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# Scottish Renewables' Heat Summit 2023

IN PARTNERSHIP WITH

**BE—ST**

# Claire Mack

## Chief Executive

### Scottish Renewables

BE-ST

# **Patrick Harvie MSP**

**Minister for Zero Carbon Buildings,  
Active Travel and Tenants' Rights  
The Scottish Government**

**Claire Mack**  
Chief Executive, Scottish Renewables

**Patrick Harvie MSP**  
Minister for Zero Carbon Buildings, Active Travel  
and Tenants' Rights, The Scottish Government

# Warming up the wellbeing economy

Chaired by Stephen Good, Chief Executive, BE-ST

BE-ST

**Stephen Good**  
Chief Executive, BE-ST

**Colin Reid**  
Energy, Carbon & Sustainability Manager, Wheatley Group

**Chris Morgan**  
Director / Architect, John Gilbert Architects Ltd

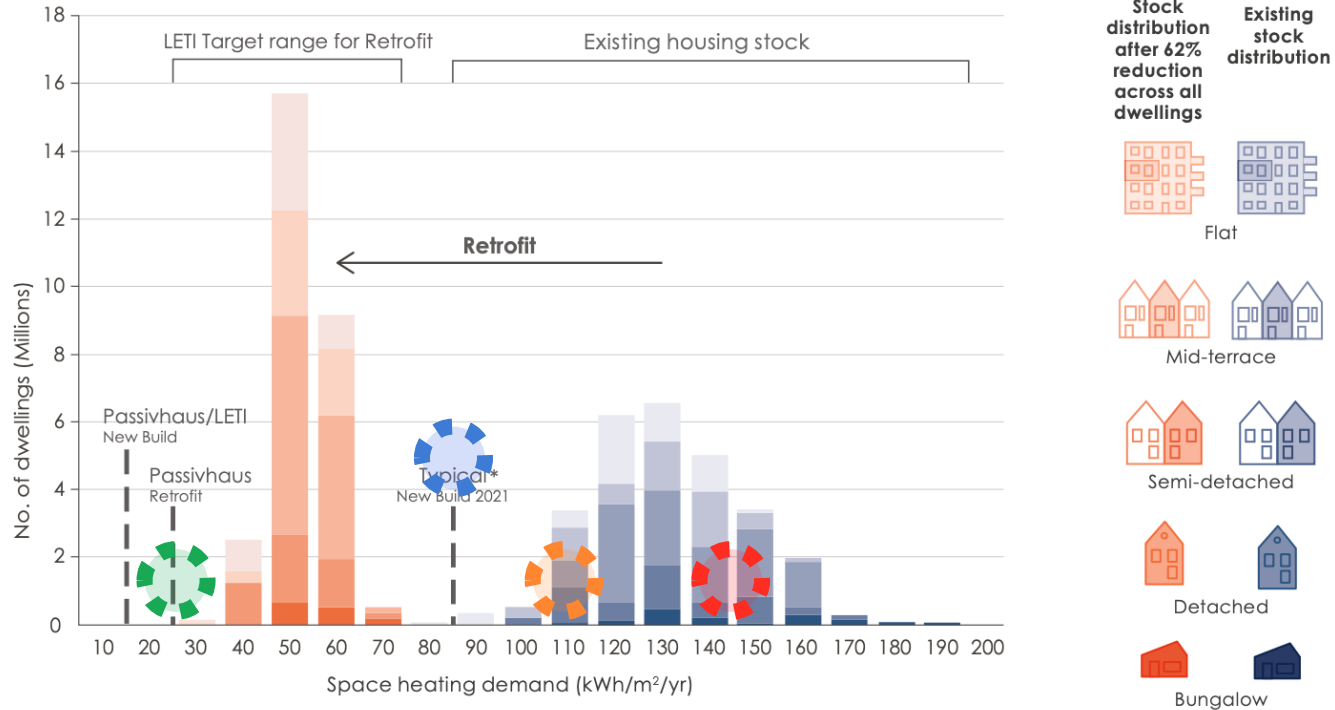
**Hanna Lundström**  
Sustainability & Climate Change Officer, East Lothian Council & BE-  
Changemaker

**Christina Gaiger**  
Associate, Architype

**Sara Thiam**  
Chief Executive, SCDI

**Stefanie O’Gorman**  
Director of Sustainable Economics, Ramboll

# Good Retrofit is More Energy Efficient than most New-build



\* Includes for an assumed performance gap

**Figure 0.1** - Total number of UK dwellings broken down by their space heating demand, showing the transition required from existing levels of high demand to the LETI retrofit target range. Figure based on stock modelling carried out by LETI.

# Benefits of good Fabric First (over low carbon equipment first)

## *Carbon emissions reductions +*

1. Reduced Fuel Costs for Occupants
2. Improved Thermal Comfort
3. Increased fuel security
4. Reduced renewables costs
5. Opportunity to maintain building
6. Improved building value
7. Lower embodied energy
8. Improved neighbourhood
9. Lifetime Guarantee (sort of)
10. Employment / skills / materials ratio
11. Improved occupant health
12. Improved mental health of occupants





# Housing is not just about carbon emissions

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Table 3.5: UK treatment cost burden estimates to the NHS for selected hazards

Risk Factor	Total cost burden estimates to the NHS
Physical inactivity	£0.9-£1.0 billion
Overweight and obesity	£5.1-£5.2 billion
Smoking	£2.3-£3.3 billion
Alcohol intake	£3.0-£3.2 billion
Poor housing	£1.5-£2.5 billion

Using this approach, it is estimated that the total cost to society of poor housing in England, Wales and Northern Ireland is some £20 billion per annum (Table 3.4). This suggests that the annual treatment costs to the NHS is around 7.7% of the societal costs of all poor housing in these countries.

# Innovation Factory Tour

## Starts at 12:30

Meet in main hallway with hi-vis on.  
If you have not pre-registered, you are still welcome to join!

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**BE-ST**

# Puzzling the heat pump problem

Chaired by Sarah-Jane MacArthur, Partner, Brodies

# Mark Wilkins

## Technologies and Training Director Vaillant UK

# KEY MILESTONES ON SCOTLAND'S ROADMAP TO DECARBONISATION

- The use of direct emissions heating systems (DEH) in any new building applying for a building warrant from 1 April are prohibited
- Regulation of ZDEH Heat Networks come into force in Scotland
- Proposed start date of Market Mechanism
- Proposed Heat in Building Regulations to be introduced

- Hydrogen-Ready mandate
- Strategic decisions on the role of hydrogen for heating expected
- Social Housing Net Zero Heat Fund ends

- Hydrogen Town Trials
- All buildings on gas grid to have decarbonised their heat system
- Over 1 million homes and 50,000 non-domestic properties have converted to zero emissions heating
- Scotland's emissions reduced by 75%
- **New or replacement fossil fuel replacements banned in on-gas areas**

- Domestic properties to be rated EPC 'B'
- No properties in fuel poverty
- Scotland's emissions reduced by 90%
- At least 3 of Scotland's islands to be carbon neutral by 2040
- Fuel poverty targets of no more than 5% of homes are fuel poor

2023



- Final policy decision on blended hydrogen
- Scottish Government will pass new build heat standard regulations through parliament
- Deadline for all local authorities to produce a LHEES (Local Heat & Energy Efficiency) Plan
- Home Energy Scotland cashback scheme until at least end of 2023
- Warmer Homes Scotland new detail of 7 year scheme to be announced

2024



2025



- Hydrogen Village Trials
- **Launch of a dedicated National Public Energy Agency in Scotland**
- **Target of 64,000 heat pumps to be fitted per annum**
- **New or replacement fossil fuel replacements banned in off-gas areas in Scotland**
- Revised Energy Performance of Buildings (Scotland) Regulations resulting in changes to EPCs

2026



2028



- **Ambition for 600,000 heat pumps to be deployed per year**

2030



2033



- Domestic properties to be rated EPC 'C' where it is feasible and cost effective

2040



2045



- **Net Zero Ambition**



# Fabrice Leveque

## Climate & Energy Policy Manager

### WWF



# AFFORDABLE WARMTH

Fabrice Leveque,  
WWF Scotland



# WHY HEAT PUMPS?

90%

Carbon reduction for  
the average home,  
today



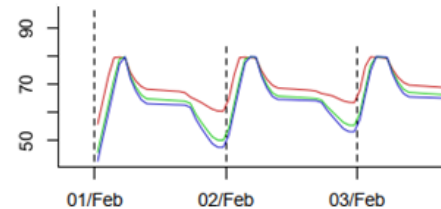




# BENEFITS

85%

Scottish houses could enjoy lower energy bills with a heat pump



# POLICY



**Reform  
electricity  
pricing**



**Minimum  
standards of  
energy  
efficiency**





# AFFORDABILITY

£3,500 to  
£6,500

Increased sales  
value of a home



Accelerating solutions together to fight climate change



# POLICY

**Regulation to  
provide clarity  
& reduce costs**

**Financial  
support to  
households,  
supply chain**





THANK YOU

# **Evelyn McDowall**

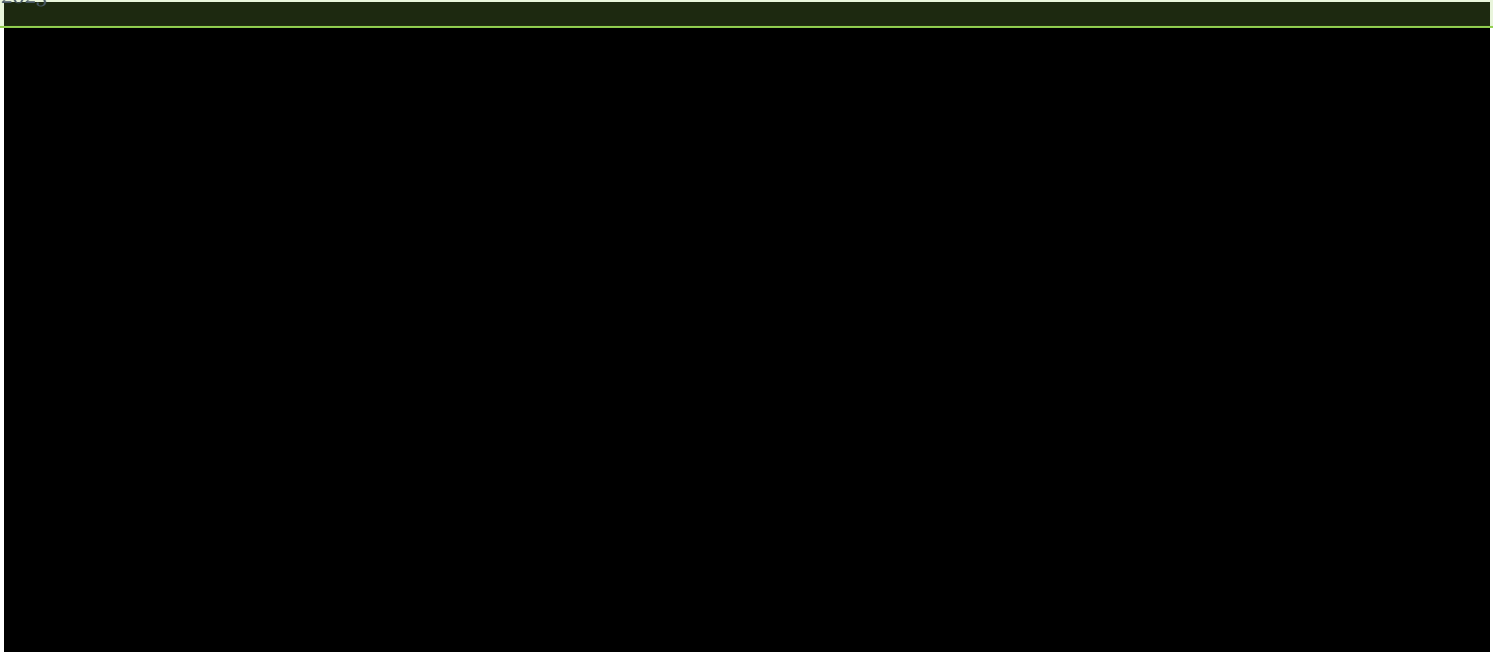
**Associate Director**  
**Turner & Townsend**

# Puzzling the Heat Pump Problem – Net Zero



Procurement Perspective – Evelyn McDowall

Thursday 14<sup>th</sup> September 2023



# Puzzling the Heat Pump Problem - Net Zero

UK outlook for economic growth is mixed, with persistent high inflation, labour shortages and interest rate hikes leading to **high costs of borrowing and investing**.

There is greater **reluctance to finance projects** and contractors have become **more risk averse** in which projects they accept.

Greater use of **two-stage tendering and procurement**, early engagement, multiple suppliers, and premiums for early delivery are focus areas.

**Material shortages are easing**, although some delays are still occurring – mainly in bricks, blocks, tiles and semiconductors for electrical systems.

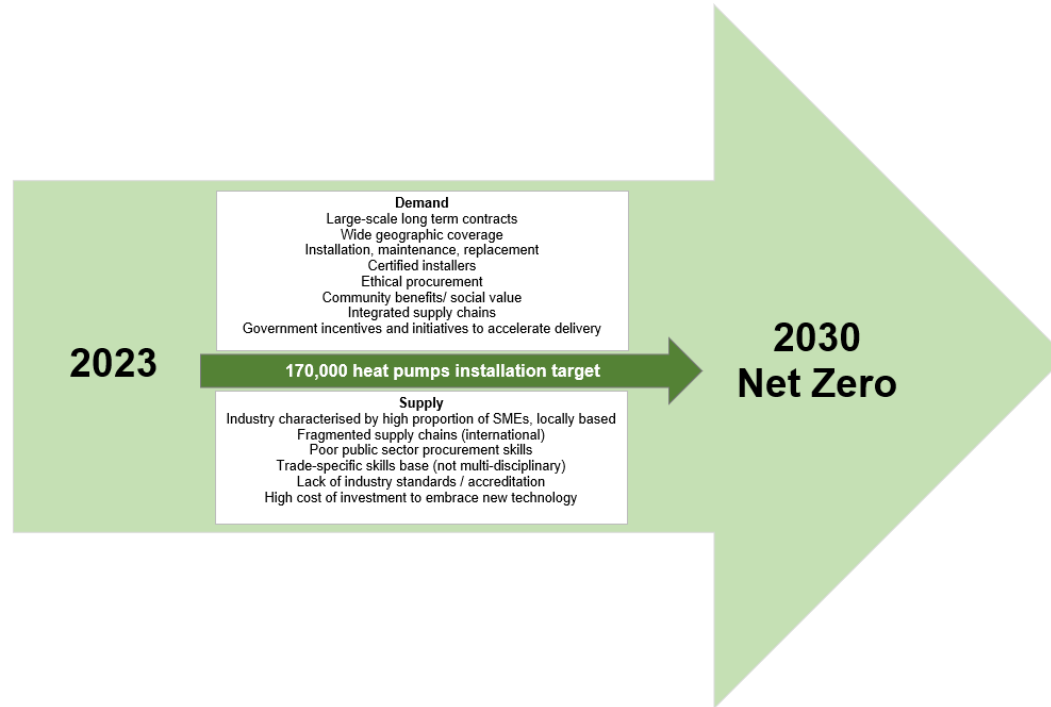
Construction market conditions and **confidence are unlikely to improve until the end of 2023**.

However, as pricing starts to stabilise towards the end of this year, this should **stimulate more investment activity**.

Source: **Turner & Townsend International Construction Market Survey 2023**



# Puzzling the Heat Pump Problem - Net Zero



# Puzzling the Heat Pump Problem - Net Zero

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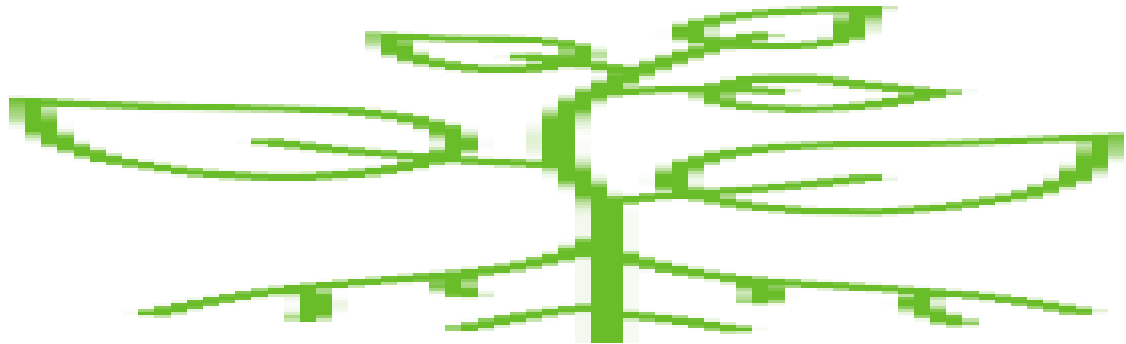
Focus on control, not just costs

Align client / supplier goals through a programmatic approach

Address clients' desire to procure strategically

Market engagement is essential to achieve balance between supply and demand

Net zero - a business opportunity, not a burden





Turner & Townsend UK Limited  
180 St Vincent Street  
Glasgow  
G2 5SG

E: [evelyn.mcdowall@turntown.co.uk](mailto:evelyn.mcdowall@turntown.co.uk)  
[www.turnerandtownsend.com](http://www.turnerandtownsend.com)

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**Gareth Fenney**  
Head of Heat in Buildings Future  
Delivery Unit  
The Scottish Government

# Heat in Buildings: Achieving Net Zero Emissions in Scotland's Buildings

Gareth Fenney



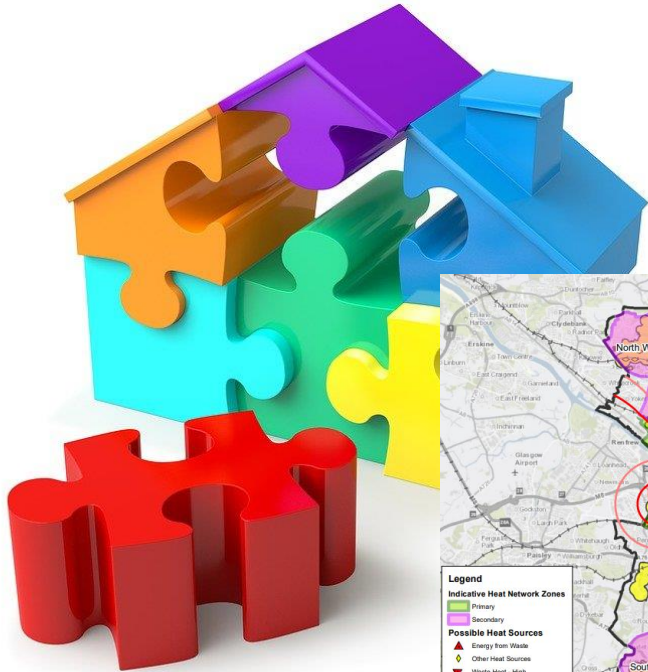


# Creating Demand

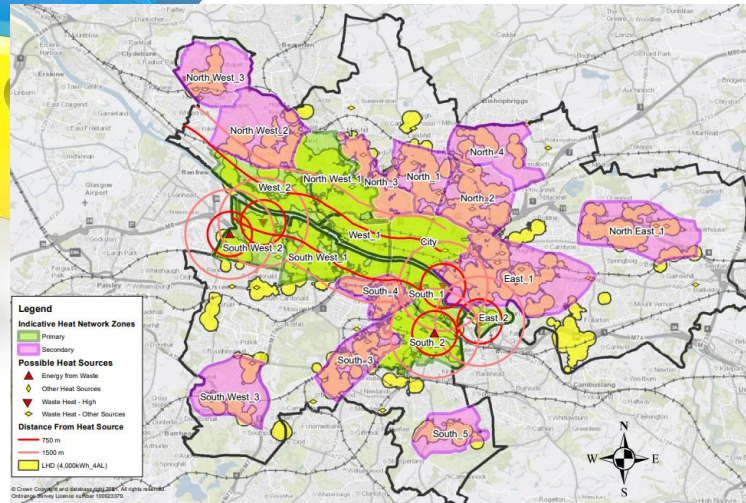


- **Regulatory Underpinning**
- **Identifying Most Suitable Areas**
- **Communicating & Engaging**
- **Support & Paying for it**
- **Energy Prices**
- **Cost Reduction**

# Creating Demand



- Regulatory Underpinning
- Identifying Most Suitable Areas
- Communicating & Engaging
- Support &
- Energy Pr
- Cost Red



SCOTTISH STATUTORY INSTRUMENTS

2023 No. 177

**BUILDING AND BUILDINGS**

The Building (Scotland) Amendment Regulations 2023

Made	- - - -	6th June 2023
Laid before the Scottish Parliament	- - - -	8th June 2023
Coming into force	- - - -	1st April 2024

The Scottish Ministers make the following Regulations in exercise of the powers conferred by sections 1 and 54(2) and schedule 1 of the Building (Scotland) Act 2003(a), and all other powers enabling them to do so.

in accordance with section 1(2) of that Act they have consulted with such persons as appear to them to be representative of the interests concerned.

**Citation and commencement**

1. These Regulations may be cited as the Building (Scotland) Amendment Regulations 2023 and come into force on 1 April 2024.

**Amendment of the Building (Scotland) Regulations 2004**

2. Subject to regulation 6, the Building (Scotland) Regulations 2004(b) are amended in accordance with regulations 3 to 5.

**Amendment of regulation 2 - interpretation**



# Creating Demand

- Regulatory Underpinning
- Identifying Most Suitable Areas
- **Communicating & Engaging**
- **Support & Paying for it**



## Find funding

Help with making your home more efficient, cheaper to heat and warmer



# Creating Demand



- Regulatory Underpinning
- Identifying Most Suitable Areas
- Communicating & Engaging
- Support & Paying for it
- **Energy Prices**
- **Cost Reduction**

 The Telegraph

## Heat pumps are too expensive for net zero plans

Price reductions of 25 to 50 per cent within two years are key to the Government's target of 600000 installations a year by 2028.

4 Apr 2023



 Daily Express

## Heat pumps branded 'too expensive' by climate watchdog chief who uses gas boiler

The chief executive of the Climate Change Committee has said heat pump costs must be reduced by 'scale installation and scale production'.

4 weeks ago



**Thank you**

**gareth.fenney@gov.scot**

# Iain Carr

## Director of Sales

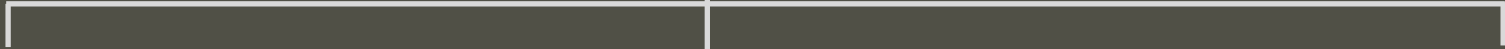
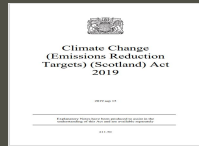
### Kensa Contracting

# PUZZLING THE HEAT PUMP PROBLEM

Iain Carr – Director of Sales – Domestic

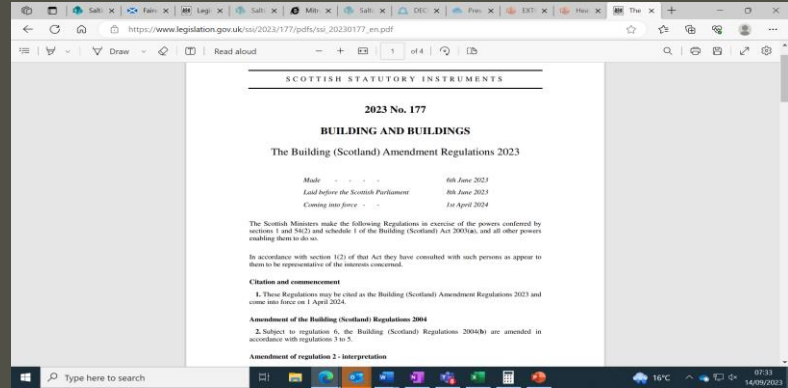


# KENSA GROUP STRUCTURE



# KENSA APPROACH

You own just a white box (a boiler) in your house. You don't own all of the gas pipes and infrastructure outside of your house. You pay a standing charge through your bill to access the gas utility.



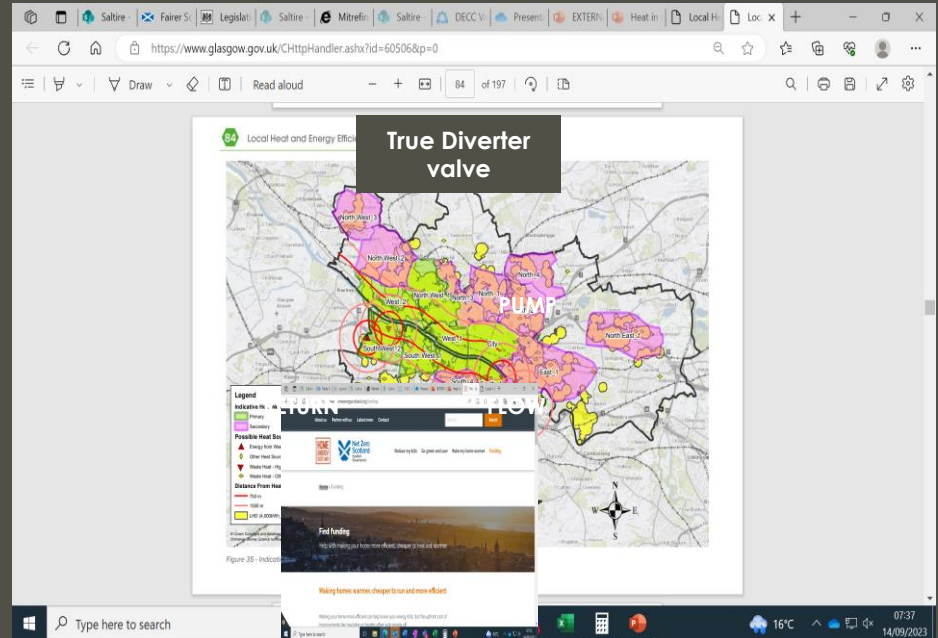


# HOW A GSHP HEATING SYSTEM WORKS

- The same way that a conventional boiler does
- Someone sizes the boiler (Heat Pump)
- Someone sizes the Radiators to work with the boiler
- Someone sizes the cylinder to work with the boiler
- The controls are the same heating controls
- With the ability to make them simple or complex
- Nobody worries about it not working when its cold

## The only differences are:

- Heat Pump (not boiler)
- True Diverter valve (not mid position valve)
- Brine supply loop (not gas supply)





GSHP TECHNOLOGY

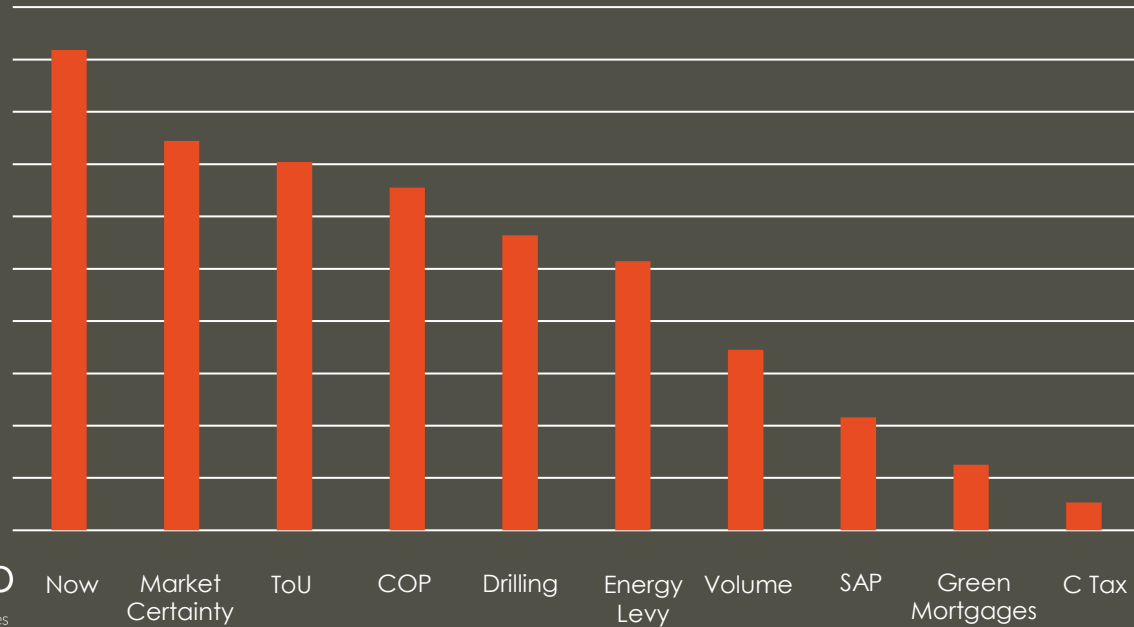
# DISTRIBUTION SYSTEM & CONTROLS

- Distribution system sized to 45°C flow temperature
- Radiators oversized
- Timeclock
- Central thermostat
- TRV on radiators
- Hot water priority
- 60°C stored hot water
- Local hot water cylinder



# NETWORKED HEAT PUMPS

Monthly Net Cost



# Key policies for electrification of heat

- 1. Reducing the cost of electricity** (UK Government Responsibility)
- 2. Heat pump market certainty**
  - New Build Heat Standard 2024 (Scotland) - Future Homes Standard 2025 (England)
  - Fossil Fuel boiler phase out in existing homes – Scottish and UK policy unclear
  - Clean Heat Market Mechanism from 2024 (UK wide)
- 3. Reform of support schemes to better deliver heat pumps**
  - Scotland – Home Energy Scotland Grant, Social Housing Net Zero Fund, ECO
  - UK – Boiler Upgrade Scheme, Social Housing Decarbonisation Fund, ECO

# Policies for Networked GSHPs

## 1. Reform of subsidy schemes to better support GSHPs

- Home Energy Scotland Grant - Increase grant levels for GSHP to stimulate demand
- Social Housing Net Zero Fund in Scotland – Promotion of GSHP as fuel poverty solution within the schemes
- ECO4 – Adjustments to eligibility criteria and greater focus on carbon reductions

## 2. Heat network zoning and Local Area Energy Plans

- Ensure appropriate regulation and statutory rights for networked GSHPs (*UK Level*)
- Ensure GSHPs are incorporated within guidance for heat network zoning (*Devolved to Scotland*)
- Use Local Area Energy Plans (*Local Heat and Energy Efficiency Strategies in Scotland*) to support the roll-out of network heat pumps.

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# What Next – Picking up the pace on heat policy and actions

Chaired by Nick Sharpe, Director of Communications &  
Strategy, Scottish Renewables

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**Nick Sharpe**

Director of Communications & Strategy, Scottish Renewables

**Neil Kitching**

Specialist, Green Heat and Water Technologies, Scottish Enterprise

**David Linsley-Hood**

Consultancy Director, Locogen

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