

Launch cohort  
workshop event



Scottish Enterprise

Green Heat  
Accelerator

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LIMITING  
TECHNOLOGIES



24<sup>th</sup> October 2022

# Introductory session

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- Welcome and introduction by Scottish Enterprise
- Quick round-table introductions
- Brief overview of the programme
- Icebreaker facilitated session

Note: We will take photographs for Social Media posts; please let us know if you prefer not to be included in images

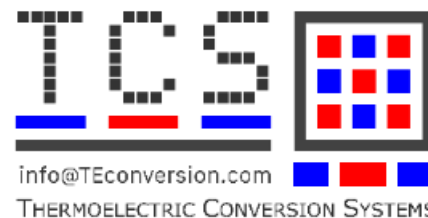
# Programme Aims and Outputs – focused on growth

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- **Growth strategy and commercialisation action plan to scale business**
- Expand network to build partnerships
- Build leadership and business skills

# The cohort: a mix of technologies and services

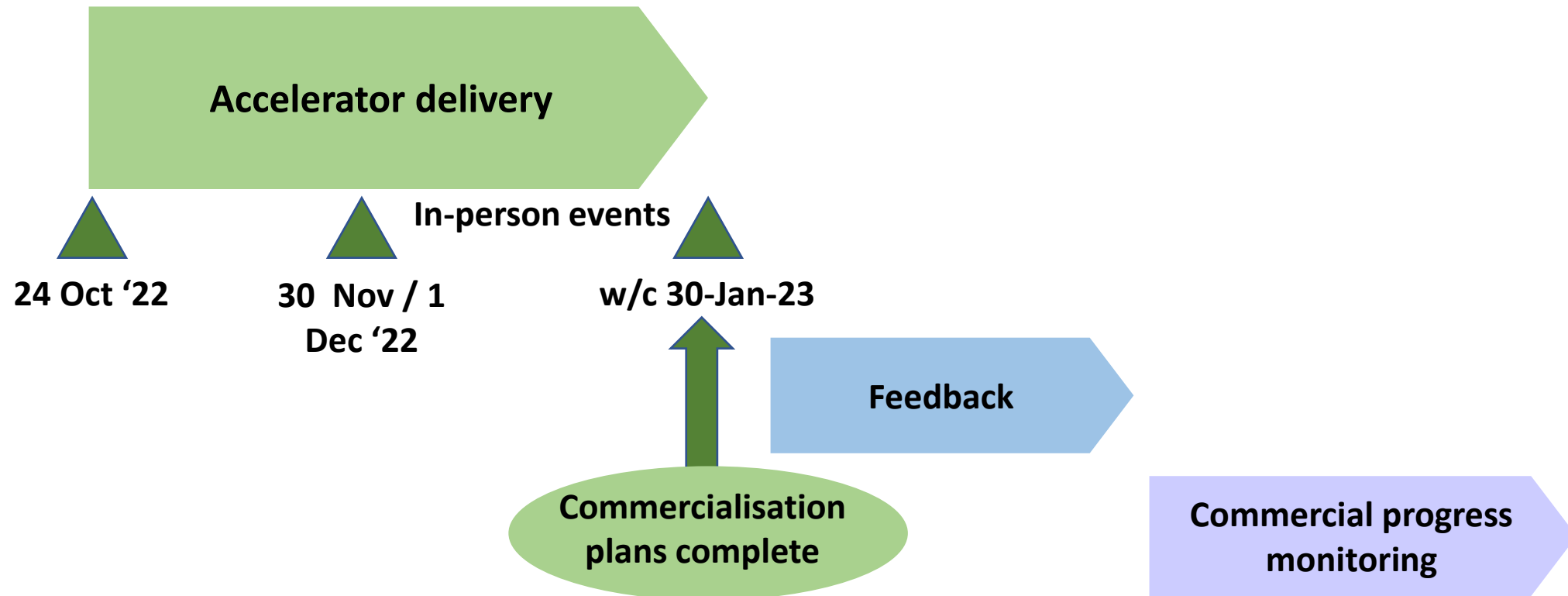
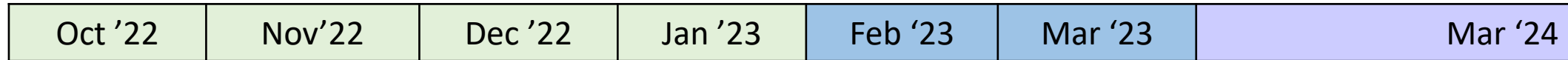


SourceThermal



renewable heat

# Programme Timeline





# Accelerator Overview

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- **Live online workshops (2 per week)**

Interactive 1-2 hr workshops and masterclasses to build leadership and business skills, develop plans and share ideas; Industry and specialist speakers and facilitated discussions to gain insight and find solutions to overcoming industry challenges

- **In-person learning and networking events**

Three events including speakers, site visits, networking and partnership-building opportunities.

- **1:1 Mentoring from sector experts**

Green heat and low carbon innovation experts in SME growth who will provide input and guidance on commercialisation action plans, and facilitate introductions to relevant industry and investor contacts.

- **Themed virtual group mentoring sessions** to share relevant experiences and contacts across the cohort.

- **Bursary**

Stipend of £2,000 available to each business to contribute towards costs of participating (subject to attendance).

# Outline accelerator topics – developing to meet needs of cohort



Diagnostic

Week 1 - launch	Week 2 – market & customers	Week 3 – ecosystem & route to market	Week 4 – value proposition	Week 5– bus dev & sales	Week 6 – business model
<b>Accelerator launch:</b> Leadership skills,, insights Barriers to growth Entrepreneur journey	Market segmentation & customer toolkit Customer insights: whole system approach; Grid constraints	Evaluating RTM options; where in supply chain? Supplier listings Creating effective partnerships	Customer value proposition Messaging Comms channels Social media strategy	Strategic sales Sales pitching Understanding the buying process	Business models Flexibility markets and heat; impact on business models Heat as a service
<b>1:1 MENTOR SUPPORT; COMMERCIALISATION ACTION PLAN DEVELOPMENT</b>					
Week 7 – org. development	Week 8 - technology	Week 9 – manufacture & operations	Week 10– supply chain	Week 11 – finance	Week 12– investor readiness
Building the Team Governance & role of the board Recruitment Diversity	IP strategy IP clinic Collaborative research: Certifications	Planning for scale-up Manufacture options Contract manufacture	Procurement, supply chain Legal clinic LCA analysis	Financial management Financial forecasting Grant funding Asset finance	Funding sources Pitch building Term sheets Valuations
<b>Event 1 topic: end customer green heat requirements –large scale opportunities</b>		<b>Event 2 topic: Developing sector supply chains and skills</b>		<b>Event 3 topic: developing partnerships</b> Network introductions including distribution, supply chain, end-customers, investors	

# Mentors – supporting alongside core programme



## **Alison Cavey**

Alison is a senior strategy and innovation advisor, with an international track record of success in technology commercialisation and new venture development in the Cleantech sector. She has variously acted as Interim MD, business coach, mentor, Non-Executive Director and consultant to more than 100 start-ups and SMEs, and provided advisory services to more than 30 regional, national and international agencies. She has also been part of the founding team of three new ventures, including Intelligent Energy, a fuel cell development company.

## **Dave Raval**

Dave ran one of the UK's largest clean tech business incubators, the Entrepreneurs Fast Track at Carbon Trust. He has run engineering teams in factories in Germany and the USA. Dave is also CEO of LoftZone, a company introducing new energy efficiency technologies to the built environment, which he has grown from a good idea on a piece of paper, to the point where (by 2017) it had been fitted into 20,000 properties around the world. LoftZone is profitable and growing, without having had any external investment.

## **David Porter**

David is highly experienced in the commercialisation of innovative clean technology solutions. He has advised over 200 technology companies (SMEs, university spinouts and corporate venturing units) helping them define their strategies, gain first customers and successfully raise funding. These include a heat battery innovator and a novel solar thermal technology. He helped design and build the UK's first industrial waste heat to power system on a lime kiln and was Director of the prestigious SETsquared Business Acceleration initiative at the University of Surrey.

## **Richard Bradshaw**

Richard is an engineer turned entrepreneur who as CEO has led two university spinouts from lab to commercialisation (optimisation software for maritime logistics, energy storage technology for industry). Richard has provided hands-on leadership to over 25 early-stage ventures – raising £m venture capital for a battery technology start-up and a key contributor to the commercialisation plans. Prior to Richard's 10-years in start-ups, Richard was CEO of an international port operator and director of FTSE listed transport and mobility practice.

## **Martin Tillin**

Martin has worked in R&D for international materials and consumer electronics companies, initially in photonics and optics, and latterly in renewable energy. Within the heat and energy sector, Martin has founded research in renewable heating and cooling, heat pumps, photovoltaics, new battery materials, energy systems, demand response and water purification. He helped establish the Faraday Institution, 'the UK's go-to place for energy storage research'.



# Cohort Communication

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- WhatsApp Group – use it to communicate with the cohort
- Web portal page – schedule, accelerator resources, workshop recordings
- Contact points
  - First port of call: mentor
  - Programme content / logistics / issues: [natalie.fredericks@carbonlimitingtechnologies.com](mailto:natalie.fredericks@carbonlimitingtechnologies.com)
  - Wider questions beyond programme content: [samuel.smith@scotent.co.uk](mailto:samuel.smith@scotent.co.uk)

# Making the most of the Accelerator

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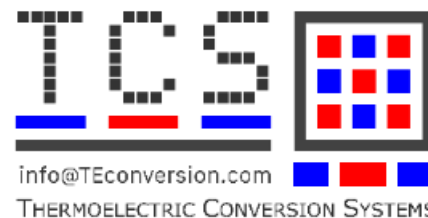
- Make the most of the support provided
- Actively engage – use the opportunity to make those connections
- Use this environment to progress your ideas
- Ask questions
- Speak up early
- We are here to help
- Enjoy the journey...

# Agenda



Time	Topic
11:00	Welcome and introduction to day
11:15	<b>Policy context – scale of transition; affordability of transition; initiatives to support</b> Neil Kitching, Scottish Enterprise - Scale of ambition in Scotland
11:35	<b>Panel discussion with Q&amp;A: evolution of large-scale opportunities in Green Heat in Scotland</b> Craig Morley, Bruntwood (Commercial developer e.g. Met Tower Glasgow) Owen Morrison, Cala Group (Cala Homes, House Builder) Gavin Johnston, Ferguslie Park Housing Association (Social Housing Provider)
12:45	<b>Lunch and networking break</b>
13:30	<b>Exercise: how do cohort companies align with larger customer needs?</b> <b>Introduction, breakout groups and feedback</b>
14:30	<b>Key takeaways, discussion and close</b>
14:45	<b>Site visit and factory tour followed by departure at 15:30</b>

# The cohort: a mix of technologies and services



SourceThermal



renewable heat

# Programme Aims and Outputs

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- Growth strategy and commercialisation action plan to scale business
- Build leadership and business skills
- Expand network and build partnerships



# Aims for the day

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- **Event theme:** The evolution of large-scale opportunities for Green Heat in Scotland End with a perspective on end-customer requirements
- **Objectives of session:** To extend understanding of customer requirements for low carbon heat solutions; understand mechanisms to engage, customer requirements and what they look for in their suppliers.
  - Understand scale of opportunities
  - Understand larger customer needs, problems, constraints
- **Helping cohort companies to start to think about the implications for their growth plans, partnerships they might need and how to address challenges**

# Policy context – scale of transition

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**Neil Kitching**

Scottish Enterprise, Energy Specialist (Water and Heat)

Policy lead on decarbonising heat

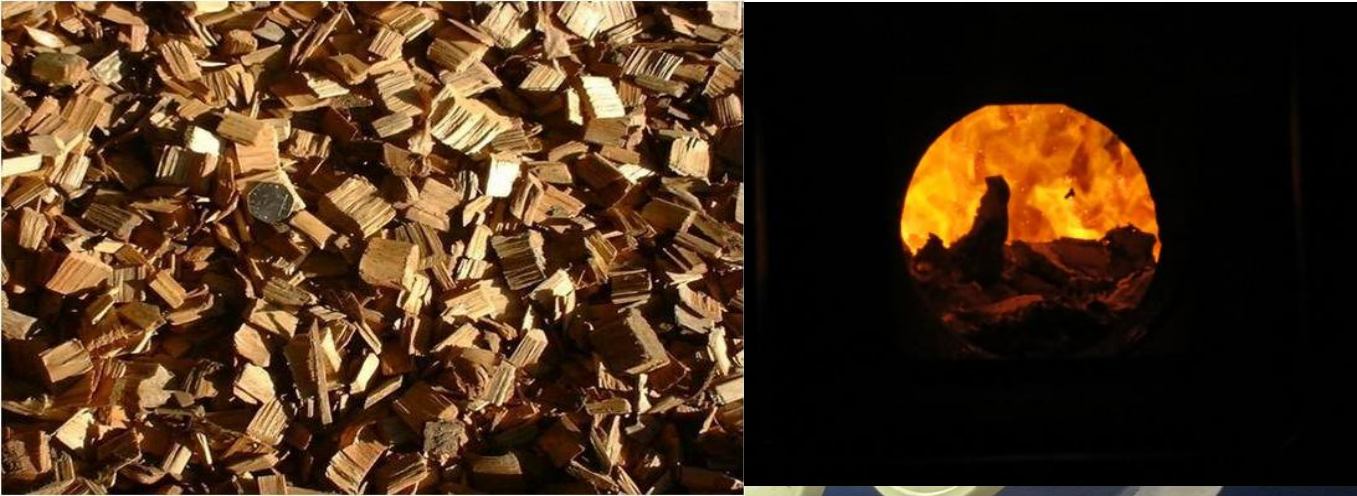
# Green Heat Ambition

neil.kitching@scotent.co.uk

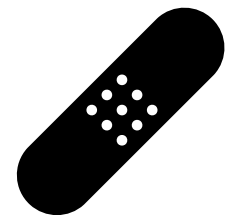




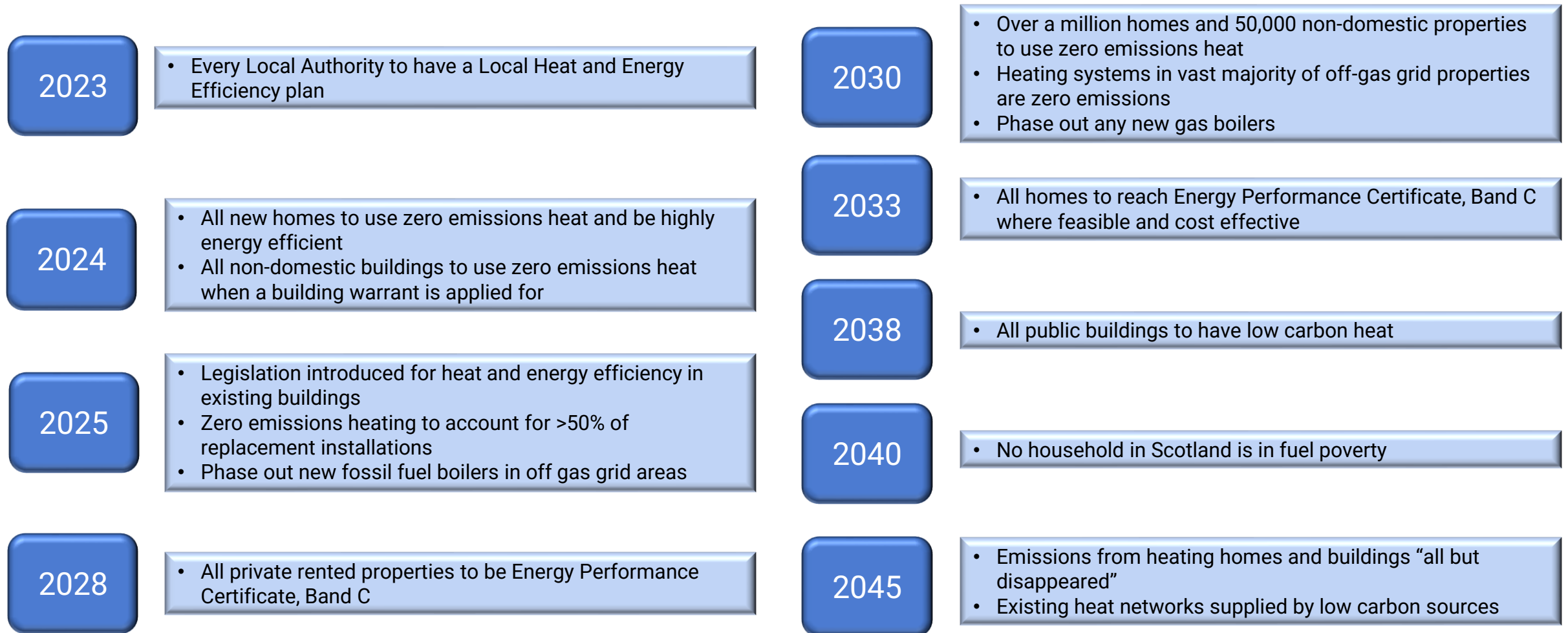
# Green Heat Solutions



- Heat pumps
- Heat networks
- Smart controls
- Direct electric
- Biomass
- Fabric first

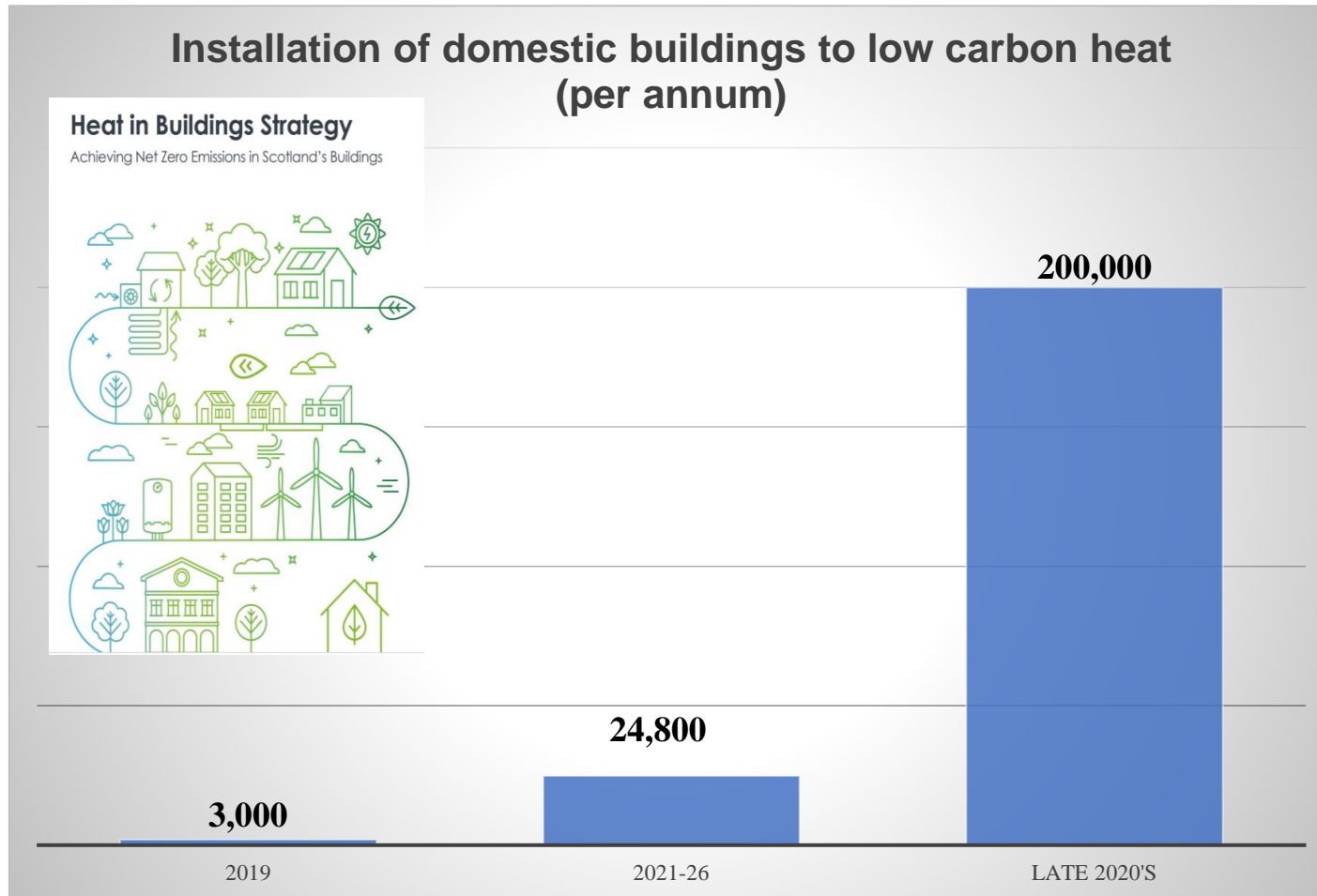


# Change Driven by Policy- timeline to zero carbon heat





# Heat in Buildings Strategy



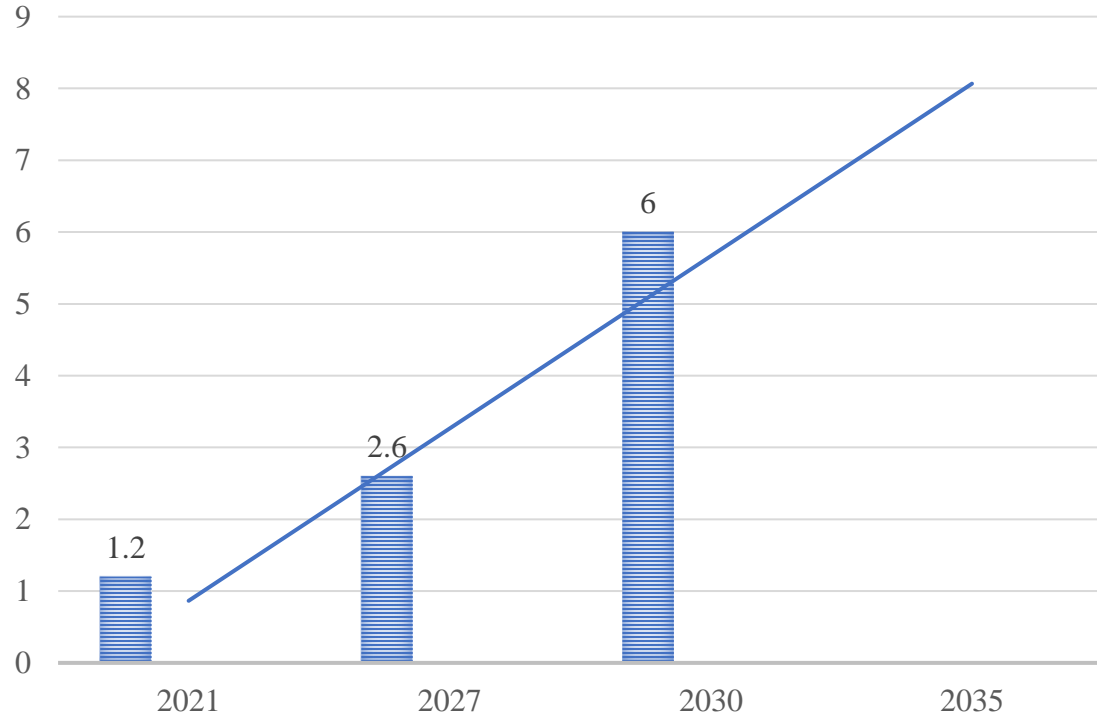
## Zero emission heat (2030)

- 170,000 off gas homes
- 1 million on-gas homes
- 50,000 non-domestic buildings
- blending green gas to 20%
- 28,000 jobs

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- EPC C by 2033
  - £33 billion to 2045

# Market Opportunity

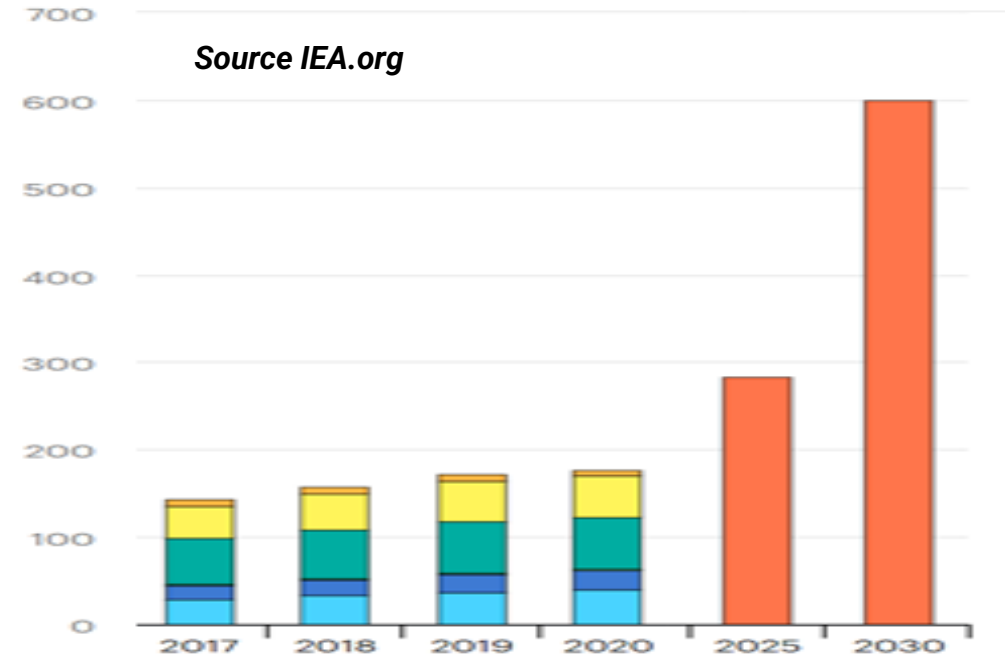
## Heat Network Target for Scotland (TWh)



Source: Scottish Government Heat Network strategy

## Global Heat Pumps

Million units installed



180 million Heat Pumps in 2020, increasing 10% per year over the past 5 years.

EU commission wants 30m heat pumps by 2030.

# Market Opportunity

## Heat Pumps

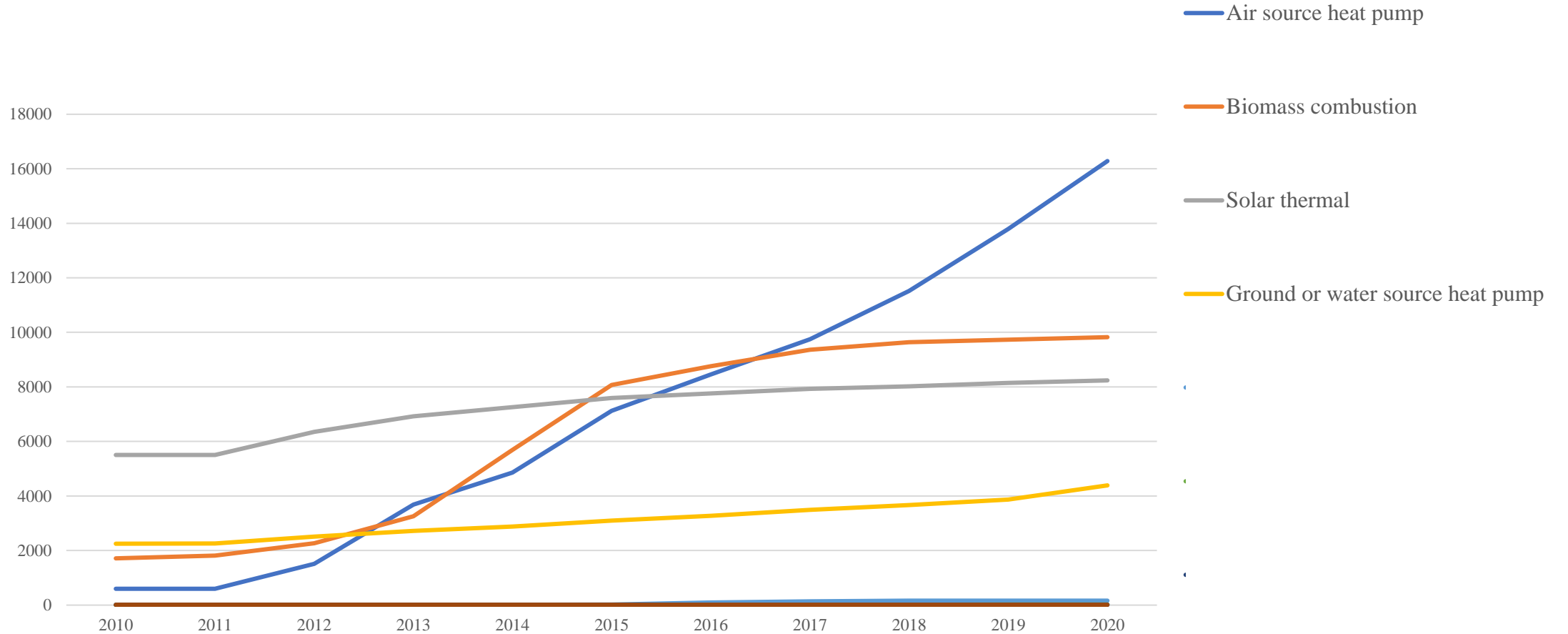
- 64,000 deployed each year by 2026
- £3.3bn cumulative expenditure to 2030
  - compressors £560m (17%)
  - control systems £360m (11%)

## Heat Networks

- 6 TWh by 2030
- £6.5bn cumulative expenditure to 2030
  - insulated pipes £1.4bn (22%)
  - controls systems £0.8bn (13%)

*Source: Ramboll for SE*

# Renewable Heat Installations Scotland



# Pioneering Projects in Scotland

## Hillpark District Heating (Glasgow)

UK's largest hybrid air sourced heat pump network replacing electric storage heaters in 7 tower blocks.

## Queen's Quay (Clydebank)

Largest single heat network in Scotland - river-based heat pump that can heat 1200 homes & businesses.

## AMIDS

Pioneering 5<sup>th</sup> generation district heat network using water from a sewage works outflow. Ambient heat is pumped round the network and boosted by heat pumps at each building.

## Stirling Renewable Heat Project

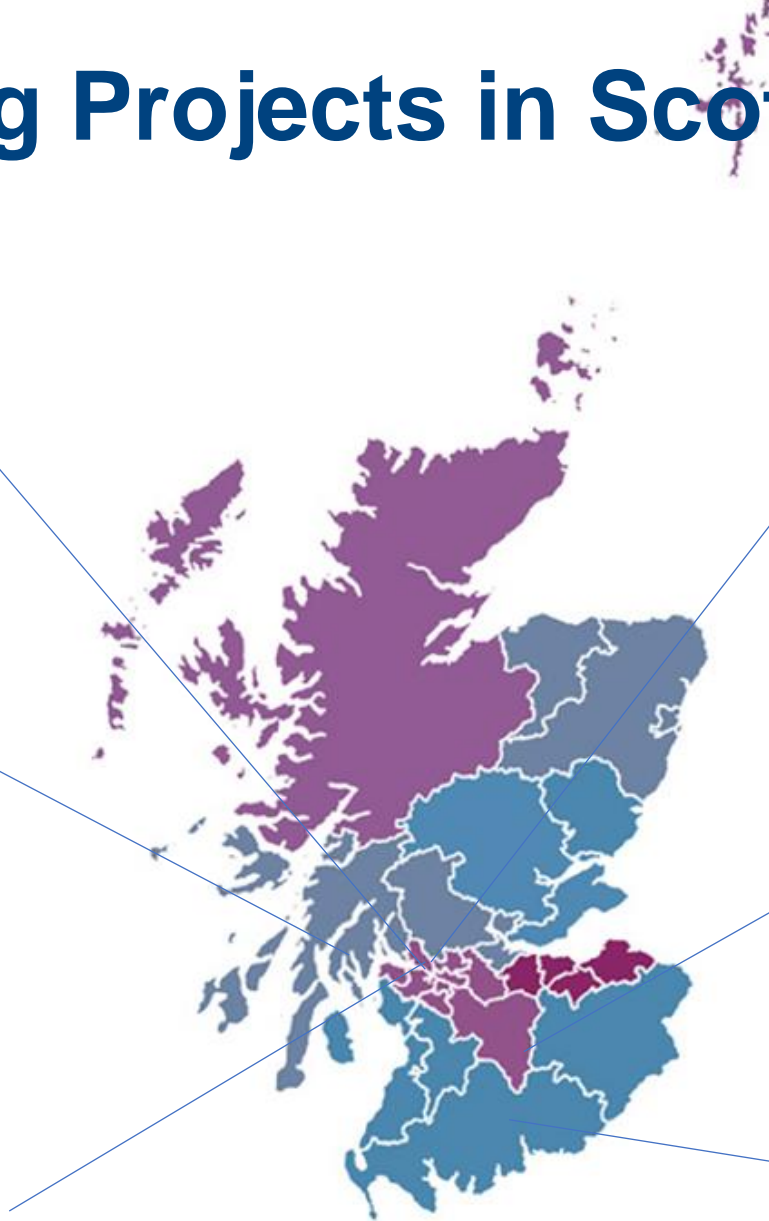
Pioneering district heat network to heat a leisure centre, school, sports stadium and offices.

## EastHeat (Edinburgh)

Advanced heat battery thermal storage for 1000 tenants in over 650 homes.

## Borders College (Galashiels)

Flagship heat from wastewater project, the first in the UK.





# External Funding for Heat projects (£1.8 billion committed)

Heat Network Fund

£300m, capital projects, 50% funding

Heat Network Support Unit

[www.heatnetworksupport.scot/](http://www.heatnetworksupport.scot/)

Home Energy Scotland

Loans and grants for homeowners eg £7,500 heat pump grant plus £2,500 loan

Plus Salix (public sector), CARES (community), Warmer Homes etc



# Business Energy Scotland

- Support for business for to save energy and carbon
- Complete a form to request to speak to an advisor
- Business case studies
- Tools and guides (heat pumps, insulation, carbon footprinting, biomass etc)
- 1 to 1 energy efficiency support/ options appraisal
- SME loan fund (see over)



Visit the  
**Business Energy  
Scotland** website

# SME Loans

**energy  
saving  
trust**

## SME Loan Scheme

- Interest free loans up to £100k
- to install renewable heat systems for energy efficiency (insulation, solar pv, LEDs, ventilation)
- Plus cashback, max £10k for a heat pump

**administered  
by Energy  
Savings Trust**

# SE's Green Heat National Programme

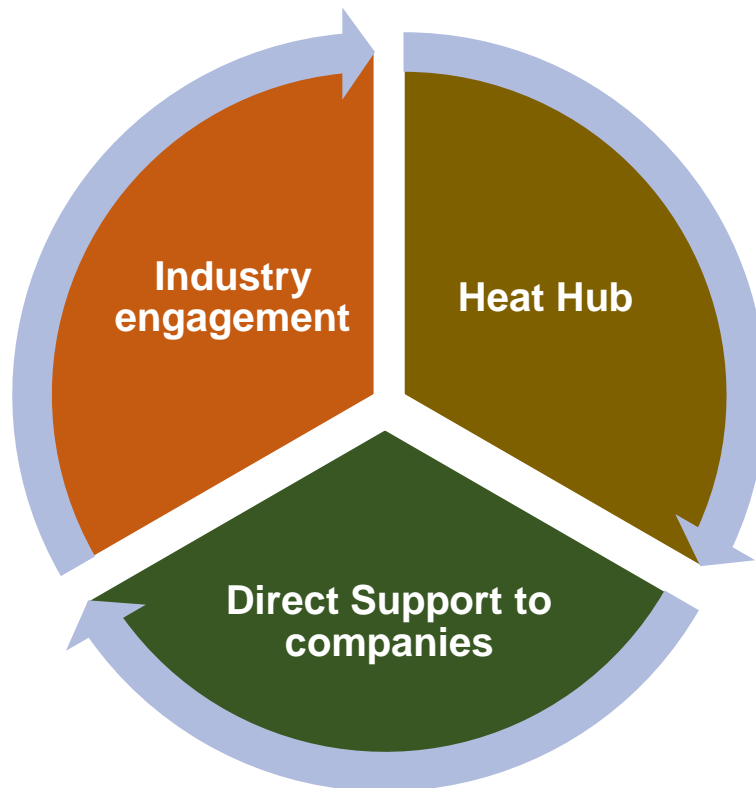
*To maximise the economic benefit to Scotland from the green heat transformation*

## HeatSource

Built Environment – Smarter Transformation

To raise awareness of the market opportunity.

Connect companies, academics, public sector and investors. A focal point.



## Green Heat Hub Grand Challenge

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

Pull together industry leadership, collaboration, inward investment, demonstration projects, support the supply chain.

Business Support and Advice, Investment, Innovation funds, Export advice, Inward Investment

# Coming soon – for heat innovation

## **Clean Energy Transition Partnership** (Scotland - £4m for heat)

- Pan- European programme
- £2m for first call on heating and cooling solutions
- Innovate UK are part of partnership (but no initial funding)

## **Horizon Europe calls**

SE can support companies to find partners and with their applications

## **Developing an Innovation Programme**

Discussions ongoing with Scottish Government about launching innovation calls and other support for decarbonising heat





The [Scottish Industry Directory](#) is an online gateway to connect buyers and sellers and demonstrate Scotland's capability in low carbon heat.

367 companies:

- Installers and service
- Specialist contractors
- Energy efficiency installation
- Technical, professional services
- Low carbon fuel supply
- Manufacture



# What next?

- Sign up to our Low Carbon Heat Newsletter – email me for a link – [neil.kitching@scotent.co.uk](mailto:neil.kitching@scotent.co.uk)
- Check your company is on the Scottish Industry Directory [www.directories.scot](http://www.directories.scot)
- Visit our website – search “Low Carbon Heat Scottish Enterprise”
- Visit and sign up to [www.heatsource.org](http://www.heatsource.org)
- At the end of this programme, there will be an opportunity to meet and engage with various Scottish Enterprise specialists

# Panel discussion

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- What are the opportunities, nature of programmes?
- What are larger end-customers and specifiers looking for from low carbon heat providers?
- What are they not getting now / problems?
- What are their constraints, including cost structure and other things need to conform to e.g. insurances, ISO?
- How to engage – what to do / what not to do?

# Cala Homes

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# Cala Homes - Scotland

Green Heat & Renewable Strategy

## Current Position – SAP 2012

At present we have two main strategies for Heating and DHW provision to our homes in Scotland.

- Hybrid Air Source Heat Pumps (Monobloc ASHP's and Gas Boiler).
- Gas/PV (Boiler providing heating and top up to DHW).

Reasoning:

- SAP Rating
- Cost
- Grid Capacity
- Customer Perception





## Future Position – SAP 10

Heating and DHW Post December 2022 Regulation Changes:

- Standalone Heat Pumps (Air or Ground Source).
- Gas/PV+. (Additional technology required i.e WWHRS)
- District Heating?

Cala pledge to remove gas from the equation entirely on sites starting after January 2024 across the UK.





# Challenges & Considerations



Customer Perception



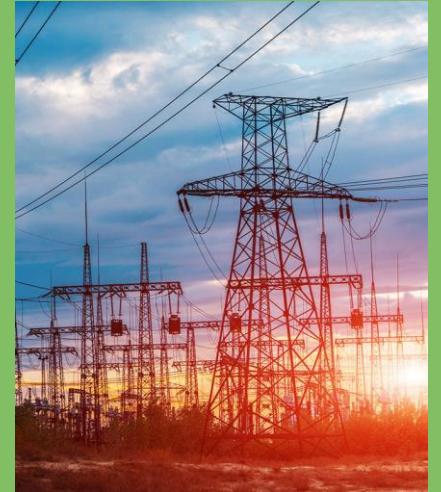
Installer Understanding



SAP Rating



Fire Testing



Grid Capacity





## Opportunities & Engagement

- Previous points must have been considered and resolved.
- Ability to supply and support products nationally.
- Cala Values: Passion, Delivery, Quality and Respect.
- Contact our Central Design Team with any initial enquires : [groupdesign@cala.co.uk](mailto:groupdesign@cala.co.uk) or catch me later in the day.





**Thank you**

# Ferguslie Park Housing Association

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Federation of  
Local  
Associations in  
Renfrewshire -  
iFlair

# 8 Housing Associations 3 Local Authority Areas 10,000 Homes



Association	Stock
Barrhead	931
Bridgewater	846
Cloch	1,368
Ferguslie	803
Linstone	1,585
Oak Tree	1,735
Paisley	1,174
Williamsburgh	1,621
Total 10,603	

October 2022  
Gavin Johnston

# National Targets Net Zero Carbon Emissions

01

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Net Zero Emissions of **All Greenhouses Gases** by 2045



02

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Comprehensively retrofit **60%** of the current housing stock



03

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Decarbonisation of the grid



Sustainable  
Development Goals




**611,320**  
Housing Association  
Dwellings

**318,369**  
Local Authority Dwellings

Housing Associations  
contributed **£1.64bn**  
to Scottish Economy in 2014.  
Projected to rise to  
**£2bn**

Average iFlair income is  
**£40m**



**80%**

of existing stock will still  
be standing in 2050


**64%**

of domestic energy  
use is gas

**We have to comprehensively retrofit 60% the current housing stock to meet targets.**

This equates to

**35 million**  
homes in 30  
years



**833,000** per year  
**3,307** per day



**£25,000**  
per unit



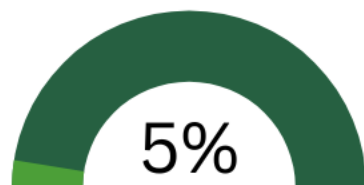
**60%**

of domestic energy use  
is space heating

# Challenges – National Targets Fuel Poverty

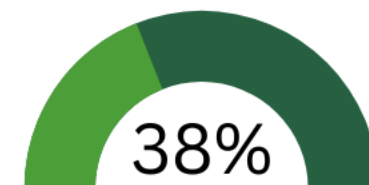
## Target - 2040

No more than 5% of households should be in fuel poverty



## Current - 2020

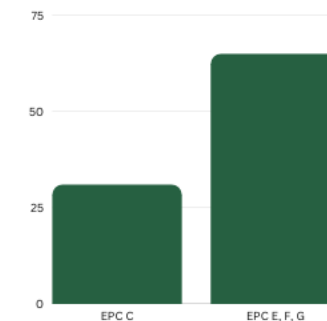
On average 38% of social renters are fuel poor, representing 41% fuel poor households in Scotland



No more than 1% of households should be in extreme fuel poverty

1%

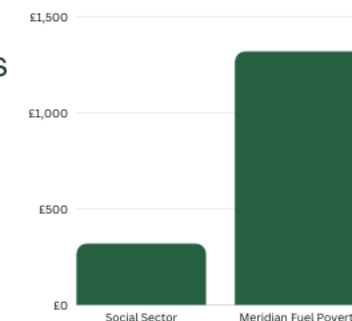
Social rental sector 31% of all households in EPC C or higher are in fuel poverty while the number climbs to 65% for those in EPC E F or G.



The median fuel poverty gap of households in fuel poverty is no more than £250 in 2015 prices before adding inflation



The social sector the median fuel poverty gaps are £320 and £1,320 respectively. Based on 2015 prices



# Bruntwood

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# Q&A and discussion

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Lunch and  
networking  
break



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# Intro to the exercise

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**How do the cohort companies currently align to be able to deliver to customer needs?**

- 1. Brainstorm:** What are requirements of suppliers to meet larger customer needs? What are larger customers looking for?
- 2. Self-assess:** Each business, using tool, consider which elements are relevant, current status of business, how can gaps be addressed? Generate ideas on what need to do to align to opportunities (15 mins)
- 3. Group discussions:** In groups of 3 or 4 companies, discuss common issues and draw them out. (15 mins)
- 4. Whole cohort:** Short feedback presentation from each group (15 mins total)

# Takeaways from the day

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Site tour and  
close



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