August 2022.**

Phase 1 Feasibility Studies – **29<sup>th</sup> September 2022.**

Phase 2 trials (including final trial report) – **end March 2025.**

# Stream 1: Eligibility Criteria

## 7. Trial Scope Requirements:

### a) Consumer Segmentation

The Stream 1 methodologies are intended to be focused on domestic, on-gas-grid homeowners who are retrofitting heat pumps. Therefore, the following restrictions apply to the Stream 1 trial populations:

- Non-domestic – maximum 5% of trial buildings.
- Social housing – maximum 20% of trial households.
- New build (before occupation) – maximum 5% of trial households.
- Off-gas grid properties – maximum 15% of trial buildings.

# Stream 1: Eligibility Criteria

## Trial Scope Requirements:

### b) High Density Deployment Requirement

Stream 1 project teams must deploy heat pumps to **at least 25%** of the domestic buildings on at least one low-voltage network (connected to the same secondary sub-station) within their chosen deployment trial locality.

### c) Number of heat pumps deployed

There are no fixed minimum numbers of heat pumps to be deployed in the Stream 1 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 assessment will take this into account when considering the value-for-money and social value of the trial.



# Maximum Funding Levels

Contracts and funding will be awarded in this Competition in two phases:

- **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 2a and 2b** – Demonstration phase (SBRI): The maximum funding available per project is £4.5m (this must cover 100% of project costs).

# Project Costs:

## Eligible Stream 1 projects costs:

- Detailed co-ordination planning including high-density deployment methodology, plan for quality assurance, consumer satisfaction and other monitoring processes
- Suppliers' selection
- Working with installer training providers to ensure installer capacity
- Planning operational data to be collected
- Recruitment of consumers
- Identifying funding route for heat pump installation and capital costs
- Confirming network connection readiness and energy network engagement

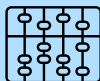
## Ineligible Stream 1 project costs:

- Heat pump capital, installation, insulation or similar associated costs
- Standard installer training and qualification costs (costs for methodology-specific training is eligible)
- Network innovation
- Tools & technology development to overcome consumer barriers (funding available in Stream 2)

# Assessment Criteria – Phase 1



1. Innovative, cost-effective methodology for deployment of heat pumps in a given location



2. Understanding of the location requirements



3. Social Value



4. Long Term Impact



5. Project Funding

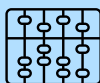


6. Project Delivery

# Assessment Criteria – Phase 2



1. Innovative, cost-effective methodology for deployment of heat pumps in a given location



2. Understanding logistics for heat pump deployment



3. Social Value



4. Long Term Impact



5. Project Funding



6. Project Delivery

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.**

# Bid Assessment Approach

- Applications will initially be assessed against the Eligibility Criteria.
- Applications which fail the Eligibility Criteria will not proceed to the assessment stage
- The eligible projects will be further assessed against the assessment criteria by three reviewers, including external reviewers, these scores will then be moderated to determine an overall ranking list that will be used to allocate the funding for the Competition.
- **To be eligible to receive funding, a project must score a minimum total threshold score against these assessment criteria (the threshold score will be confirmed in the published ITT).**

# Application Categories

There are 2 Application Categories for the trial location selected for any Stream 1 project:

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

Further details on the definitions of these Categories is available via the Office of National Statistics: [2011 Rural-Urban Classification of Local Authorities and other geographies](#). BEIS will be aiming to fund the development of optimised deployment solutions for both of these two Categories.

In addition, BEIS is seeking to support the trial of solutions across Great Britain, so the regional location of a trial will also be taken into consideration when allocating funding (see Funding Allocation Method slide for details). Details of British regions can be found here: <https://www.ons.gov.uk/methodology/geography/ukgeographies/eurostat>

# Funding Allocation Method

- Each project will fall into one of the two application categories (Urban and Rural) and each of these categories will be assigned a **maximum budget, equal across the two categories**.
- Within each of the categories, funding will be assigned to projects which score above the threshold score in order of merit, however an additional project will not be funded in the same location already receiving funding in that category, unless all unique locations, above threshold score, have been funded and funding remains for that Category.
- If there is any remaining budget within either Categories, (due to not enough applications or applications failing to score above the minimum threshold score), this will be transferred to the other Category to fund, remaining projects, using the above methodology to allocated funding to projects scoring above the threshold

# Monitoring & Evaluation

Monitoring and Evaluation plays a strong role in the implementation of BEIS programmes.

**Monitoring** – the collection of quantitative (and qualitative data) that helps track progress of programme delivery.

**Evaluation** – the systematic *assessment of the design, implementation, impact and value for money* of a programme (or group of programmes) in order to *learn lessons* about delivery and how to maximise impact, and provide *accountability* of public spend.



# Project Monitoring & Reporting

Successful applicants will be assigned a Project Monitoring Officer (PMO) and all projects will be expected to reach milestones or deliver specific outputs agreed at the start of the project.

## The PMO will:

- Be the project's main point of contact with BEIS
- Be responsible for reviewing and approving evidence at milestone claims

## The Projects will:

- Have regular contact with their PMO
- Report project progress
- Report on NZIP Key Performance Indicators
- Raise risks and issues promptly with their PMO



# NZIP Key Performance Indicators

- Used to **consistently** track, measure and report on key outputs, outcomes and impacts at **NZIP portfolio level**
- Synthesised and reported at NZIP level, but **relies on data from project level**
- Projects will be required to report on KPIs:
  - At the **start of the project**
  - **Annually**
  - At **project closure**
  - For **three years** after project closure.
- Project will receive a **reporting template** to complete at each intervals, to be returned to PMOs.

# Types of Evaluation

- **Process evaluation** – how is a programme being delivered, and where can we improve. This is often through collecting and analysing stakeholder perceptions and administrative data.
- **Impact evaluations** - what changes have occurred, what difference has the programme made and why? Have objectives been achieved? How has impact varied across the programme?
- **Value for Money evaluations** – how do programme benefits compare to costs? Has the programme been an economic, efficient, and effective use of resources?

# Evaluation in HPR

## Stream 3

Some evaluation activity will take place under Stream 3, including:

- Data collection with project leads to understand and learn from delivery.
- Understanding perspectives of those involved in Stream 1 deployments.
- Understanding what can make high-density deployment a success.
- Assessing impact of heat pumps on energy use and bills.

## Thematic evaluation

A separate research project looking beyond the programme:

- What impacts, positive and negative, has HPR had on the broader heat pump sector?
- How has HPR changed the perceptions, intentions and actions of participating and non-participating heat pump stakeholders?

**ALL funding recipients are required to engage in, and collaborate with, evaluation activity. This may include, but is not limited to: providing KPI return, completing questionnaires or surveys, participating in interviews and workshops, communicating the learnings from projects, facilitating access to relevant stakeholders, and providing data beyond KPIs.**

# Procurement Route: What is an SBRI?

- 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.
- **An SBRI will fund 100% of eligible costs.** For HPR Stream 1 this means:
  - **Phase 1** – between £50k to £200k per project;
  - **Phase 2** – up to £4.5m per project.
- 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.

# Terms and Conditions

Although BEIS SBRI T&Cs are expected to form the basis of the contract, we will **publish the final version of the T&Cs at the same time as the ITT**

**Liability** for phase 1 will be twice the value of the contract. Liability for phase 2 will be £4m or twice the value of the contract (whichever is higher).

**The published T&Cs will be final** and any applications submitted on condition that T&Cs are amended will be submitting a non-compliant application

If you have questions about the T&Cs you can **ask them today or during the Q&A window** (questions should be submitted by **10/11/21**)

All Q&A raised during the ITT publication period will be **anonymised and published on the competition website and Contracts Finder**

\*Please note that these timelines are indicative and subject to change\*

# Procurement Timeline

<b>Stream 1: Solutions for High Density Heat Pump Deployment [SBRI]</b>	
Questions to Programme Team	10-Nov 2021
Questions are Published with responses	19-Nov 2021
ITT advertised	Early December 2021
Tender Deadline (approx. 8 weeks from ITT publication)	Early February 2022
Suppliers alerted of outcome	April 2022
Contract issues	April 2022
Contract Starts	May 2022

# Application Process

Applicants will be asked to submit an online competition application form, with supporting information by the Stream 1 closing date (which will be confirmed when the ITT is published).

Stream 1 applicants will be asked to outline their proposed optimised deployment approach and outline their proposed trial approach for Phase 2.

The proposed deployment methodology is expected to be tailored to the location, therefore applicants will be required to identify the expected location for the Phase 2 trial in their application.

Applications and any new material submitted after the allocated deadline **WILL NOT be considered.**



# Online Application Form Overview

- The Application form will be hosted on an online platform.
- There will be an accessible word document which can be used to plan answers only.
- Make sure to thoroughly read guidance before starting your application.
- There are formatting features such as mandatory questions, word count limits, file uploads and "Save and Continue" which you should be aware of.

# Programme Questions

- Please submit any additional questions, that haven't been asked during this presentation to [heatinnovation@beis.gov.uk](mailto:heatinnovation@beis.gov.uk). These must be submitted **by 12 noon GMT, 10<sup>th</sup> Nov 2021**. Questions submitted after this date may not be answered.
- Questions raised at this session or submitted via email before 10<sup>th</sup> November, which are of material significance in BEIS's judgement, will be addressed and published on the competition website. BEIS aims to publish responses to these questions by **19<sup>th</sup> November 2021**.

# Programme Engagement Document

- Following the Supplier Engagement Events we will be sending out a **Programme Engagement document** with a summary of all Heat Pump Ready Streams.
- You will have an opportunity to provide feedback on this document - the feedback will not be published but BEIS may use it to inform the Heat Pump Ready Competitions.
- BEIS are aiming to circulate w/c 15<sup>th</sup> November – with 2 weeks available for suppliers to review and provide feedback.

# Later this week:

- Wednesday at 10am - Stream 2: Developing Tools and Technology
  - <https://www.eventbrite.co.uk/e/heat-pump-ready-developing-technology-tools-stream-2-tickets-192381286607>
- Thursday at 2pm - Stream 3: Trial Support and Learning
  - <https://www.eventbrite.co.uk/e/heat-pump-ready-learning-and-trial-support-stream-3-tickets-192385629597>
- Friday at 9am – Sign up for 1:1 Session (Sessions held 8<sup>th</sup> November)
  - <https://forms.office.com/r/61tk4CpBFX>

# Q&A

\*Please note that these timelines are indicative and subject to change\*

# Next steps: timeline

<b>Stream 1: Solutions for High Density Heat Pump Deployment [SBRI]</b>	
Deadline for question from Suppliers to Programme Team	10-Nov 2021
Deadline for responses to questions to be issued	19-Nov 2021
Programme Engagement Document Circulated to Suppliers	w/c 15 <sup>th</sup> November 2021
Deadline for feedback on Programme Engagement Document	w/c 29 <sup>th</sup> November 2021
Competition opens to Applicants	Early December 2021
Competition closes	Early February 2022
Competition awarded and signed contracts returned to BEIS	April 2022
Project delivery begins	May 2022

# Thanks for listening!

After this event, please submit any questions on the Heat Pump Ready programme to:  
[heatinnovation@beis.gov.uk](mailto:heatinnovation@beis.gov.uk)