



# Scottish Enterprise: Green Heat National Programme

Karen Fraser

RHC ETIP HP TP

EHPA Research and Innovation Committee

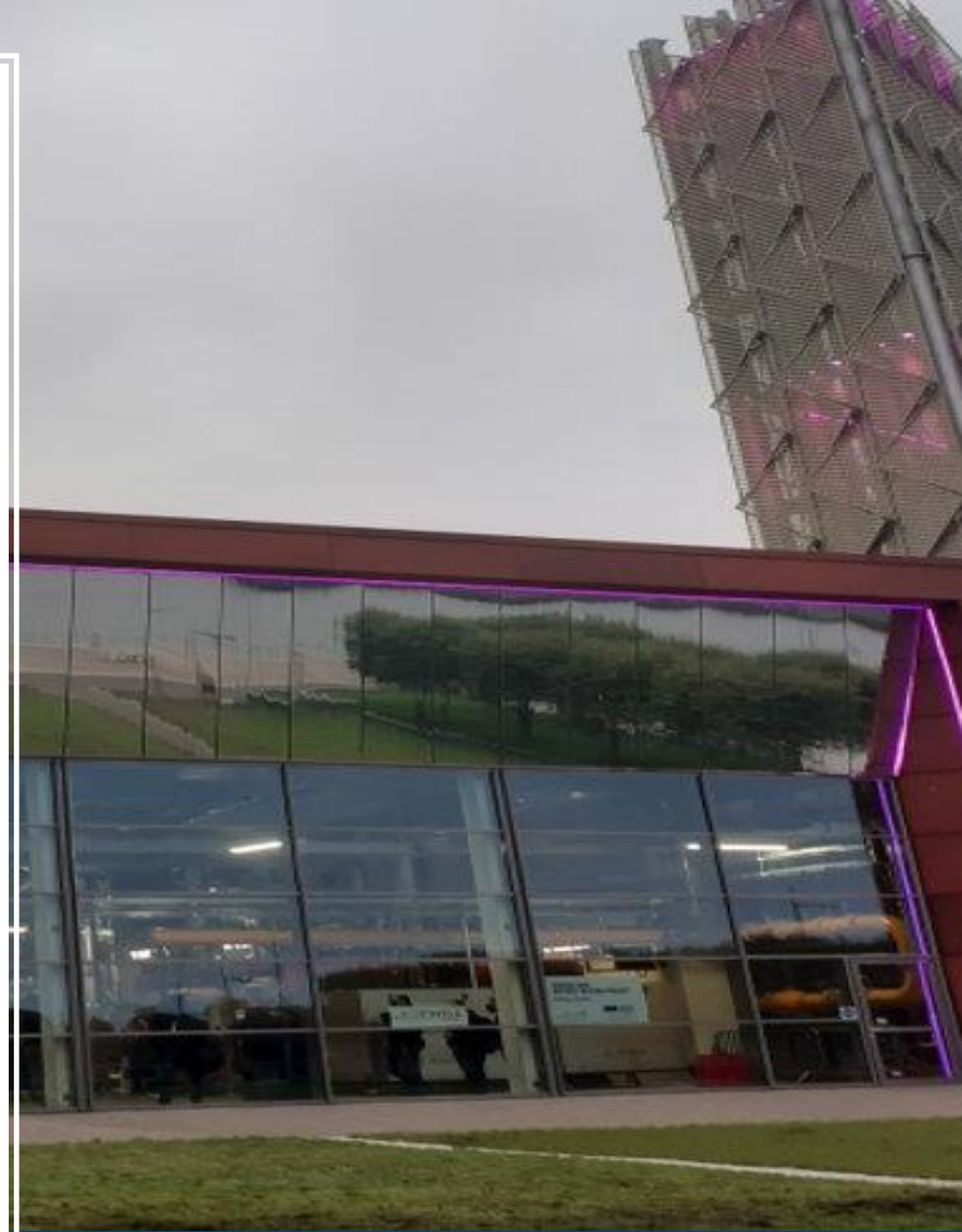
6<sup>th</sup> July 2023

# Vision

**“The Scottish Low Carbon Heat industry is strong and resilient and deployed at scale. It has a robust and resilient Scottish supply chain, with ambitious companies supported to grow through technology, innovation, investment, services, and trade. Built on strong partnerships across industry, it has delivered a step-change in the number of jobs contributing to the Scottish Government’s ambition to *double the size* of the industry from 2018 to 2026.”**

# Aim

**To develop Scotland as the centre for manufacturing and supply chain for low carbon heat solutions in Europe.**



# An Opportunity for Scotland

| Supply Chain opportunity for Scotland | 2018  | 2025   | 2030   |
|---------------------------------------|-------|--------|--------|
| GVA (£M)                              | 127   | 730    | 1810   |
| Total sector direct employment        | 2,100 | 12,000 | 29,500 |
| Total sector direct and indirect      | 3,500 | 20,000 | 49,000 |
| Jobs in HP manufacture                | 750   | 4,300  | 10,620 |
| Installation of HP jobs               | 630   | 3,600  | 8,850  |
| Jobs in HP component manufacture      | 380   | 2,150  | 5,300  |
| HP service and maintenance jobs       | 330   | 1,900  | 4,700  |

## Scotland's targets

- All new homes must use low carbon heat by 2024
- 35% of domestic building and 70% non-domestic by 2032
- 200,000 heat pumps annually by 2030, 3,000 just now

## To meet UK's targets

- 1M heat pumps annually in the UK by 2030. 27,000 heat pumps were installed in 2018 in the UK

## Europe

- 16.98M heat pumps units installed in 21 countries
- RePower EU Plan requires 30m new heat pumps installed by 2030



# Green Heat In Scotland

**52%**

**of Scotland's energy demand**

comes from heat

**Heat**

**is the largest single source**

of carbon emissions in Scotland (around 41% including industrial heat)

**£33 billion**

**Estimated spend required**

For Scotland to be net zero by 2045

**£1.8 billion**

Scottish Government commitment



**Immediate Opportunity**

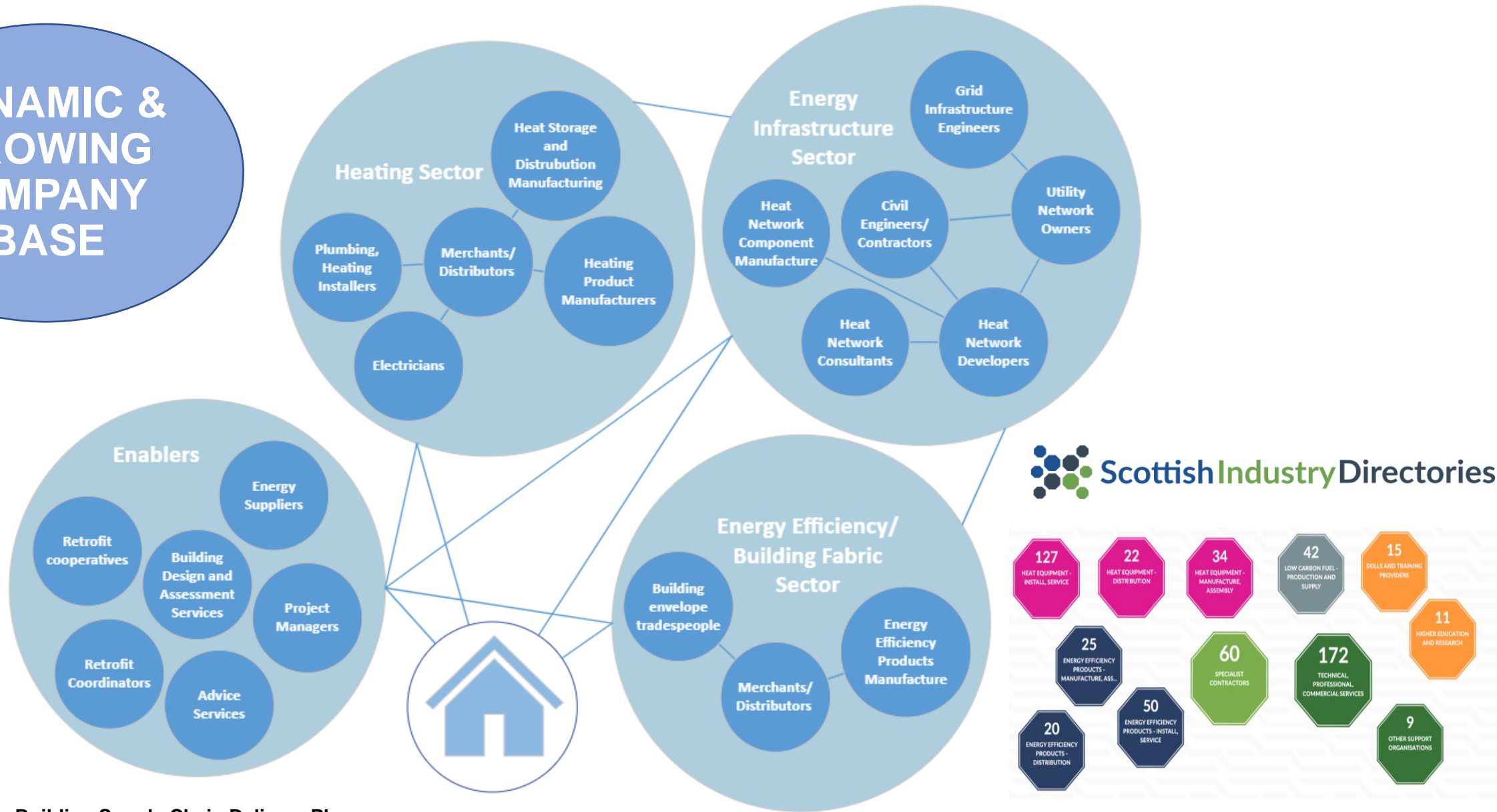
- 1 million Scottish homes and 50,000 non – domestic buildings to use zero emissions heat by 2030
- Significant job growth – **16,400** additional jobs by later 2020's
- **Installations** are forecast to 200,000 **per year** by late 2020s
- Ban on gas boilers in new build homes by 2024 in Scotland
- EPC B & C, with all homes meeting at least this standard by 2033
- Heat supplied by heat networks – 6 TWh by 2030

## Heat in Buildings Strategy

Achieving Net Zero Emissions in Scotland's Buildings



# DYNAMIC & GROWING COMPANY BASE



Source: SG Heat In Building Supply Chain Delivery Plan

# Decarbonising Heat Solutions

There are a range of Core and Supportive technologies, and heat sources which have the potential to offer low carbon heating choices in the future.

## Core Technologies for heat decarbonisation



Air Source  
Heat Pumps



Water Source  
Heat Pumps



District Heat  
Network



Direct Electric  
heating



Ground Source  
Heat Pumps



Hybrid Heat  
Pumps



Heat Storage  
Water Tank



Heat Storage  
– Battery

## Supportive Technologies and heat sources



Biomass  
Boilers



Solar PV



Smart Control  
Hub



Sensors



Smart Meters



Solar Thermal  
Panels

# Building a Supportive Ecosystem

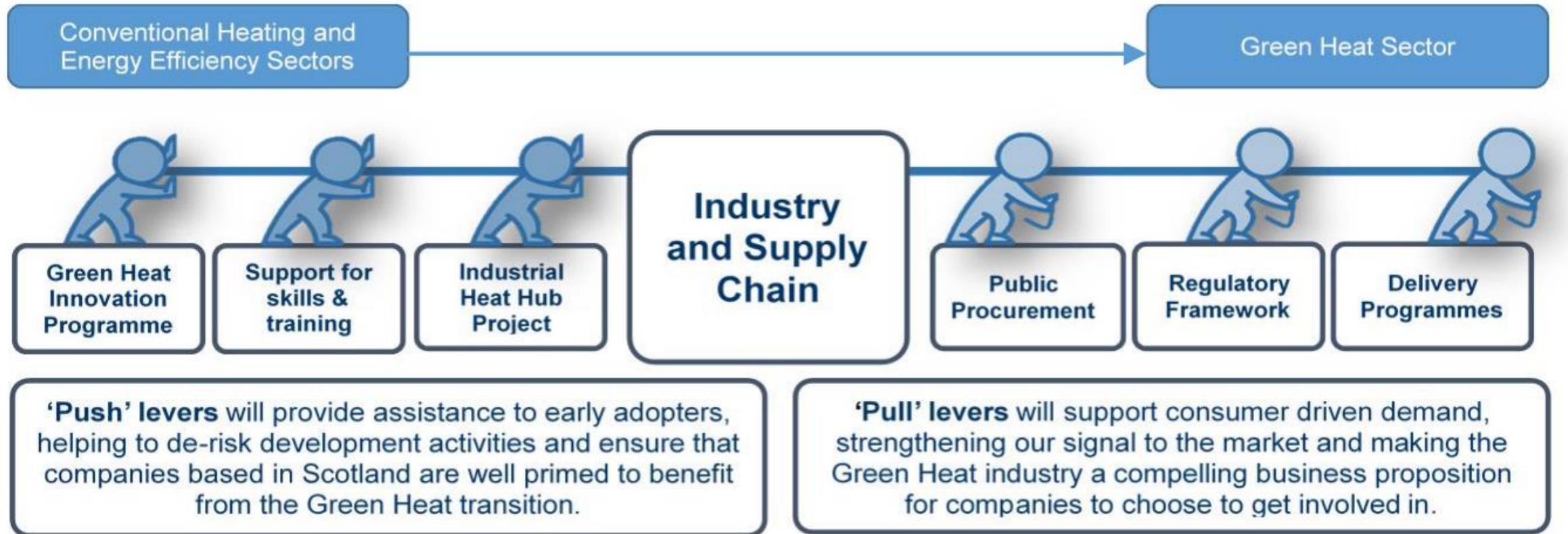


Figure 3 Towards a Green Heat Sector - Push/Pull Model for Industry and Supply Chain Development

Source: SG Heat In Building Supply Chain Delivery Plan

# SE Support for Green Heat



**HeatSource**

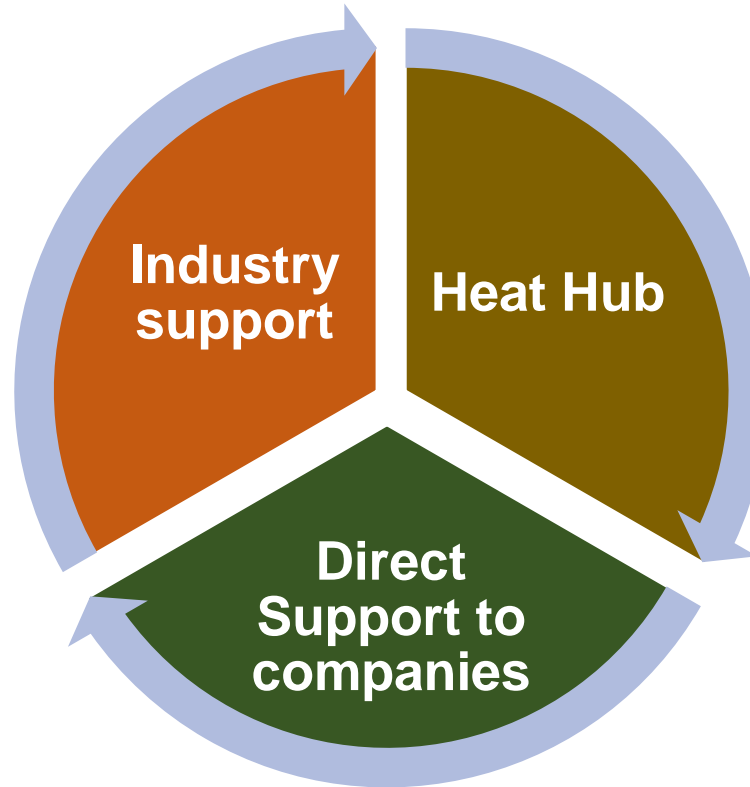
To raise awareness of the opportunity.

Connecting the ecosystem of companies, academics, public & support organisations and investors.

Delivering activity to support the low carbon heat industry and supply chain.

## **Green Heat Accelerator**

Developed to support SMEs in the low carbon heat sector to grow and scale through mentorship, building networks and gaining knowledge



## **Green Heat Hub**

To position Scotland as the lead UK location for low carbon heat manufacturing.

## **Green Heat Innovation Support Programme**

To support innovation and capital investment to accelerate the roll out of low carbon heat solutions

Business Growth – support and advice, Growth Investment, International Trade, Inward Investment

# Green Heat Hub Grand Challenge

*“ Scotland’s enterprise agencies should work with industry to support Scotland as a **global centre of excellence for Green Heat manufacture.**”*  
*Heat Pump Sector Deal Expert Advisory Group, December 2021*

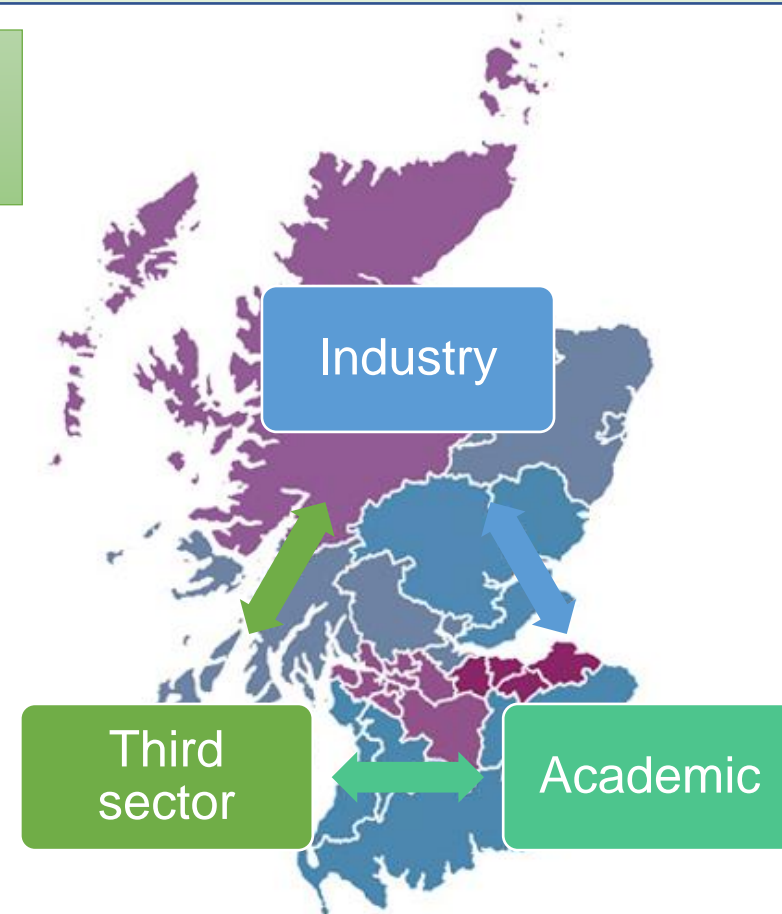


**Position Scotland as the leading location in Europe for green heat manufacturing.**

**Enable and facilitate industry, academic and third sector collaborations** which will drive greater levels of industry leadership



**Stimulate collaborative consortia** to lead in **developing project proposals** for the Green Heat Hub ensuring that **industry, academia, and the 3rd sector are at the core** of creating the vision, and development of longer-term operational management.



# Green Heat Innovation Support Programme

Designed to unlock the barriers to the deployment of new manufacturing processes, new business models and technologies, accelerating the roll-out of low carbon heating.

## Accelerate Innovation

Research  
and  
Development

Capital  
Investment

Feasibility  
Support

CAN DO  
procurement  
support

European  
Funding

### Funding available

- £17.6m available from Nov 2022- Mar 2026

### Areas of focus

- Heat Network Component Manufacture
- Heating Product and component Manufacturers (including all types of heat pumps, thermal storage etc)
- Energy Efficiency Product and component Manufacture
- Enabling Product and component manufacturing such as heat storage, smart controls and/or digital

### Eligibility

- A company is eligible to apply if they are:
- Any size, based in Scotland, or looking to invest in Scotland
- Plan to use existing green heat technology in an innovative way.

Apply on  
[www.scottish-enterprise.com](http://www.scottish-enterprise.com)

# Green Heat Accelerator

Powered by



Immersive 3-month programme for ambitious small businesses and start-ups with products and services in low carbon heat.

Live online workshops and events

In-person learning and networking events

1:1 Mentoring from industry experts

Bursary



# Clean Energy Transition Partnership

A transformative research, development and innovation programme

30+  
countries

50 funding  
agencies

## Benefits

Access to grant funding for collaborative R&D projects

Development of new products & processes

Share risk and cost

## Who can apply

- *Collaborative - partners from 3 countries*
- *Companies*
- *Research organisations*
- *Other – depending on funding agency*

## Thematic Areas – SE priorities



TRI 1: Integrated Net-zero-emissions Energy System



TRI 2: Enhanced zero emission Power Technologies



TRI 3: Enabling Climate Neutrality with Storage Technologies, Renewable Fuels and CCU/CCS



TRI 4: Efficient zero emission Heating and Cooling Solutions



TRI 5: Integrated Regional Energy Systems



TRI 6: Integrated Industrial Energy Systems



TRI 7: Integration in the Built Environment

# 2023 Joint Call

1. Direct current (DC) technologies for power networks
2. Energy system flexibility: renewables production, storage and system integration
3. Advanced renewable energy (RE) technologies for power production
4. Carbon capture, utilisation, and storage (CCUS)
5. Hydrogen and renewable fuels
6. **Heating and cooling technologies**
7. **Geothermal energy technologies**
8. Integrated regional energy systems
9. Integrated industrial energy systems
10. Clean energy integration in the built environment



# Heating and cooling technologies

## Objective

Provide enhanced and improved heating and cooling technologies and systems for all major parts or climate zones of Europe

## Scope

- Heat and cold sources
- Thermal storage
- Heating and cooling networks, conversion, integration
- End-use systems

## Expected impact

- Cost reduction and/or
- Increase in competitive market opportunities and/or
- Increase in environmental protection
- Innovations impacting societal acceptability, safety, and/or circularity are also within scope

## Consortia

Active involvement of the private sector and/or organisations that will own new demonstrators/installations developed as part of the project is highly recommended.

TRL

4-8

# Application Process

## Stage 1

Submission of a **10 page pre-proposal**

Deadline: **22 November 2023**

[Joint Call 2023 | CETPartnership](#)

## Stage 2

Submission of a **full proposal**

Deadline: **27 March 2024**

[Match-making Platform \(b2match.io\)](https://b2match.io)

**Lead partners submits for consortium**

National applications required – check Annex

Projects start from September 2024