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Energy Efficient Scotland

Making our homes and buildings warmer, greener and more efficient

Get in touch: EnergyEfficientScotland@gov.scot

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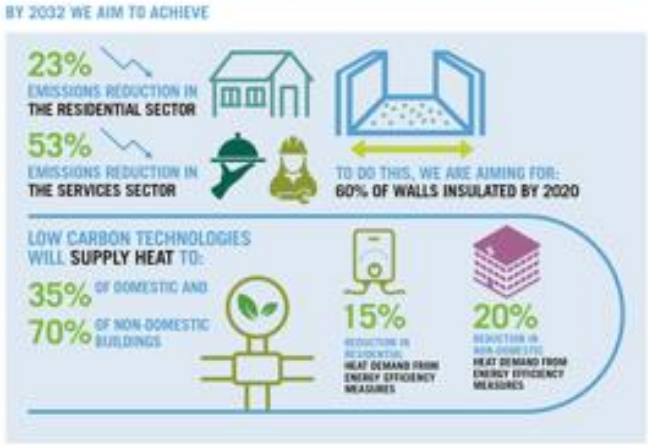
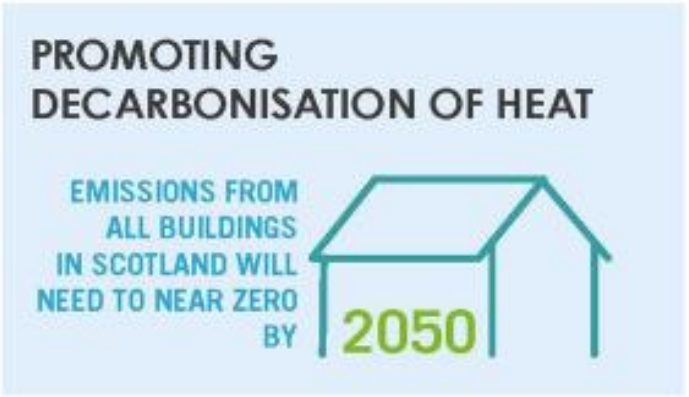
Context

- Scottish ministers designated energy efficiency as a National Infrastructure Priority in 2015
- The Climate Change Plan requires an 80% reduction in greenhouse emissions by 2050 on 1990 levels
- In 2015, buildings accounted for about 20% of total emissions





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Energy Efficient Scotland

OUR VISION
BY 2040 OUR HOMES AND BUILDINGS ARE WARMER, GREENER AND MORE EFFICIENT

DUAL FOCUS – ENERGY EFFICIENCY IN ALL BUILDINGS & LOW CARBON HEAT WHERE IT IS APPROPRIATE

REMOVING POOR ENERGY EFFICIENCY AS A DRIVER OF FUEL POVERTY 1.

EMISSIONS REDUCTION 2.

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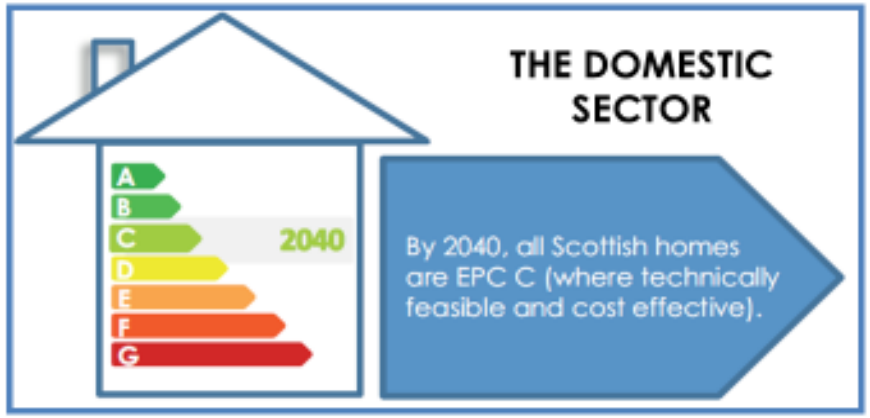
Framework of Standards



Social Housing
Maximise the number of social rented homes achieving EPC B by 2032

Private Rented Sector
Private rented homes to achieve EPC E by 2022, EPC D by 2025 and EPC C by 2030

Owner Occupied
By 2040, owner occupied homes to reach EPC C

Fuel Poor Households
Homes with fuel poor households to reach EPC C by 2030 and EPC B by 2040

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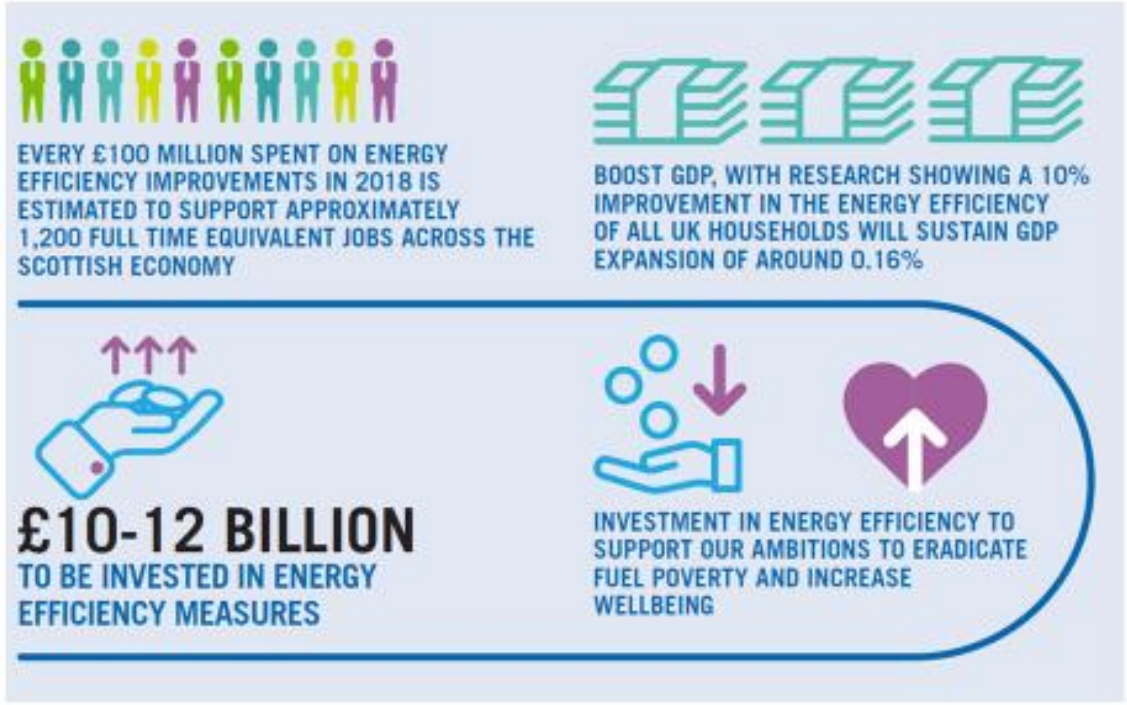
Investment and Delivery



- National policy framework and delivery
- Combined national and local based support and delivery
- Local area based delivery

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Continued funding for transition phase

Year 1	Year 2
• continued funding for domestic fuel poverty programmes (currently HEEPS: ABS)	• continued funding for domestic fuel poverty programmes (currently HEEPS: ABS)
• funding support to allow local authorities to move into domestic and non-domestic able-to-pay market	• funding support to allow local authorities to move into domestic and non-domestic able-to-pay market
• continued funding to support LHEES development	• continued funding to support LHEES development
• continued funding to provide national advice, support and information via Home Energy Scotland and Resource Efficient Scotland	• continued funding to provide national advice, support and information via HES and RES
• continued funding to provide loans to individuals, SMEs and public sector for energy efficiency improvements	• continued funding to provide loans to individuals, SMEs and public sector for energy efficiency improvements
• continued funding and support for public sector projects through SALIX loan funding, the Non-Domestic Energy Efficiency Framework and Project Development Unit.	• further supporting energy efficiency in the public sector by incentivising integration of domestic, non-domestic and public sector projects through SALIX loans and continuation of the Non-Domestic Energy Efficiency Framework and Project Development Unit.

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Partnership with Local Government

Proposing that local authorities offer a facilitated, integrated service covering:

- advice, support and assessment for domestic and non-domestic buildings
- tackling fuel poverty
- domestic and non-domestic able-to-pay energy efficiency (with loan funding provided by national loan schemes)
- public sector energy efficiency

AND take a lead role in helping to identify and plan for the delivery of low regrets heat decarbonisation

….done through Local Heat & Energy Efficiency Strategies (LHEES)

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Partnership with Local Government

Local authorities would have a statutory duty to develop **Local Heat & Energy Efficiency Strategies** (LHEES), which would:

- cover a 15-20 year period;
- set out an authority-wide overall energy efficiency and heat decarbonisation strategy;
- designate zones that set out the most appropriate energy efficiency and heat decarbonisation options for the area. These zones would help to phase the operation of area based delivery programmes for energy efficiency.

Prior to commencement of this duty, local authorities would be offered capacity and support to develop LHEES.

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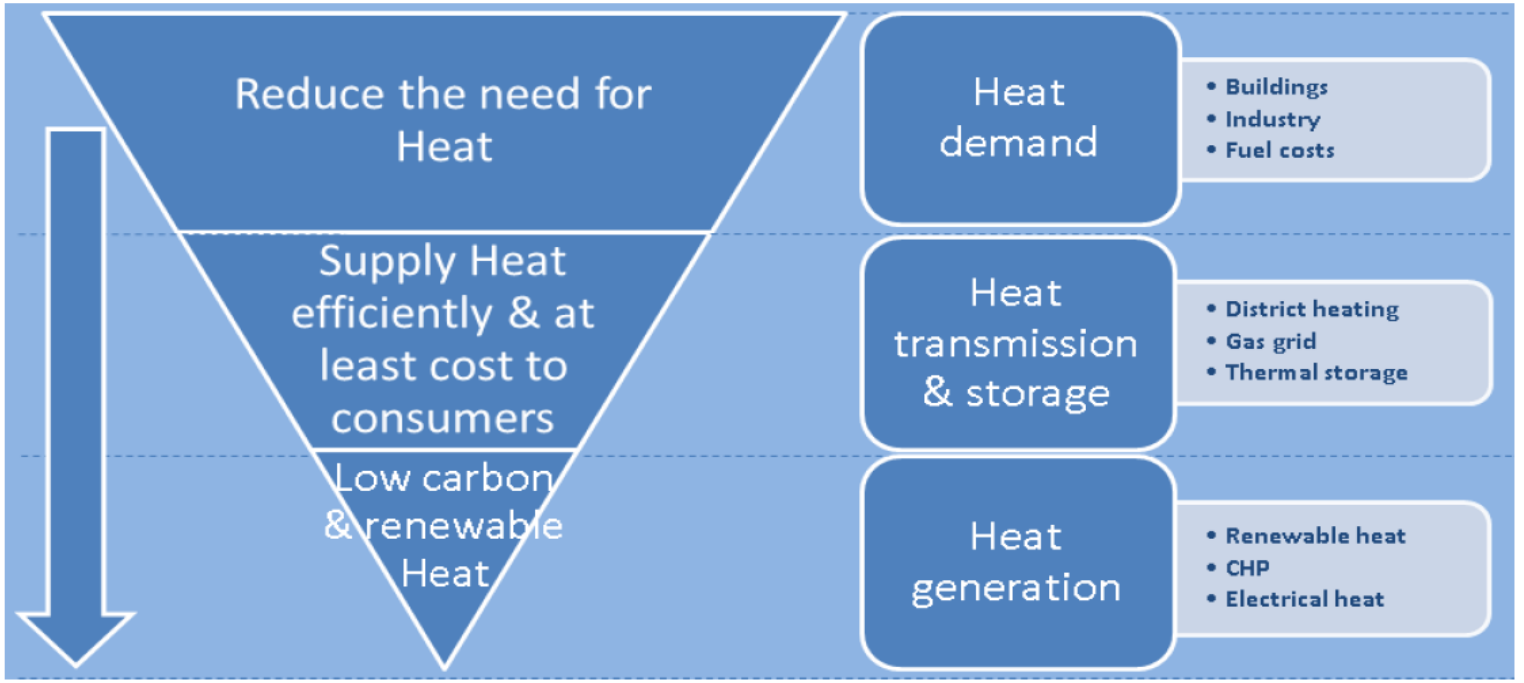
Heat Policy Statement – the Heat Hierarchy



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Heat decarbonisation so far…

- Heat supply is diversifying:
  - Share of renewable heat is rising (3.8% in 2014, 5.3-5.6% in 2015)
  - Electrical heat is growing in non-domestic sector (currently over 50%)
  - District and communal heating is rising (25,800 homes connected)

- But gas remains our primary fuel…

RESOURCE EFFICIENT SCOTLAND

HOMEENERGYSCOTLAND.ORG
0808 808 2282
FUNDED BY THE SCOTTISH GOVERNMENT

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Local Heat & Energy Efficiency Strategies – previous consultation proposals

The Scottish Government is considering placing a statutory duty upon local authorities to develop a LHEES, and to use their powers to implement that strategy, to support the delivery of the objectives of SEEP.

LHEES should develop an area-based approach over a 20 year period taking into account national targets and ambitions in respect of heat and energy efficiency. These strategies should :

1. identify potential opportunities
2. set long-term targets
3. undertake an area-based socio-economic assessment
4. set out costed, phased delivery programmes for each period
5. include phased zoning for DH networks and energy efficiency
6. quantify and consider impacts of delivery plans

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Benefits of LHEES

- Clear and enhanced local authority role in **shaping the local energy system** – over the long term
- LHEES will **drive SEEP across all local authorities**, and will act as the foundation for 20 years of delivery programmes to meet our fuel poverty, energy efficiency and heat decarbonisation ambitions – **sending clear investment signals** to develop a strong and sustainable supply chain for Scottish business.
- **Focus on socio-economic benefit** of potential solutions at the strategy level in LHEES, in addition to the project specific financial case
- Highlights long term direction of travel, as well as the near term opportunities
- LHEES as an investment prospectus – signal opportunities for **prioritising investment** in zones:
  - area-based energy efficiency programmes
  - district heating programmes
  - heat decarbonisation programmes
  - securing funding from SG for SEEP delivery programmes
- Pilots to consider what capacity is required and to test the scope and content of LHEES

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Consultation Analysis – LHEES...

Comments from those who agreed that local authorities should have a role to produce LHEES:

- Such a role is required in order to:
  - Promote decarbonisation of heating
  - Reduce energy use or energy waste;
  - To meet targets relating to climate change, affordable warmth, reducing fuel poverty or energy security.
- Leadership from local authorities will be vital in taking the strategy forward

Suggestions and concerns over how LHEES could be implemented:

- Concern over **funding, support and resources** for implementation
- Concerns that local authorities may not have the **capacity, skills or relevant expertise** needed to produce and/or implement the LHEES.

Consultation Analysis – LHEES...

- Need for a **clear national framework**, guidelines and support.
- Cohesive, **consistent approach** was seen as necessary both to attract investment and to provide reassurance to consumers.
- Need for **flexibility** in order to allow for local solutions relevant to local characteristics
- Need for LHEES to fit within **existing local plans** and involve other relevant public bodies
- Suggestion that local authorities should produce their own strategy but then be allowed, or required, to **work with others** to produce or deliver strategies appropriate for a wider area.

Consultation Analysis – DH Regulation

- The broad **principles for regulation** outlined in the consultation were generally accepted
- The main themes from the question on key principles or approaches to inform how the regulatory approach manages risk included **fuel poverty as well as affordability**.
- **Consumer protection** was another key principle identified by respondents and this included ensuring security of supply.
- The regulation of **technical standards**, perhaps in a way similar to that seen for other utilities, was also seen as important

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ATKINS
Member of the SNC-Lavalin Group

Aberdeen City Council – LHEES Summary

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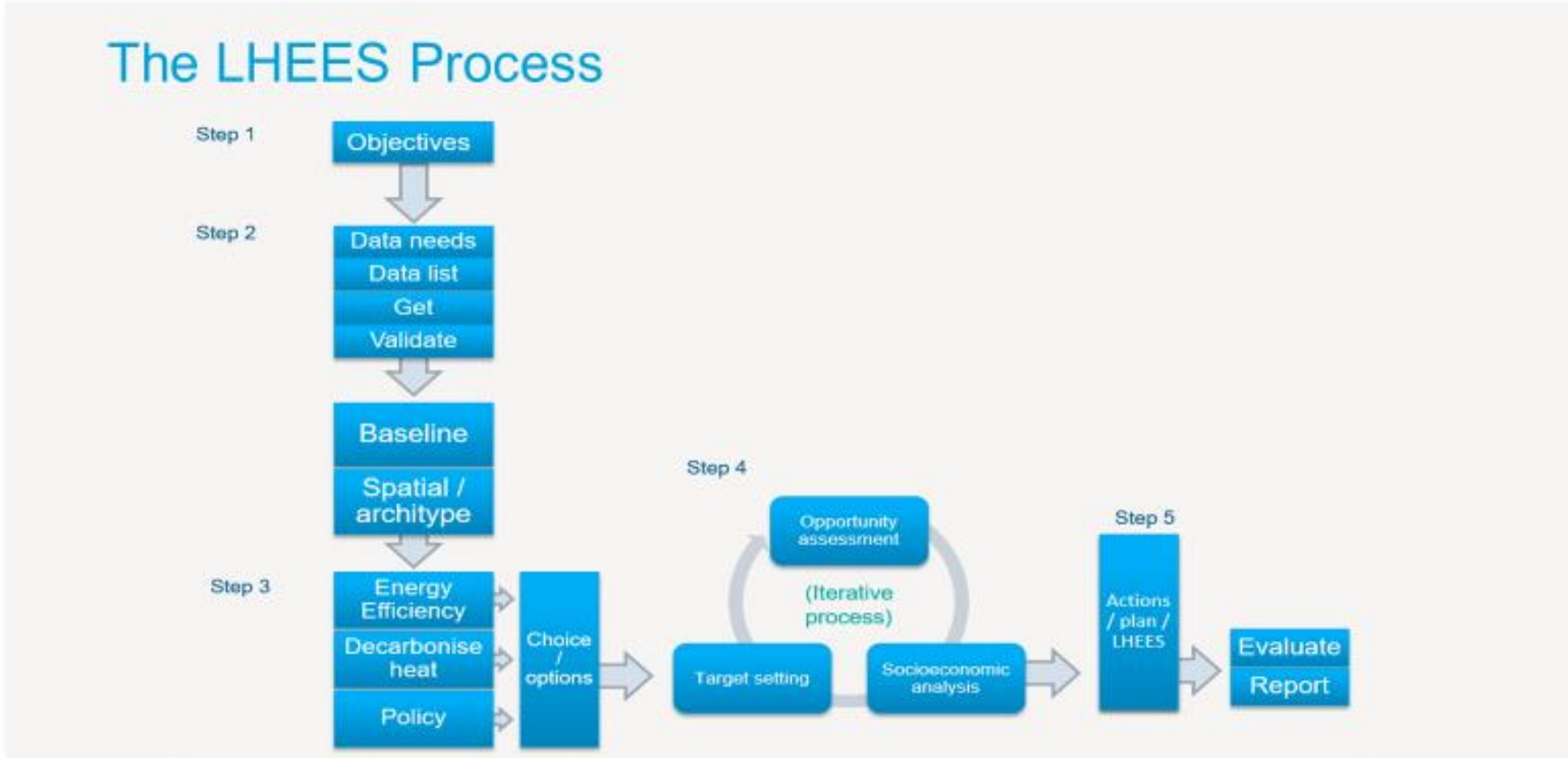
The LHEES Process



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Linking Council policy priorities to a Local Heat and Energy Efficiency Strategy

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National targets:
Energy Efficient Scotland vision is by 2040 our homes and buildings are warmer, greener and more efficient.

EMISSIONS FROM ALL BUILDINGS IN SCOTLAND WILL NEED TO NEAR ZERO BY

OUR CLIMATE CHANGE PLAN SETS OUT A TRAJECTORY TO 2032 WHICH REQUIRES:

35% OF DOMESTIC AND

70% OF NON-DOMESTIC BUILDINGS

HEAT TO BE SUPPLIED BY LOW CARBON TECHNOLOGIES

Could the Council adopt these targets?

What proportion of the targets could the Council adopt on behalf of the authorities' geographical area?

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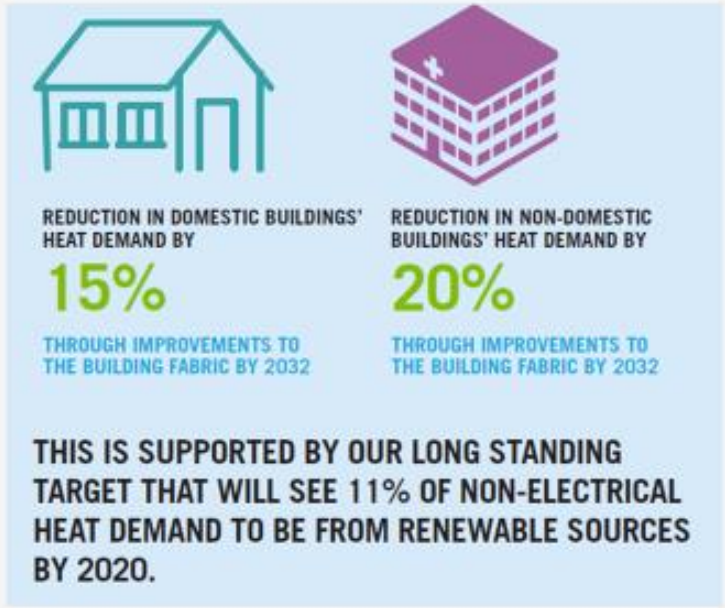
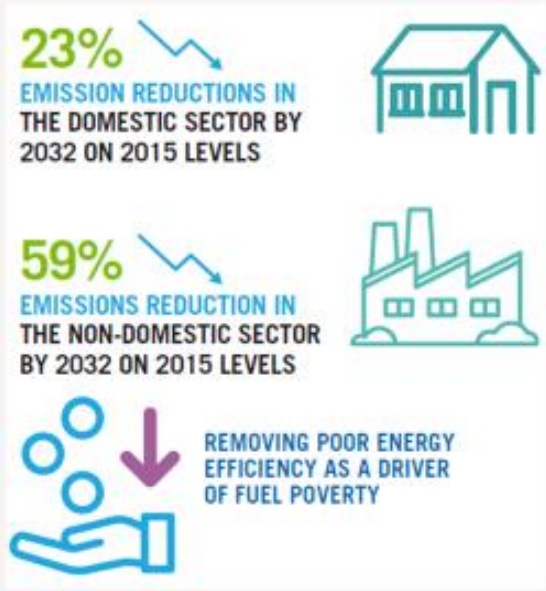
National targets: Scotland





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Heat and energy efficiency – what does it mean locally?

- **Heat, light, communication, processes** e.g. refrigeration, manufacturing, cooking
- (and transport)
  - Businesses – reduce costs and deliver services
  - Offices
  - Nursing homes
  - Schools
  - Homes

- **Tackling fuel poverty**
  - Increasing disposable income
  - Reduced ill-health from cold, damp homes
  - Warm, comfortable, usable homes

- **Reducing inequalities**
  - Enable educational attainment for children – homework environment
  - Opportunities to develop skills for future employment
  - Reduce business costs
  - Community energy generation
  - Area regeneration
  - Create future self-funding community investment projects e.g. ground source heat in parks to supply local energy demand with income to fund future community projects.

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Council functions and policies – LHEES links

- **Economy, Employability**
  - *Business engagement and improvements e.g. industrial estates*
  - *Energy services, skills development and jobs creation*
  - *Business rates*
- Local **Housing** Strategy – all tenures
  - *EESH > EESH 2 > then?*
  - *Private sector energy standards*
  - *Fuel poverty*
  - *Affordable Housing*
- **Asset** modernisation
  - *New builds (schools, care homes +++), shared campus sites*
- **Energy** management, beyond CRC. Future networks.
- Local **Development** Plans
- Community Planning / Community **regeneration**
- Regional collaborations e.g. City Deals / Cities Alliance
- **Green Space**
  - *Play and amenity areas, maintenance, redevelopment*
- **Poverty and Inequality**
  - *Domestic energy efficiency/fuel poverty*
- Energy **generation**
- **Transport** - future fuels

As of 31 July 2017, there were **200,000** non-domestic buildings in Scotland, with **10%** of these being **public sector** buildings

Source preliminary SG analysis

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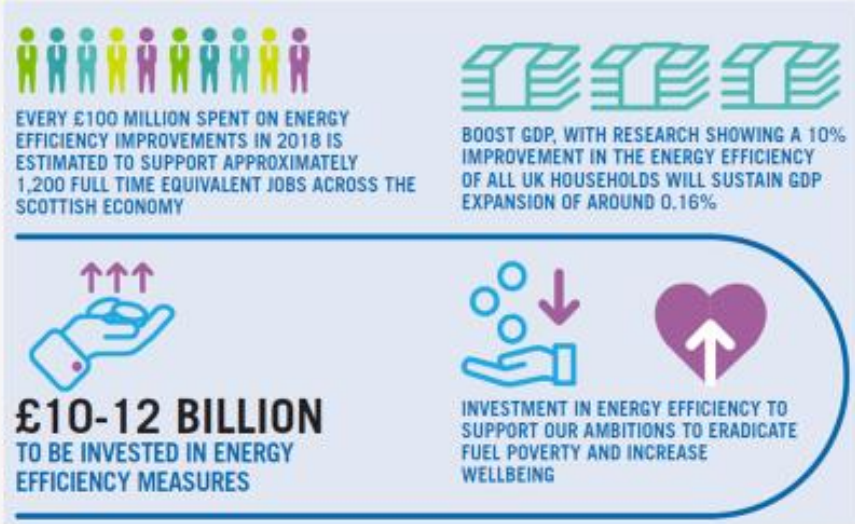
What is the added value of an LHEES?

- Investment prospectus
- Collaborative benefits
- Additional local detail to suite of plans e.g. Sustainable Energy and Climate Action Plan
- Delivery models to suit local drivers and opportunities



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Baseline Data Reporting

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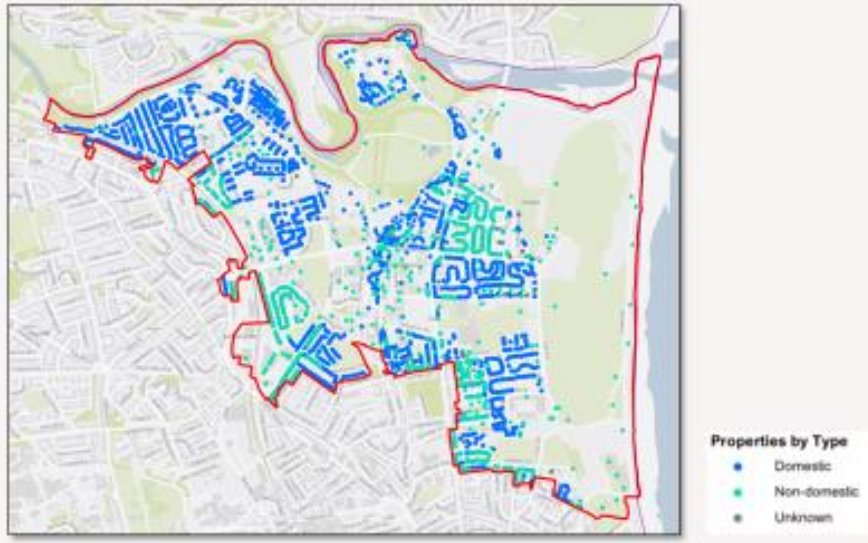
Baseline Data Reporting
The Results – Domestic/Non-domestic Split



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Energy Efficiency and Heat Decarbonisation Options Appraisal

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Energy Efficiency & Heat Decarbonisation

Key Results – Domestic Energy Efficiency

Measure	Total potential Costs	Potential running cost savings (£/yr)		Total potential CO_2 savings (kg/yr)	
		Total	Per measure	Total	Per measure
Virgin loft insulation	£93,720	£39,220	£115 - £200	170,450	500 - 885
Top-up loft insulation	£243,905	£10,990	£10 - £20	53,730	50 - 80
Cavity Wall Insulation	£219,740	£53,555	£65 - £175	236,535	300 - 775
External wall insulation	£714,000	£10,365	£115 - £155	45,810	510 - 670
Internal wall insulation	£11,221,000	£653,070	£155 - £290	1,362,730	510 - 1,290

Energy Efficiency & Heat Decarbonisation

Method – Multi-Criteria Geospatial Analysis

Spatial layers stacked to show areas where most policy drivers

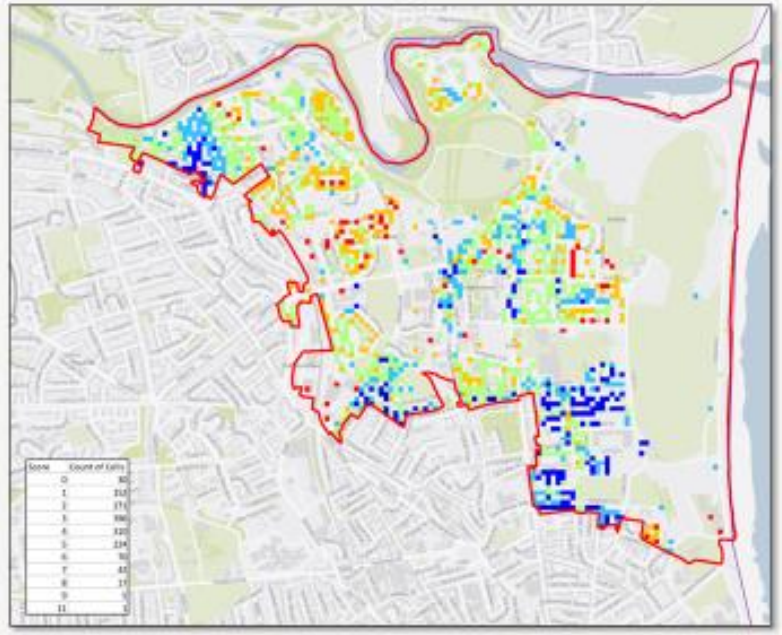
Layers consist of:

- Fuel Poverty
- SIMD
- Social Housing
- Listed Buildings
- Large Heat Demands
- Main Fuel Type

The red end of the scale shows areas where policy and opportunity stack up, highlighting potential areas to focus on.

Energy Efficiency & Heat Decarobisation

Key Results – Multi-Criteria Geospatial Analysis



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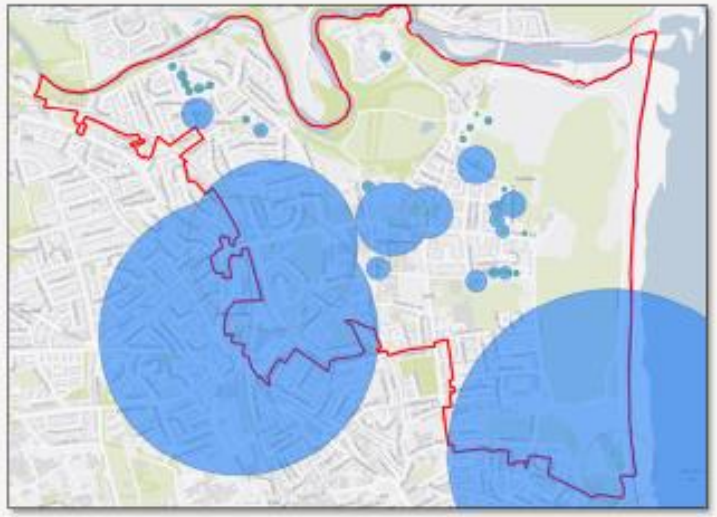
Energy Efficiency & Heat Decarbonisation

Method – District Heating



1. **Anchor Loads Identified**
   - Social Housing
   - Heat Demand Confidence Score of 5
   - Heat Demand > 100 MWh/year

2. **Linear Heat Density**
   - Economic measure of heat sales vs capital expenditure
   - Density of 4 MWh/m chosen
   - Radius drawn from anchor loads
   - Where radii overlap, there is potential for a network

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Strategy level socio-economic assessment methodology

Criteria	Weighting
Carbon emissions	.3
Fuel poverty	.3
Financial	.08
Local economic	.08
Local environmental	.08
Social	.08
Resilience	.08
Total	1

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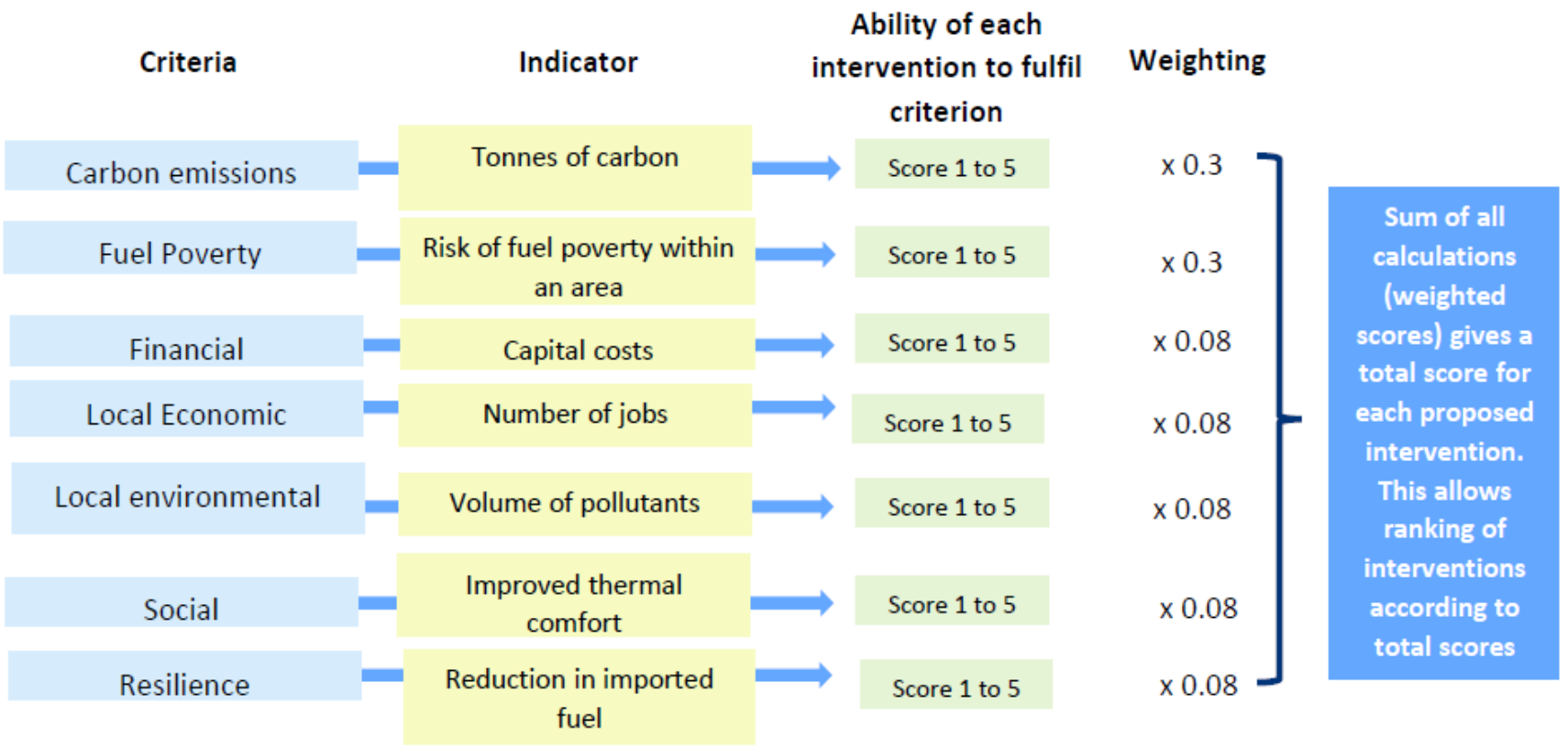

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	Criteria	Indicator	Score	Weighting	
1	Carbon emissions	GHG emissions (tonnes CO_2e)	x	30% =	-
2	Fuel poverty	risk of fuel poverty within an area	x	10% =	-
		change in unit cost of heat (£ per kW)	x	10% =	-
		change in average EPC rating	x	10% =	-
3	Financial	capital costs	x	3% =	-
		operation & maintenance costs	x	3% =	-
		fuel cost savings	x	3% =	-
4	Local economic impacts	number of jobs supported	x	3% =	-
		skills supported and developed	x	3% =	-
		regeneration level	x	3% =	-

	Criteria	Indicators	Score	Weighting	
5	Local environmental impacts	volume of pollutants	x	2% =	-
		change in noise level	x	2% =	-
		quality of built environment	x	2% =	-
		proportion of green field sites/woodland/wild habitat	x	2% =	-
6	Social	improved thermal comfort	x	2% =	-
		time available to work	x	2% =	-
		proportion of recreational community space	x	2% =	-
		acceptance of proposed intervention	x	2% =	-
7	Resilience	reduction in imported fuel	x	3% =	-
		meets current legislation	x	3% =	-
		reduction in demand	x	3% =	-

Aberdeen City council has completed LHEES as an “live” document and gave feedback interview to Scottish Govt.
Analysis on these pilots feedback is ongoing, with results published soon.

Interim report on LHEES pilots 2018 available on:
https://heatandthecity.org.uk/resource/local-heat-and-energy-efficiency-strategy-lhees-pilots-evaluation-interim-report/

Thank you

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