

SCOTTISH BORDERS

Local Heat and Energy Efficiency Strategy

Consultative Draft

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FOREWORD

It is a great pleasure to introduce the first Local Heat & Energy Efficiency Strategy for the Scottish Borders, which outlines the long-term shared vision for improving energy efficiency and decarbonising heat in our buildings.

The national objective to achieve net zero emissions by 2045 is a key driver for this strategy, alongside Scotland's target to eliminate fuel poverty as far as possible by 2040.

This Local Heat & Energy Efficiency Strategy (LHEES) builds on the Climate Change Route Map and the Local Housing Strategy 2023-2028, outlining the approach to our buildings as part of the response to the climate emergency.

This draft LHEES recognises the specific issues within the Scottish Borders relating to rurality and our sparsely spread population, a challenging economic context, and an above average proportion of fuel poor households. To achieve climate targets and a just transition, everyone has a duty to adapt to and mitigate the effects of climate change by using cleaner energy and changing our behaviour to reduce heat and energy waste. Through the identification of opportunities for energy efficiency improvements and heat decarbonisation in buildings, this strategy will ensure we can enhance our resilience and mitigate further irreversible impacts on our environment.

Strong regional and local partnership working will be critical to the effective delivery of this LHEES in order to meet targets for the benefit of everyone. We need the business sector, communities, and individuals to come together to help shape and deliver activity which responds to the climate emergency. The next decade will be critical in our just transition to a sustainable Scottish Borders future, and I look forward to working with partners and communities to meet these targets and see our plans progress.

Councillor Jenny Linehan
Executive Member for Environment & Transport



1 Executive Summary

This is the Local Heat and Energy Efficiency Strategy (LHEES) for the Scottish Borders. The LHEES is a place-based and locally led strategy covering the following national aims:

- Improving the energy efficiency and decarbonising the heat supply of all buildings in the Scottish Borders
- Eliminating poor energy efficiency as a driver for fuel poverty.

This strategy will play a crucial role in helping the Council meet its 2045 net zero target and 2040 fuel poverty target. It defines the changes required to the Scottish Borders' buildings and infrastructure, including all domestic and non-domestic buildings, to achieve these targets. This strategy does not only cover the council-owned buildings but rather an area-wide approach relevant to all property owners and occupiers in the Scottish Borders. Therefore, it goes much further than the council's role in decarbonising its own estate as it outlines what action all owners and occupiers will need to take to deliver the LHEES. This covers a large proportion of the population who will need to be motivated and supported to take big steps to decarbonise their homes and places of work. To fully represent this broad participation, the council has engaged with multiple stakeholder groups and is holding an open public consultation to gather feedback before finalising the LHEES.

This LHEES has been prepared in line with the LHEES Guidance issued by the Scottish Government and LHEES Methodology issued by Zero Waste Scotland. The methodology for preparing this LHEES covers:

- Establishing the necessary changes required for each segment of the Scottish Borders' building stock to increase its efficiency and decarbonise its heat.
- Identifying strategic zones for heat decarbonisation and establishing the primary steps to decrease emissions from buildings in each of these zones.
- Identifying delivery areas for building-level energy efficiency measures and zones for heat networks and communal heating systems.

In developing this LHEES, the council aligned the national targets set out in legislation with the local priorities of the people in the Scottish Borders. This included reflecting regional needs and local building characteristics and performance, gathered via stakeholder engagement or work carried out to inform existing local policies and plans. The result is an overall 'LHEES Vision' to address fuel poverty, improve energy efficiency of buildings and decarbonise their heat supply as part of a just transition which delivers on community wealth building. This means that the outcomes of the LHEES will be delivered in a way which ties together multiple priorities, as visualised in the following figure.

The LHEES Vision

Increase the energy efficiency of our homes and buildings, offer affordable warmth via zero emission heat, and deliver this as a just transition which tackles fuel poverty and builds community wealth.

The LHEES Priorities

Cost of heating

- **Tackle poor energy efficiency as a driver of fuel poverty** by focusing on areas with high fuel poverty, leveraging EES:ABS and social landlord commitments and regulations.
- Drive energy efficiency to **make warmth affordable for all**.

Heat Decarbonisation

- Support the **electrification of heat and renewable installation across buildings** in the region.
- Support the development of zero emission **heat networks, communal heating & renewables**.
- Target “low-regrets” **heating opportunities in off-gas areas**.

Just Transition

- Support the local economy and **improve the regional skills, employment and supply chain**.
- Utilise procurement, delivery models, planning, regulation, and other powers to **make this transition work for the people**.

The LHEES addresses the improvement and development of three main types of built assets: **domestic buildings, non-domestic buildings and heat networks**.

Domestic: Most properties in the Scottish Borders are domestic (88.4%). The majority (81%) of domestic properties have EPCs between C and E, highlighting a large challenge but also major potential for improvements which will directly help people with the cost of heating. Existing energy efficiency standards, national policy, majority of grants and most efficiency and heat decarbonisation projects have also focused heavily on domestic properties. These facts, in addition to the imperative of meeting fuel poverty targets which are linked to domestic properties, have led to domestic properties becoming a focus for the coming 5-10 years.

Non-domestic: However, non-domestic buildings also have an important role to play. There are 8,090 non-domestic buildings in the Scottish Borders. Almost 80% of these are located either in an urban area or a well-connected accessible area. This presents an opportunity for planning and delivering retrofit interventions collectively across domestic and non-domestic buildings. Non-domestic buildings are also an important factor for heat network viability as they can have more heat demand as well as different heat demand timings to domestic properties leading to potentially greater and more stable demand. There remain challenges around limited data on the non-domestic building stock, especially regarding

building performance due to the low proportion of EPCs in the sector. There is also limited clarity on the route to decarbonising non-domestic buildings, with proposals in the early stages of consultation on the Heat in Buildings Bill.

Heat networks: There are multiple towns which have been identified by the LHEES analysis to show promise of heat networks at a sufficient scale and density to be taken forward. This includes Galashiels, Duns and Jedburgh. These initial proposals focus on areas with a high level of presence (and potential energy demand) by public buildings, making these some of the most viable opportunities. Furthermore, the council is also undertaking a major development at Tweedbank, east of Galashiels, where it is conducting feasibility for a heat network. The council is also undertaking pre-feasibility work in Croft Street (Galashiels) assessing the viability of a heat network based on waste heat from the sewerage system. Scottish Borders has the 7th lowest population density among all Scottish local authority areas. The council area is 6th largest in Scotland covering 1,825 square miles. The area is constituted of a large number of small settlements which individually are small and far apart. While heat network opportunities have been identified for the largest settlements, the council has also investigated the potential for communal heating systems to ensure rural areas of the Scottish Borders benefit from lower cost heat where there is the potential. Communal heating systems are small networks which can provide heating to a single larger building (such as a block of flats) or a cluster of buildings in close proximity. They can be more cost efficient than individual heat pumps where the right set of conditions exist.

As part of the data-led process, the council used data analysis and geographic mapping to assess the priorities associated with the LHEES Vision. For the cost of heating priority, the council focused on areas where there is the greatest concern for poor energy efficiency as the driver for fuel poverty (Figure 1). This helped to identify strategic zones where we should focus efforts on improving energy efficiency, such as building and growing existing fuel poverty programmes, further collaboration with social housing providers or targeting government funding more strategically. These zones were also the basis for identifying further “Potential Delivery Areas” as specific locations where new retrofit and heat decarbonisation projects could be introduced and existing ones expanded.

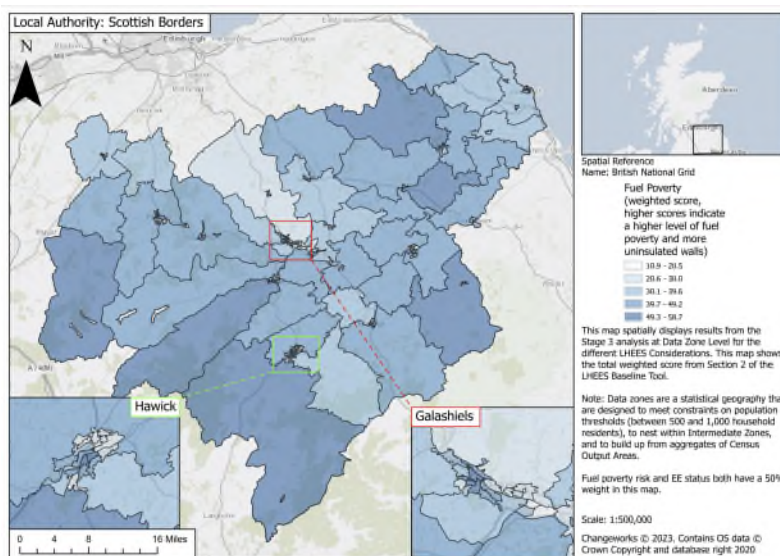


Figure 1: Areas with the highest indication of fuel poverty. This map shows a weighted score that combines energy efficiency, income, and other socioeconomic values.

To address its second priority of the LHEES Vision, heat decarbonisation, the council analysed the role of heat pump installation across the Scottish Borders, including the on-gas and off-gas zones which are heat pump ready. These maps and results are discussed in section 9. Figure 2 provides an example of one such key strategic consideration covering properties which are not on the gas grid (e.g. with oil boilers) but sufficiently insulated to be ready for a heat pump installation directly or with minor

improvements (e.g. loft insulation). These areas are 'low regrets' opportunities of high importance since these heating systems are costly to run and create high levels of emissions and other pollutants but may already have a hot water central heating system which is suitable for connection to a heat pump or a heat network. The LHEES has considered all types of properties (including on and off-gas, mixed tenure, and those with poor energy efficiency) and the Delivery Plan has provided delivery areas covering each of these types of priorities.

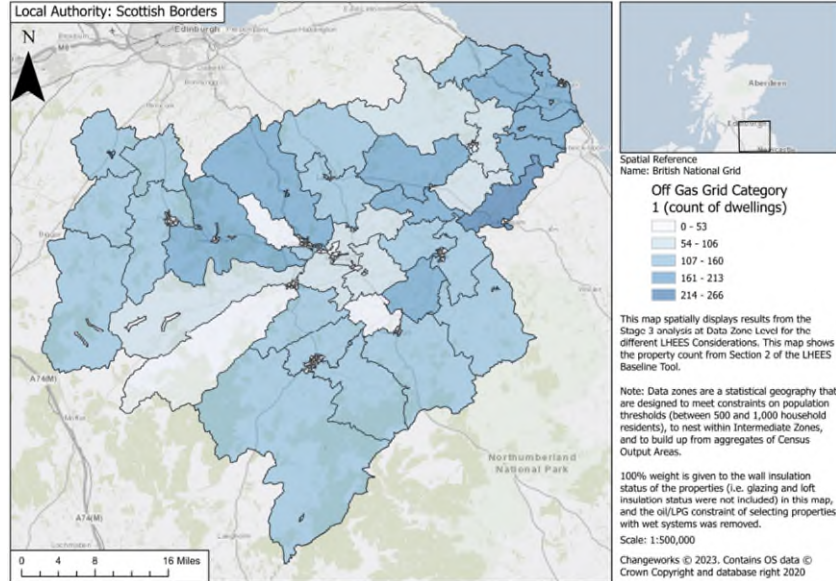


Figure 2: This map represents the number of "Category 1" properties. These are typically well-insulated and heat pump ready properties.

As part of its second priority of heat decarbonisation, the council also investigated heat network opportunities involving the installation of large-scale networks as well as communal heating systems. This was done by mapping areas with the highest level of heat demand density to reveal the potential of the appropriate type of technology (Figure 3).

The LHEES will look to leverage both energy efficiency and heat decarbonisation opportunities to unlock the benefits of this third priority of the LHEES vision, Just Transition. The Delivery Plan, which defines projects covering these priorities over the coming five years, will be geared to use initiatives which support local economic development, improvement of regional skills, employment and supply chain growth. These will deliver on net zero and fuel poverty targets while building community wealth.

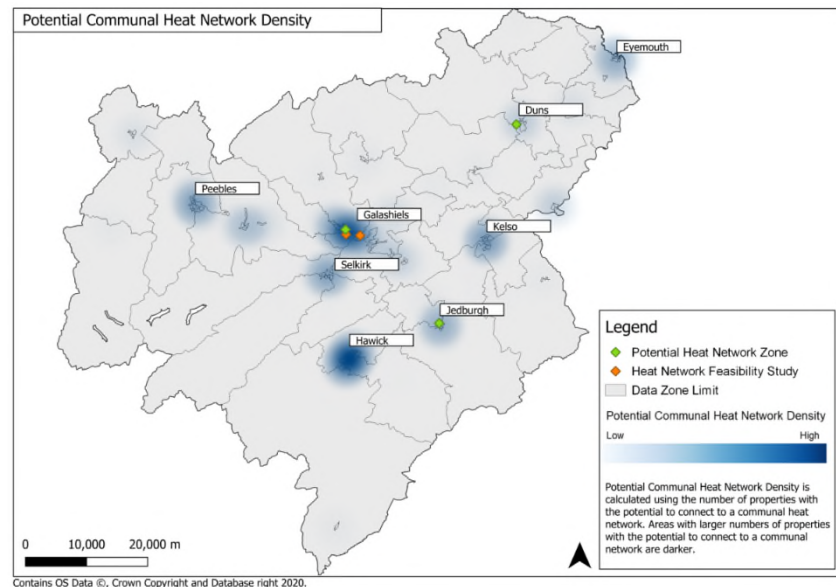


Figure 3: Map representing the initial potential for three main heat network opportunities where there is significant public sector heat demand, ongoing heat network feasibility studies as well as communal heating systems opportunities.

2 Glossary

Terms	Description
Anchor Load	A building requiring a consistent, enduring need for heat, ensuring a reliable demand for a heat network operator, thereby contributing to the economic viability of the network.
Baselining	Baselining is the purpose of understanding at local authority or strategic level, the current status of the buildings against the LHEES Considerations, Targets and Indicators.
Building-level Pathway	As part of LHEES Stage 5, a building-level pathway is the outcome of the assessment undertaken using PEAT. It provides the likely energy efficiency retrofit technologies, as well as the low carbon heating system (where applicable) to support building level decarbonisation.
Coolth	Cold as a tradable asset (Cf. heat / warmth).
Criteria	Criteria are the settings applied to the Indicators for each Consideration in order to support Baselining, Strategic Zoning and the identification of Delivery Areas. An example of Criteria is a simple “no” applied to the Indicator of “wall insulation (Y/N)” to identify properties with uninsulated walls. Another example is the definition of an “anchor load” within the Heat Networks analysis, which applies a minimum threshold to the “heat demand” Indicator. The LHEES methodology provides a set of default Criteria that local authorities may wish to use, with flexibility to update and augment these to support local needs or for more focused analysis linked to specific actions and project identification within the Delivery Plan.
Data - Alternative	Alternative data can overwrite the Core data to improve accuracy (national to local level of detail, e.g. local housing data to overwrite fields in Home Analytics).
Data - Core	Core data is the data that is essential to complete the minimum requirements of the LHEES analysis. Core data will come from national datasets e.g. Home Analytics or the Scotland Heat Map.
Data - Supplementary	Supplementary data allows inclusion of additional Indicators to inform specific, local based & targets; also, Supplementary data can be used in GIS investigation to complement the Core analysis carried out in any assessment. An example of Supplementary data would be the inclusion of a constraint’s appraisal as part of a district heating analysis.
Data Zone	Data zones are groups output areas which have populations of around 500 to 1,000 residents.
Delivery Area	Delivery areas are at a higher granularity than Strategic Zones. These spatial zones should set out clusters of buildings within a Strategic Zone or across the whole local authority that identify potential solution(s) at a delivery level. They will be an important starting point for identifying a range of projects, regulation and actions that are within the competence of the Scottish Government, local authorities and wider partners (included as actions to be developed in the LHEES Delivery Plan).
Detailed practitioner approach	These Steps form part of the detailed practitioner approach in LHEES Stage 4, Generation of Initial Areas to set out particularly suitable heat network zones and to support project identification.
Electric boiler	A boiler utilising the method of heating water through passage across an element, with emissions correlated to the electricity grid’s emissions factor
Energy Centre	A building where heat is produced.
Energy services company	A company offering energy-related services.

Fuel Poverty	As defined by the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019, situations where a household allocates more than 10% of their post-housing-cost net income towards fuel expenses, and their remaining income falls below 90% of the UK Minimum Income Standard.
Heat network	As defined in the Heat Networks (Scotland) Act 2021, a (district) heat network is “a network by which thermal energy is distributed from one or more sources of production to more than one building” ¹
Heat pump	A heating system that harnesses thermal energy from sources like air, ground, or bodies of water (such as rivers, seas, or sewers). Through a refrigeration cycle, it transforms this energy to provide heat to the end user. The carbon emissions of a heat pump are contingent on the grid emissions factor.
Indicator	For a given Consideration, the purpose of an Indicator is: 1) to act as a key information field to help characterise and baseline the local authority. 2) to act as a key information field to support strategic zoning and generation of initial delivery areas; 3) if suitable, to act as a key information field to measure progress against Targets over the duration of the LHEES - set out in the LHEES Delivery Plan. For some Considerations, one Indicator may be sufficient, but for others a range may be appropriate.
Intermediate Zone	Intermediate zones are a statistical geography that are designed to meet constraints on population thresholds (2,500 - 6,000 household residents), to nest within local authorities, and to be built up from aggregates of data zones.
LHEES Considerations	The LHEES Considerations are a list of technologies, building typologies and policy priorities used to identify and target interventions. They include: - Heat networks - Off-gas grid buildings - On-gas grid buildings - Poor building energy efficiency - Poor building energy efficiency as a driver for fuel poverty - Mixed-tenure, mixed-use and historic buildings
LHEES Delivery Plan	An LHEES Delivery Plan is a document setting out how a local authority proposes to support implementation of its local heat and energy efficiency strategy.
LHEES Guidance	The LHEES Guidance sets out the production and content requirements for a local authority to prepare a Local Heat and Energy Efficiency Strategy and Delivery Plan. Its purpose is to ensure that a Local Heat and Energy Efficiency Strategy and Delivery Plan contain outcomes and actions that are backed up by robust data and analysis, supported by stakeholder engagement, and that are linked to national and local priorities, plans and targets.
LHEES Methodology	The LHEES Methodology is a more detailed, step by step approach, which includes models, tools and templates, and represents best practice in how to produce an LHEES in accordance with the requirements set out in the LHEES Order and Guidance.
LHEES Stages	There are 8 LHEES Stages proposed in the methodology. The purpose of the LHEES Methodology is to enable the local authority to complete LHEES Stages 1 to 6. The completion of these Stages will provide the local authority with the data analysis and evidence base to enable them to complete their LHEES Strategy and Delivery Plan documentation. There are two LHEES reporting templates included alongside this methodology– LHEES Strategy example template and LHEES Delivery Plan example template. The completion of these two templates will satisfy the completion of LHEES Stages 7 and 8. The 8 LHEES Stages proposed in the methodology are: 1 - Policy and strategy review

¹ Heat Networks (Scotland) Act 2021, Scottish Parliament ([link](#))

	<p>2 - Data and tools library</p> <p>3 - Strategic zoning and pathways</p> <p>4 - Generation of initial delivery areas</p> <p>5 - Building-level pathway assessment</p> <p>6 - Finalisation of delivery areas</p> <p>7 - LHEES Strategy</p> <p>8 - LHEES Delivery Plan</p>
LHEES Strategy	<p>An LHEES Strategy is a long-term strategic framework for—</p> <ul style="list-style-type: none"> - the improvement of the energy efficiency of buildings in the local authority’s area, and - the reduction of greenhouse gas emissions resulting from the heating of such buildings
Mixed-tenure, mixed-use and historic buildings	<p>Mixed-tenure and mixed-use buildings could include a mixture of owner occupied, private rented and social housing, and also non-domestic uses, or simply multiple ownership within the same tenure. Historic buildings include the buildings that are within conservation areas or those that are listed buildings. These categories may require established alternative approaches and regulation for the installation of low carbon heat and energy efficiency solutions and where specific advice and support might be available relating to the installation of these solutions.</p>
Net Zero Carbon	<p>A situation where any carbon emissions are offset by an equivalent amount of carbon being removed from the atmosphere, resulting in no net change in carbon levels</p>
Passivhaus	<p>A construction standard where buildings attain elevated levels of energy efficiency and user comfort.</p>
Potential Zones	<p>The analysis carried out for strategic zoning and pathways for the heat networks Consideration is to identify potential zones rather than the otherwise used naming convention of Delivery Areas. The potential zones identified are to be included in the LHEES Strategy and should inform actions around further investigation / progression within the LHEES Delivery Plan. The heat networks Consideration analysis and activity carried out within LHEES is also anticipated to support activity related to formal zone designation as required by the Heat Networks (Scotland) Act 2021.</p>
Raster	<p>A matrix of squares, or grid, used as a method of data analysis in GIS. Each cell in the grid contains a value representing information on the cell’s contents.</p>
Solar photovoltaic	<p>Technology that transforms sunlight into electrical energy.</p>
Strategic Zone	<p>Strategic Zones present a visualisation of the potential pathways to decarbonise the building stock at a local authority level. These could, for example, be split out by intermediate zone or data zone. They are useful to understand the baseline performance, the scale of potential and initial areas of focus, which could be used to inform Delivery Areas and follow on engagement.</p>
Targets	<p>Targets are the measurable aspect of the Consideration and are likely to be taken directly from national and/or local policy documentation, for example net zero by 2045, or EPC C by 2040. Targets are likely to comprise of end-point targets and milestone targets and would sit along a timeline within (and beyond) the LHEES. This timeline would help to prioritise the types of projects undertaken within the LHEES over its duration.</p>
Weighting	<p>For some Considerations, one Target and Indicator may be sufficient, but for others a range of Indicators may be appropriate to contextualise and characterise performance against a Target and/or progress towards a Consideration. If multiple Indicators are used in strategic zoning or the identification of delivery areas, a Weighting can be applied based on the importance of each. The LHEES methodology sets out a core set of default Weightings for instances where multiple Indicators are suggested as a default setting. There is flexibility to update and augment these to support local needs or for more focused analysis linked to specific actions and project identification within the Delivery Plan.</p>

3 Introduction

3.1 Overview of LHEES

3.1.1 What is an LHEES?

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 sets a net zero emissions target for the year 2045 and interim targets for 75% reduction by 2030 and 90% reduction by 2040. Additionally, the Fuel Poverty (Targets, Definitions and Strategy) (Scotland) Act 2019 includes statutory targets for reducing fuel poverty, including for no more than 5% of households to be in fuel poverty and no more than 1% of households will be in extreme fuel poverty by 2040. These targets are closely linked to our buildings since the heat produced by them accounts for approximately 20% of Scotland's emissions and the cost of this heating is a primary driver of fuel poverty.

Local Heat and Energy Efficiency Strategy (LHEES) Order (2022) introduces a statutory requirement for all Scottish local authorities to produce an LHEES and an accompanying Local Heat and Energy Efficiency Delivery Plan (LHEEDP or 'Delivery Plan'). The Delivery Plan details how these ambitions will be delivered over the coming five years through actions, initiatives, and programmes. The LHEES sets out a locally led and area-wide plan for:

- improving the energy efficiency of buildings across the Scottish Borders area to a reasonable standard
- decarbonising the heat supply of all buildings in the Scottish Borders, whether this is through a heat pump, communal heating system or a heat network

Importantly, the LHEES sets the vision for what needs to be done to all buildings in the Scottish Borders area, thus achieving the LHEES vision will need to be a collective effort involving all property owners who will need to retrofit their respective properties. This is a significant challenge as it will require a major effort to ensure the 62,296 properties in the Scottish Borders are energy efficient and use zero direct emission heating before 2045. Based on Scottish Government estimates, this transformation will entail close to £1bn of investment made by property owners to meet these requirements.

In addition to building-level improvements, the LHEES also provides the vision for the relevant local infrastructure improvements required to fulfil the national targets and local priorities.

The Scottish Borders LHEES is primarily driven by Scotland's statutory targets for greenhouse gas emissions reduction to net zero and fuel poverty:

- Net zero emissions by 2045.
- In 2040, as far as reasonably possible, no household in Scotland is in fuel poverty.

Though led by national statutory drivers on net zero and fuel poverty, the LHEES also provides an important opportunity to meet these ambitions in the way that benefits the local population. The development of the LHEES has been led by the Scottish Borders Council with input from stakeholders. This engagement has been key to understanding and incorporating the local cross-cutting policy drivers important to the region's priorities.

This strategy aims to achieve the goals described in this section by:

- setting out how each segment of the building stock needs to change, including reaching net zero direct emissions, and the removal of poor energy efficiency as a driver of fuel poverty.
- identifying strategic heat decarbonisation zones, and setting out the principal measures for reducing buildings emissions within each zone: heat pump, communal heating system, or a heat network
- prioritising initial areas for delivery based on national and local priorities

The LHEES and Delivery Plan are ‘living documents’ which will be updated with information such as new opportunities. An annual update to the documents will be considered if the need for an update reaches the appropriate level of materiality.

3.1.2 LHEES Considerations

The national targets are a useful direction and overarching ambition. However, they are too high-level to understand how to address buildings and infrastructure at the local level.

The LHEES Guidance issued by the Scottish Government recommends that the LHEES should be framed around six “LHEES Considerations” (Figure 4). The LHEES Considerations are more specific and manageable, allowing the council to better grapple with and plan for the priorities. These considerations form the basis for understanding, interpreting, and developing the pathways to decarbonisation. One of the main ways to view this LHEES is as a means to addressing these considerations.

Figure 4: Six LHEES Considerations as defined by the LHEES Guidance

	Consideration	Description
Heat decarbonisation	Off-gas grid buildings	Transitioning from heating oil and LPG in off-gas areas
	On-gas grid buildings	On-gas grid heat decarbonisation
	Heat networks	Decarbonisation with heat networks
Energy efficiency and other outcomes	Poor building energy efficiency	Poor building energy efficiency
	Poor building energy efficiency as a driver for fuel poverty	Poor building energy efficiency as a driver for fuel poverty
	Mixed tenure, mixed-use and historic buildings	Mixed-tenure, mixed-use buildings, listed buildings, and buildings in conservation area

3.1.3 Developing the LHEES

Developing the LHEES is at its core a data-driven process, although it is heavily informed by local knowledge and context, stakeholder engagement and building on existing local and national policies. The council has developed this LHEES in line with the LHEES Guidance issued by the Scottish

Government as well as the LHEES Methodology issued by Zero Waste Scotland. These documents follow an eight-stage process summarised in Figure 5 and described below in Table 1.

Figure 5: The LHEES process involved cycles of data analysis guided by stakeholder input and policy context (existing priorities at national and local levels), ultimately feeding into this LHEES document (Stage 7) and the accompanying Delivery Plan (Stage 8).

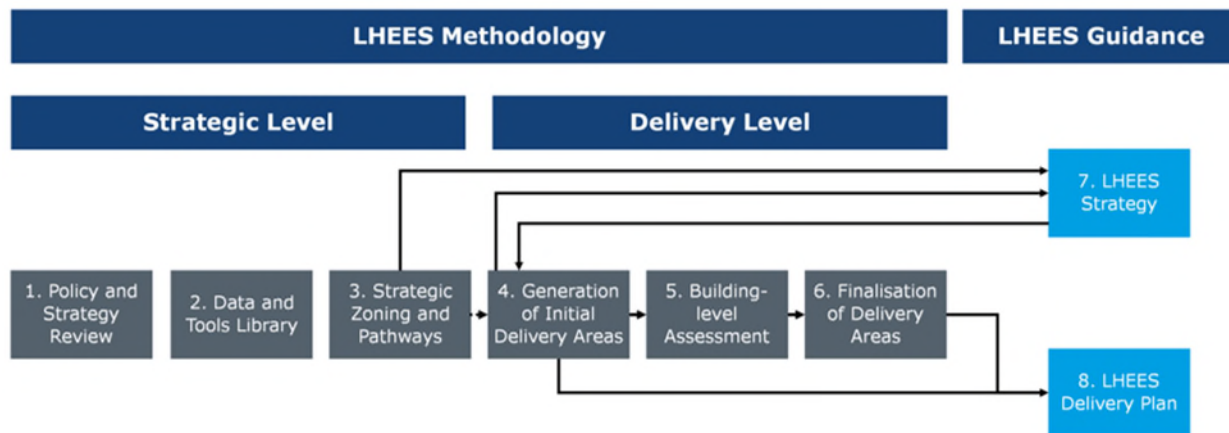


Table 1: This table describes each of the eight stages of LHEES.

Stage	Description
Stage 1: Policy and strategy review	Identifying the local and national policies, targets and strategies that are linked to the LHEES and understanding how these will guide the development of the LHEES. The outputs of this analysis are discussed in section 5.
Stage 2: Data and tools library	Developing a library of all appropriate data and tools that supported analysis in subsequent stages of the LHEES.
Stage 3: Strategic zoning and pathways	First, establishing a baseline for the Scottish Borders region’s existing building stock including: characteristics, energy efficiency levels and heat supply and performance (summary provided in sections 8.2 and 8.3). Second, this data was then analysed through the lens of the LHEES Considerations (as discussed in section 3.1.2) to develop a set of ‘strategic zones’. Strategic zones provide an overview of the key challenges and opportunities across the region. This analysis is summarised in section 9.
Stage 4: Generation of initial delivery areas	The data is used to generate potential delivery areas driven by the LHEES Considerations. These delivery areas define the opportunities in the form of potential projects which can be delivered by stakeholders with support from the council.
Stage 5: Building-level pathways assessment	Further analysis is carried out to assess the interventions required to decarbonise heating and improve energy efficiency in properties in each delivery area, including a quantification of financial costs and carbon reduction benefits. This is based on data analysis which defines interventions required and financial and carbon implications for buildings across the Scottish Borders.
Stage 6: Finalisation of delivery areas	Using the outputs from stages 1-5, the delivery areas are finalised into a set of projects after giving consideration to local priorities and any existing local programmes works.

Stage 7: LHEES Strategy	Based on the findings in stage 1-6, this LHEES Strategy document provides a short and long-term focus of LHEES at the strategic level.
Stage 8: LHEES Delivery Plan	The accompanying Delivery Plan sets out how the council will implement the LHEES through the next 5 years, based on the priorities identified by the LHEES Vision (section 6) and building on existing progress made by the council (section 7).

Given that the LHEES is an area-wide plan for the whole of Scottish Borders, collective working is crucial for it to succeed. In the practical sense, while the council will achieve net zero for its own buildings the LHEES at large will be delivered by wider stakeholders (i.e. building owners and occupiers) with enablement support from the council insofar as possible. Stakeholder engagement is important to the LHEES process as it provides a strong basis for collective action by local communities, the council, investors, developers and wider stakeholders. Engagement allows key stakeholders to raise their concerns, pinpoint areas for targeted intervention, and identify low regret measures or opportunities during the development stages. Collective action will be necessary as the council with its limited resources can only address the select most high-priority buildings and infrastructure developments. To achieve a true area-wide transformation, all residents and organisations need to act collectively as stakeholders to retrofit their properties and, where relevant, invest into infrastructure opportunities.

The Council has engaged with stakeholders to develop the local energy efficiency policies in relation to the new Local Housing Strategy 2023-2028 particularly in relation to Strategic Outcome 3: Improved energy efficiency of homes and a reduction in fuel poverty while supporting a Just Transition to Net Zero through decarbonising domestic heating and energy. The council has continued to build on this engagement throughout the LHEES development process. LHEES stakeholder engagement entailed the following:

- Stakeholder mapping to identify key stakeholders to support the development and implementation of LHEES.
- Initial workshops to determine the scope of LHEES.
- Establishment of a project steering group within SBC to ensure joined up supportive work around the council estates, with a view to using the estate as an exemplar and leader to demonstrate emission reductions.
- Ongoing meetings with Registered Social Landlords (RSL) to understand challenges with the existing building stock and scheduled works relating to energy efficiency and decarbonisation, LHEES milestones and the best way to align existing efforts with the ambition of the LHEES.
- Ongoing meetings with the Distribution Network Operators (DNO) Scottish Power Energy Networks (SPEN) to discuss their key role in supporting the delivery of LHEES. Additionally, engagement with other utility providers in relation to development of heat networks (for example with Scottish Water in relation to plans for the Tweedbank Heat Network).
- Ongoing engagement with wider public bodies such as NHS Borders, Police Scotland, Scottish Fire and Rescue, and local estates about their focus to align plans with the LHEES.
- The council aims to engage with the main housing associations to address the feasibility of the development of heat networks, particularly on the development of small-scale communal heat networks. This will be prioritised for new developments planned from the housing associations.

The main associations identified are Eildon Housing Association, Berwickshire Housing Association, Waverly Housing Association and Scottish Borders Housing Association.

- Interactive workshops with stakeholder groups to explore and discuss initial Strategic Zones, Delivery Areas and recommendations alongside the wider policy, strategy and delivery environment.
- Interactive workshop with stakeholders to gather feedback on the finalised Delivery Areas (incorporating analysis to date), and explore key actions, enablers and challenges to support content for LHEES Strategy and Delivery Plan.
- Developed stakeholder engagement programme as part of the Delivery Plan with a deliberative approach to gathering interests from parties to drive the LHEES.
- This consultative draft LHEES is subject to a public consultation to allow anyone in the Scottish Borders to provide their feedback.
- The council also intends to engage and present at area partnership meetings for further public engagement. The council will look to enter dialogue with community groups to build on previous discussions on energy and renewable opportunities, and to feed into the strategic long-term effort for decarbonising heat in buildings and improving their energy efficiency across an entire local authority area.

3.1.4 LHEES Strategy Content

This strategy is structured to align with the LHEES Guidance that was issued by the Scottish Government. It covers:

- An overview of the key concepts in the LHEES, such as an exploration of fuel poverty, energy efficiency, decarbonisation technology options and other topics (Section 4)
- The national and local policies and strategies which have fed into the LHEES, including a summary of the route map and targets to improve the energy efficiency, decarbonise the heat supply and develop heat networks (Section 5).
- Scottish Borders' vision on heat decarbonisation and energy efficiency in buildings, explaining how the council has used partnerships and stakeholder working to combine national and local priorities into one unified LHEES Vision for the region (Section 6).
- The progress that Scottish Borders has already made towards this LHEES Vision, in addition to what ongoing works in the area may align with the LHEES (Section 7).
- An overview of the current performance of the building stock across the Scottish Borders, highlighting the scale of the challenge and priorities going forward (Section 8).
- The strategic zones and pathways to decarbonise heat and improve the energy efficiency which have been identified through the LHEES development process. The zones and pathways are driven by the LHEES Vision (Section 9).

4 Key Concepts in LHEES

4.1 Fuel Poverty

Fuel poverty is a major national policy driver for LHEES since it is imperative to eradicate fuel poverty if Scotland as a country is to make a just transition to net zero. Fuel poverty is an equally important local priority for the council to work towards a future where people living in the Scottish Borders are free of

financial stress related to warming their homes. In Scotland, a household is defined as being in fuel poverty when^{2, 3}:

- after housing costs, the total fuel costs needed to maintain a satisfactory heating schedule are more than 10% of the household’s adjusted net income; and
- if, after deducting fuel costs, housing costs, benefits received for a care need or disability, and childcare costs, the household’s remaining income is insufficient to maintain an acceptable standard of living.

The Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019, set the above definition along with new statutory targets, including the aim to have no more than 5% of households in fuel poverty and 1% in extreme fuel poverty by 2040⁴. One of the most relevant pressures on fuel poverty is poor building energy efficiency which drives up heating costs and contributes to fuel poverty. As the LHEES concerns the improvement of buildings and development of infrastructure, it is important to consider buildings and areas where poor energy efficiency is a driver for fuel poverty. This has been one of the most important factors in deciding what to prioritise for LHEES.

According to the most recent data, fuel poverty affects around 29% of households in the Scottish Borders, where the rural nature of the area, the type of housing and energy efficiency, type of heating systems and the low wage economy, contributes to higher levels than the Scottish average.

Table 2: Levels of Fuel Poverty and Extreme Fuel Poverty

	Fuel Poverty	Extreme Fuel Poverty
Scottish Borders (Scottish House Condition Survey 2019)	29%	14%
Scottish Borders (Home Analytics)	28%	16%
Scotland Average (Scottish House Condition Survey 2019)	25%	12%

Ongoing pressures on energy prices and cost of living have had a major negative impact, pulling many people into fuel poverty and pushing households already in fuel poverty further into extreme fuel poverty. While updated data is not available, it is understood by the council that the fuel poverty rate is likely much higher than these estimates due to the ongoing cost of living crisis. Recent modelling suggests that the Scottish national fuel poverty rate reached 35% at October 2022, having gained 10 percentage points since the 2019. There is reason to believe that the current fuel poverty rate for the Scottish Borders is yet higher.

4.2 Energy Efficiency

A more energy efficient building is one which uses less energy to provide a given amount of heating or power, in turn reducing carbon dioxide emissions from reduced grid electricity and/or fossil fuel use. The energy efficiency of buildings is usually assessed through Energy Performance Certificates (EPCs). EPCs use an A to G rating scale, where A is the most efficient and G is the least efficient. The certificate also lists

² Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019 ([link](#))

³ Office of national statistics. How fuel poverty is measured in the UK: March 2023 ([link](#))

⁴ Climate Change (Emissions Reduction Targets (Scotland) Act 2019 ([link](#))

⁵ Scottish House Condition Survey 2017-19, Energy Saving Trust - Home Analytics Scotland V3.8

the potential rating of the building if all cost-effective measures are installed; these can include wall, floor and loft/roof insulation and double glazing to reduce the rate of heat loss from the building, and therefore indirectly reduce the amount of energy required to keep the building warm. Efficient (LED) lighting also requires less energy to produce the same amount of light than traditional incandescent bulbs. Efficient heating controls can improve the energy efficiency of a building by either reducing the number of hours the heating is on (for example when the building isn't occupied) or by slightly lowering the target temperature⁶. These measures will be a crucial component for Scotland's building stock to be aligned with the national target of 75% emissions reduction by 2030⁴.

The national targets for improving the energy efficiency of Scotland's domestic stock have been established through the Scottish Government's Heat in Buildings Strategy and being taken forward through the Heat in Buildings Bill:

- All private rented sector properties to reach a minimum standard equivalent to EPC C, where technically feasible and cost effective, at change of tenancy, with a backstop of 2028 for all remaining existing properties.
- All owner-occupied properties to reach a minimum standard equivalent to EPC C, where technically feasible and cost effective, with a backstop of 2033.
- Targets relating to social housing were previously set through the Energy Efficiency Standard for Social Housing (EESH). EESH2 was confirmed in 2019 and set a target for all social housing to achieve EPC B (or is as energy efficient as practically possible) by 2032. In addition, no social housing below EPC band D is to be re-let from December 2025 subject to temporary specified exemptions⁷. The newly proposed Social Housing Net Zero Standard has been proposed as a replacement for EESH2; it will incorporate both a minimum fabric efficiency rating (measured in a maximum annual energy use under a certain threshold; kWh/m²/year) to be achieved by 2033 and the requirement for zero direct emission heating by 2045.
- Through the Heat in Buildings Bill, the Scottish Government has indicated that it will not introduce an energy efficiency standard for non-domestic buildings due to their significant variability and diverse needs, making a single standard too limited.

4.3 Heat Decarbonisation Technologies and Renewables

The Heat in Buildings Bill has proposed various timelines and requirements for buildings to reach net zero. At most, all buildings will be required to have a zero direct emission heating system by 2045. However, certain types of buildings may be required to replace their heating systems before this deadline. These include public sector organisations (who may have to complete the transformation by 2038) or social landlords (who may be required to meet interim targets). There are many types of technologies to decarbonise the heat supply of buildings. The council takes a technology agnostic approach and will encourage and support the use of solutions which best meet the financial and practical needs of property owners. Most heating system transformations will involve the installation of a heat pump or connection to a heat network or communal heating system⁸ since these are currently the most feasible solutions. A heat pump is a device that absorbs heat from one environment and transports it into another using electricity. For example, an air-source heat pump extracts heat from the air outside and transfers it into the building. This heat can then be used to warm water for radiators, underfloor heating systems and hot

⁶ Office for National Statistics. Energy efficiency of housing in England and Wales: 2022 ([link](#))

⁷ The Energy Efficiency Standard for Social Housing (EESH2), Scottish Government ([link](#))

⁸ Heat networks and communal heating systems are discussed in section 4.4

water use. Conversion to heat pumps enables properties to shift from polluting heating systems to those which use electricity and do not produce any direct emissions.

Solar PV panels can provide electricity that a property can use directly, store for future use, or be exported to the grid. Scottish Borders Council has included Solar PV and battery storage technology as a “special project” within existing fuel poverty retrofit programmes (see section 7.3 further details). Effective generation and safe storage of electricity can contribute to an energy efficient property and also address the pressures that lead to cost of heating and fuel poverty.

4.4 Heat Networks and Communal Heating Systems

Heat networks (also known as district heating) supply heat from a central source to consumers, via a network of underground pipes carrying hot water. Heat networks can cover a large area such as an entire city or be fairly local supplying a small street. The central heat source is often referred to as ‘the energy centre’ which can be more efficient and less costly to maintain than the combined individual property-level heat sources. There are many possible technologies that can provide the input to a heat network including heat pumps, energy from waste (EfW) facilities, waste heat sources, and industrial processes. A heat network avoids the need for dedicated heat pumps for individual properties (though in some types of heat networks this can be an optional addition as the heat generated by individual systems can be added to the system and shared). Heat networks can be various sizes and serve various combinations of building types. They can also be extended over time by adding new connections (heat demand) and new energy centres (heat sources) to the network. Where there are sufficiently dense areas, it will be the council’s priority to support the development of heat networks as the preferred decarbonisation solution.

A communal heating system is a system whereby a shared heat source supplies a group of properties. These systems are smaller than a full-scale heat network as they service a limited number of properties, such as properties in a block of flats, or a cluster of buildings joined together or proximate to each other (e.g. retirement villages, commercial zones, terraced housing and similar). Communal heating provides similar benefits over individual heat pumps as a heat network does (such as lower cost heating due to higher efficiency of the system and reduced maintenance cost) although not to the same degree due to its smaller economies of scale. Furthermore, these systems also provide the benefit of being able to decarbonise properties at scale.

Home Analytics data indicates that 912 properties have their primary heating as ‘Communal Heating.’ Typically, these are small and localised systems serving one building of separate flats, or properties in the direct vicinity, such as a farm and adjacent farm cottages. These are mostly retirement villages/flats or social housing blocks/flats/terraces.

The council has placed importance on the role of communal heating systems in LHEES as they offer a viable ‘middle-ground’ for properties in the Scottish Borders which aren’t in a potential heat network zone but have sufficient heat density for a communal heating opportunity. These systems may provide the opportunity to decarbonise properties efficiently at scale, especially when the local authority area is faced with a supply chain challenge. There aren’t sufficient skilled workers to serve the area’s decarbonisation needs and those which are present are costlier due to long travel distances involved. A smaller number of large projects are economical more economical for customers, both for installation and operating costs, and more attractive to suppliers as a business opportunity. It is the council’s view that these projects could unlock major potential to decarbonise properties and help control the cost of heating.

The Heat Networks (Scotland) Act 2021⁹ has set statutory targets to ensure that the combined supply of thermal energy by heat networks in Scotland reaches 2.6TWh in 2027 and 6TWh by 2030 (3% and 8% of total demand, or approximately 120,000 and 400,000 additional homes respectively). The council will play its role in supporting these targets and, while doing so, bring benefits to the people of the Borders.

4.5 Resources and support

There are a range of existing initiatives that can support private building owners with improving energy efficiency and decarbonising heat. There are several organisations and groups which support the implementation of energy efficiency and decarbonisation projects:

- Borders Home Energy Forum
- South of Scotland Enterprise (SOSE)
- The South of Scotland Regional Economic Partnership (REP)
- Edinburgh and South East Scotland City Region Deal

Additional detail on how the council will leverage these support systems to implement the LHEES is provided in the Delivery Plan.

Support for energy efficiency and decarbonisation can also come in the form of multiple funding streams that can enable property owners to pay for the upfront costs of installation. The Scottish Government funds various initiatives to support various types of property owners and occupiers. The council will seek to leverage this funding and support to maximise the potential benefit for people in the Scottish Borders. The Delivery Plan provides details for how this will be achieved. The key funding and support initiatives are:

- **Area-based Schemes (ABS)**¹⁰: funded by the Scottish Government and delivered by local authorities, ABS are place-based energy efficiency schemes targeted mainly at improving fabric efficiency of homes in areas with high levels of fuel poverty. ABS enables local authorities to develop and deliver energy efficiency programmes by identifying the localities, properties and types of measures which could be implemented and targeting funding toward these. This funding can supplement owners' contributions or social landlords who can choose to insulate their homes at the same time, making it an efficient process as well as an enabler for retrofitting mixed-tenure properties. Some properties which meet certain eligibility criteria can be retrofitted using funding from UK Government's Energy Company Obligation (ECO) scheme. Therefore, ECO funding is also usually considered as part of ABS programmes. The council delivers the ABS scheme across the local area in close partnership with social landlords.
- **Home Energy Scotland**¹¹: this advice and funding service provides owner-occupiers and private landlords and tenants with support to improve the energy efficiency of their properties. It includes grant and loan support as well as advice services to help owners with the process of installing energy efficiency measures, zero direct emission heating and renewable energy.

⁹ Heat Networks (Scotland) Act 2021 ([link](#))

¹⁰ Area-based Schemes ([link](#))

¹¹ Home Energy Scotland ([link](#))

- **Warmer Homes Scotland**¹²: this programme offers funding and support to households struggling to stay warm and manage energy bills by carrying out property assessments and installing a range of energy saving improvements which can include insulation, heating and renewable measures. Eligibility for this programme includes private homeowners and tenants of a private-sector landlord.
- **Business Energy Scotland**¹³: this programme offers advice and funding for small and medium enterprises through advice on saving energy, money and creating a more sustainable business. Businesses can choose from various options including lighting assessments, solar PV assessments and energy efficiency assessments which includes renewable heat technologies, insulation and window glazing. This programme has identified over £200 million in savings to date for businesses.
- **Community and Renewable Energy Scheme (CARES)**¹⁴: this programme is managed by Local Energy Scotland and supports communities in the energy transition to net zero emissions. CARES supports community organisations and charities on a wide range of renewable projects including installing renewable technologies in community buildings, assigning consultants to carry out feasibility studies and supporting potential opportunities for energy generation.

5 Policy Context

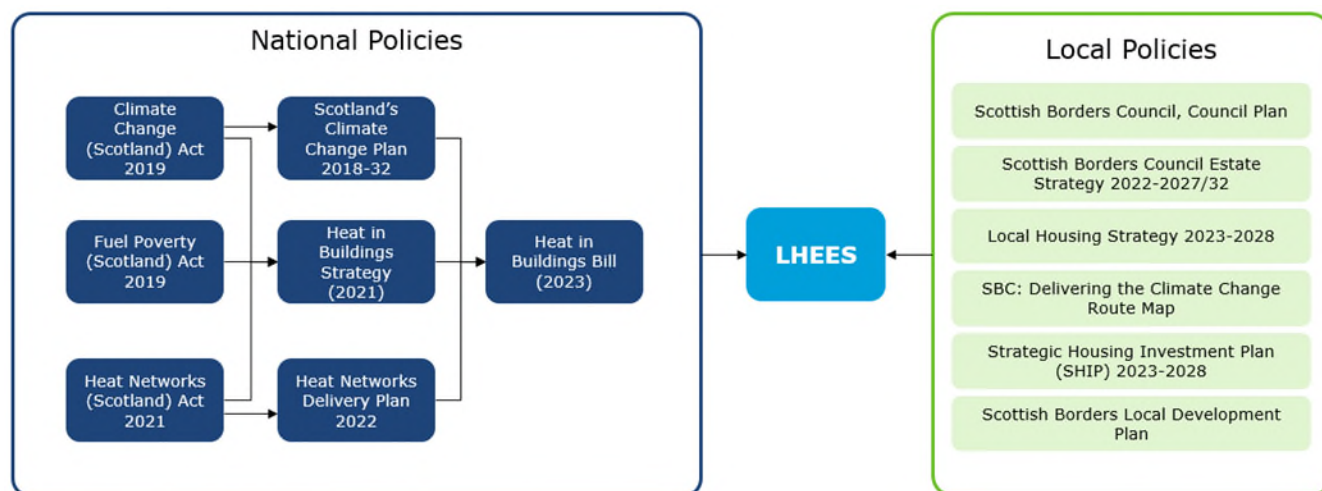
This LHEES is driven by considerations given to Scotland’s statutory targets for greenhouse gas emissions reduction (net zero by 2045) and fuel poverty (no more than 5% of households in Scotland in fuel poverty by 2040) alongside various other national and local policies and strategies. Figure 6 shows how these policies intersect and link into the LHEES.

¹² Warmer Homes Scotland, Scottish Government ([link](#))

¹³ Business Energy Scotland ([link](#))

¹⁴ Community and Renewable Energy Scheme (CARES) ([link](#))


Figure 6: Relevant National and Local Policy for the Scottish Borders LHEES

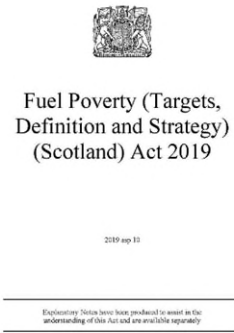






5.1 National Policies



Linking the LHEES to national policies is important to ensure national alignment to Scottish Government and other local authorities. It is also necessary to ensure the funding, policy, regulatory and other opportunities are not missed by the LHEES. The primary national policies central to the development of the LHEES are detailed in Table 3, along with their aims and how they are relevant and have been linked to the LHEES.

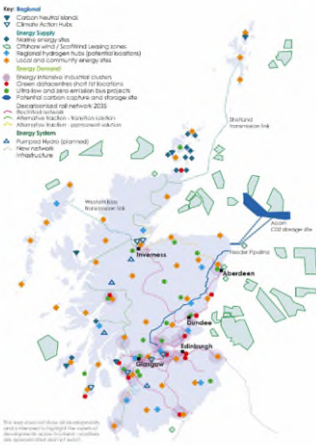

Table 3: Relevant National policies for the Scottish Borders LHEES

National policies	Aims	Links to Scottish Borders LHEES
<p>Climate Change (Emissions Reduction Targets) (Scotland) Act 2019</p> 	<p>This sets emission reduction targets for Scotland, including interim targets to ensure sufficient progress:</p> <ul style="list-style-type: none"> - 75% reduction by 2030 - 90% reduction by 2040 - Net zero emissions by 2045 	<p>The LHEES will align with these targets and support the national effort by reducing emissions from buildings in the Scottish Borders. This will be achieved through energy efficiency upgrades and heat decarbonisation.</p>

<p>Fuel Poverty (Targets, Definitions and Strategy) (Scotland) Act 2019</p>  <p>Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019</p> <p>2019 asp 13</p> <p><small>Explanatory Notes have been produced to assist in the understanding of this Act and are available separately</small></p>	<p>This includes statutory targets for reducing fuel poverty and introduces a new definition of fuel poverty to better align with relative income. Targets include that by the end of 2040:</p> <ul style="list-style-type: none"> - No more that 5% of households will be in fuel poverty. - No more than 1% of households will be in extreme fuel poverty. - The median fuel poverty gap of households in fuel poverty is no more than £250 in 2015 prices before adding inflation. 	<p>These targets also apply to individual local authorities. Thus, it is a target for Scottish Borders to achieve the above. This LHEES will contribute to the statutory target by eliminating poor energy performance as a driver for fuel poverty, thus helping to reduce fuel poverty.</p>
<p>Heat Networks (Scotland) Act 2021</p>  <p>Heat Networks (Scotland) Act 2021</p> <p>2021 asp 9</p> <p><small>Explanatory Notes have been produced to assist in the understanding of this Act and are available separately</small></p>	<p>This sets out a regulatory framework to support the development of heat networks. It sets targets of 3% of national heat demand to be supplied by heat networks by 2027 and 8% by 2030.</p>	<p>The LHEES will align with this act by maximising the potential for heat networks as well as communal heating systems, ensuring that heat supply within the Scottish Borders will be as efficient, cost effective and future-proof as possible. This will contribute directly to national targets but also benefit residents and businesses.</p>
<p>Heat in Buildings Strategy (2021)</p>  <p>Heat in Buildings Strategy Achieving Net Zero Emissions in Scotland's Buildings</p> <p>Scottish Government www.scotland.gov.uk</p>	<p>This sets out steps to end emissions from Scotland's buildings and the remove poor energy performance as a driver for fuel poverty. Building on the above three Acts, the focus is on reducing energy demand for space and water heating in homes, workplaces and community buildings using a fabric first approach, followed by conversion to zero direct emission heating. This strategy provides the route map detailing what Scotland's buildings need</p>	<p>LHEES and the Heat in Buildings Strategy are inextricably linked as they are both centred around reducing emissions from buildings and tackling poor energy performance as a driver for fuel poverty. Much of the work for this LHEES is based on the approaches outlined by this strategy.</p>

	<p>to do to help achieve the above targets.</p>	
<p>Heat in Buildings Bill Consultation (2023)</p> 	<p>This Bill is currently being consulted on and includes a comprehensive set of proposals for regulations which will drive forward the goals of the Heat in Buildings Strategy and aspects of the above acts in relation to buildings. It proposes a ban on polluting heating systems by 2045 to support the climate change targets, as well as efficiency targets for homes under all tenures.</p>	<p>This Bill will be instrumental in paving the way for heat decarbonisation. It could lead to regulatory means and support which the council could use to accelerate decarbonisation. The council looks forward to the changes that the subsequent Act will introduce. These will be built into the LHEES once the Act has been passed and further Scottish Government guidance released.</p>
<p>Social Housing Net Zero Standard Consultation (2023)</p> 	<p>After a thorough review of previous standards (i.e. EESSH2), the Scottish Government is currently consulting on a new standard which proposes various options for improving the energy efficiency of and decarbonising social housing. This includes a proposed minimum fabric efficiency standard which defines the energy consumption limit in kWh/m²/year. In addition, proposals also include a ban on polluting heating systems by 2045 with the possibility of interim targets.</p>	<p>With 23% of dwellings within the Scottish Borders belonging to housing associations this will be a key contributor to through the LHEES. Implementing this standard will ensure that more vulnerable residents who live in housing associations will be at reduced risk of fuel poverty.</p>

<p>Securing a Green Recovery on a Path to Net Zero: Update to the Climate Change Plan 2018-32</p> 	<p>The Climate Change Plan for Scotland sets the Scottish Government’s approach to delivering a green recovery, and a pathway to achieve the climate change targets. This includes a focus on low carbon heating for buildings centred around three key areas:</p> <ul style="list-style-type: none"> - Regulatory change - Delivering significant investment - Supporting supply chain growth 	<p>The LHEES is a major step that will contribute to all three key areas relevant in the Climate Change Plan. It will approach the challenge by using the emission reduction priority as a means to also future-proofing homes and workplaces in the Scottish Borders.</p>
<p>Housing to 2040 (2021)</p> 	<p>This strategy sets a vision for housing in Scotland to 2040 and a route map of how housing will become net zero by 2045. The main goal is for everyone to have a safe, good quality and affordable home that meets their needs in the place they want to be. In terms of sustainability priorities this plan sets zero emission targets for new and existing homes and recognises housing as an opportunity to contribute to the green recovery. The target is to have 100,000 affordable homes by 2032, between new builds and refurbishing existing homes, and for all new homes to be of high quality and with zero emission heating.</p>	<p>This strategy is of aligns closely with LHEES priorities, helping to drive the fuel poverty and net zero housing agenda. It has served as an important compass to guide the direction of the Scottish Borders LHEES given almost 90% of properties in the Scottish Borders are domestic.</p>

<p>Draft Energy Strategy and Just Transition Plan (2023)</p>  <p>The map displays various energy infrastructure and transition plans across the Scottish Borders. A key identifies categories such as 'Energy Assets' (including wind, solar, and hydro), 'Energy Systems' (including heat networks and district heating), and 'Energy Services' (including energy efficiency and smart meters). The map shows the geographical distribution of these assets and systems across the region.</p>	<p>This draft plan consists of a route map to deliver net zero energy systems that will supply affordable, resilient, and clean energy to Scotland’s workers, households, communities and businesses. The priorities in this plan include the decarbonisation of homes alongside a focus on access to affordable, clean energy within a net zero system and can be established in the domestic and non-domestic sector.</p>	<p>The council aims to grow the influence and scope of the LHEES in the future and the area of renewable energy and heat generation and storage will be prioritised for future addition. As part of a just transition, the council aims to drive the potential economic, employment, skills and net zero benefits that renewable energy infrastructure development could bring to the region. This will not only be beneficial but instrumental in the success of LHEES targets.</p>
<p>Heat Networks Delivery Plan (2022)</p>  <p>The infographic illustrates the Heat Networks Delivery Plan, showing a cycle of energy production, distribution, and consumption. It features icons for wind turbines, solar panels, buildings, and heat networks, all connected by a circular flow. The plan is titled 'Heat Networks Delivery Plan' and includes the Scottish Government logo.</p>	<p>This sets out how the Heat Networks (Scotland) Act 2021 will be implemented to maximise the potential for heat networks. It sets out the details of the regulatory regime as well as future work on the wider policy framework, including building assessment reports, heat network zoning, licencing and permitting and more.</p>	<p>The council is committed to maximising the role for communal heating systems and heat networks as key enablers in decarbonising buildings at scale as well as making renewable heat available at an affordable cost.</p>


5.2 Local Policies




Local policies for buildings and energy have been developed in line with national policies. Thus, the main objectives of the national policies discussed in section 5.1 are already reflected across multiple existing local policies. This LHEES will go yet further to incorporate these national priorities in a more direct way and holistically in one place.





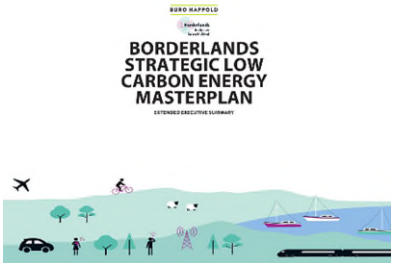
However, the LHEES also provides an avenue for unique locally driven and championed priorities to be bridged with national policies to pave a way for national targets to be delivered while maximising benefits for the people of the Scottish Borders. Various policies, detailed in Table 4, cover themes of promoting affordable warmth, prioritising the well-being of residents, and having a tangible route to achieving net zero which is beneficial for the environment, economy, and people within Scottish Borders. Any works arising from the LHEES will consider and align with these existing policies. These policies all align with various LHEES considerations (as discussed in section 3.1.2) and will work in conjunction with the LHEES to create a strong foundation for implementing projects supporting cross-cutting policy objectives.

Table 4: Relevant local strategies for Scottish Borders LHEES

Local Policy and Strategy	Aims relevant for LHEES
<p>Scottish Borders Council, Council Plan 2023</p> 	<p>This Council Plan is based on six outcomes, five of which are focused on improving the wellbeing of citizens and making the Scottish Borders region a more sustainable and better place to live, work in and visit. The 2033 vision for Scottish Borders includes increasing the number of residents living and working in energy efficient homes and premises, powered by green energy sources. This also links to the local priority of accelerating action to adapt to and mitigate the effects of climate change and extreme weather.</p>
<p>Affordable Warmth and Home Energy Efficiency Strategy (AWHEES) 2019-2023</p> 	<p>This multi-agency strategy was designed to support the provision of warm, energy efficient homes for everyone in the Scottish Borders. The three main priorities of the AWHEES were:</p> <ul style="list-style-type: none"> - To collectively work with partners to improve affordable warmth and energy efficiency in homes; - To explore wider measures to better manage and increase warmth in the home; - To ensure the AWHEES provides opportunities for all in the Scottish Borders. <p>Achievements from this strategy are already becoming apparent with the setup of the Scottish Borders Home Energy Forum (further discussed in section 7.5) which has acted as a catalyst for building collective support for ongoing strategies such as implementation of EESSH 1 and 2, and upcoming funding opportunities are discussed proactively. The LHEES a successor to the AWHEES as it will build on this work in combination with other priorities (e.g. non-domestic buildings and heat networks) as a holistic approach.</p>
<p>Local Housing Strategy (LHS) 2023-2028</p> 	<p>The LHS sets out a vision for the supply, quality and availability of housing in the Scottish Borders. The vision of the LHS is “Everyone in the Scottish Borders has access to a home that meets their needs and is part of a sustainable community.” The LHS has five strategic outcomes to meet this vision, of which strategic outcome three dovetails with LHEES priorities: “improved energy efficiency of homes and a reduction in fuel poverty while supporting a Just Transition to Net Zero through decarbonising domestic heating and energy.” It covers the following components:</p> <ul style="list-style-type: none"> • Work with partners to improve energy efficiency across all tenures.

	<ul style="list-style-type: none"> • Develop the Local Heat and Energy Efficiency Strategy for the Scottish Borders. • Implement a public engagement strategy for heat in buildings. • Work with partners to develop the skills needed to deliver energy efficiency & zero emissions heating systems. • Explore wider measures to better manage energy and increase warmth in the home. • Adapt and retrofit existing homes to improve their energy efficiency. <p>Strategic outcome three has been incorporated within the objectives of this LHEES. The other four strategic outcomes from the LHS have also been an important part of developing this LHEES:</p> <ul style="list-style-type: none"> • Strategic Outcome 1: More homes in well designed, sustainable communities that increase opportunity for all and support our economy to thrive • Strategic Outcome 2: People have access to homes which promote independence, health and wellbeing • Strategic Outcome 4: Communities are regenerated through improving the quality and condition of housing and the built heritage • Strategic Outcome 5: Homelessness is prevented wherever possible, and a range of housing options are provided so people can secure a suitable and sustainable housing outcome as quickly as possible
<p>Strategic Housing Investment Plan (SHIP) 2024-2029</p> 	<p>This is the key document for targeting investment in affordable housing within the Scottish Borders. The SHIP defines how affordable housing investment priorities set out in the LHS will be delivered in practice over the period 2023-2028.</p>

<p>Scottish Borders Council Local Development Plan (2023)</p> 	<p>This plan outlines how the Scottish Borders will further use its land to fulfil development needs of the community. This includes all uses, such as social, economic and housing needs. The plan promotes the net zero 2045 target, and places emphasis on place making and design. It recognises the importance of the LHEES and the targeting support toward fuel poor households. It also highlights the council’s support for heat networks, referring to National Planning Framework (NPF4) Policy 19: Heating and Cooling to facilitate heat networks in new developments.</p>
<p>Anti-Poverty Strategy (2021)</p> 	<p>This strategy highlights activity that the council will aim to deliver to help reduce poverty in the Scottish Borders. It includes a key relevant outcome which is for all residents to have the ability to live in warm, affordable homes.</p>
<p>Climate Change Strategy (2018-2028)</p> 	<p>The Climate Change Strategy contains the route map for how the Scottish Borders will reach net zero by 2045 for both the council as an organisation and partners across the region. It contains 25 milestones across five themes, one of which is Energy and has a focus on reducing domestic emissions with an overarching target for annual reductions.</p>

<p>Scottish Borders Council Estate Strategy 2022-2027/32</p>  	<p>The estate Strategy for Scottish Borders Council for the next 5-10 years (2022-2027/32) sets objectives across 5 themes including having a best value estate and sustainability, making the estate fit-for-the-future financially, socially and economically. Some actions include: using and maintaining assets that have a long-term viable future, embedding sustainability into estate decisions and to operate a resilient and viable estate. This sets the foundation for building a net zero programme to take the council’s estate to net zero emissions, which will demonstrate leadership and encouraging other stakeholders to also take similar actions as part of a collective effort to deliver this LHEES.</p>
<p>Scottish Borders Community Plan (2018)</p>  	<p>This plan looks to highlight what The Borders-wide inequalities are and how the Community Planning Partnership (CPP) together with local communities and businesses can address existing inequalities and improve outcomes. The main outcome placed against the theme of ‘Our Place’ is for Borders residents to be able to afford to heat their homes and to have more residents living independently in affordable and sustainable homes. The council is in the process of updating the community plan, which will align with this LHEES.</p>
<p>Borderlands Strategic Low Carbon Masterplan (2021)</p> 	<p>The Borderlands Inclusive Growth Deal provides up to £452 million in funding to support a range of activities, including those targeting the low carbon energy transition. The priorities of this strategy include aiming toward a net zero carbon region with a whole systems approach, alongside a focus on stakeholder engagement to motivate and include all groups in discussion and the transition. The LHEES will utilise this as a potential funding opportunity for heat and energy decarbonisation projects.</p>

Edinburgh and Southeast Scotland Regional Prosperity Framework, the City Deal Region, Edinburgh and South East Scotland (2021)



This framework focuses on the long-term aspirational goals for Edinburgh and the surrounding South East to guide the future direction of regional economic and wider policy across stakeholders. Multiple themes within this framework link to LHEES priorities, such as delivering net zero carbon homes, retrofitting existing homes, ensuring homes are future-proofed and energy efficiency as part of a transition to a net zero economy. This provides an opportunity to link funding and outcome delivery across these policies.

Regional Economic Strategy (2021-2031)



This strategy sets a vision between 2021-2031 for how the South of Scotland regional Economic Partnership will support the region’s economy, focusing on the vision of ‘Green, Fair and Flourishing.’ One priority includes creating a green and sustainable economy with actions such as a just transition to net zero alongside improving the efficiency of Homes and Buildings. This provides opportunities for, both, the Scottish Borders as well as joint opportunities with other local authorities.

Roadmap to Decarbonisation: Retrofit of Social Housing Stock in the South of Scotland (2022)



This document explores the potential of social landlords to lead in delivering a just transition in Scotland. Priorities include building on existing collaborative work across social housing and exploring the creation of a collaborative body to facilitate the delivery of retrofit projects within the region.

Newstead Conservation Area Appraisal & Management Plan (2023)

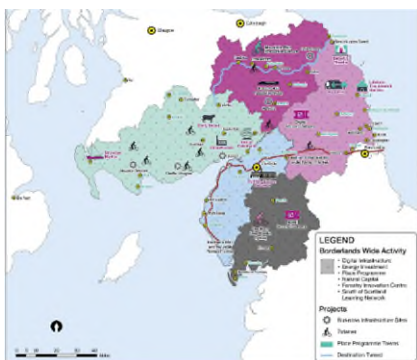


DRAFT Newstead Conservation Area Appraisal & Management Plan 2023



The Conservation Area Appraisal sets out Newstead’s context and historic development, before identifying the elements of its character (such as layout, views, landscape, trees, buildings, structures and spaces) that make it significant. The Management Plan provides guidance on how change can happen in Newstead in a way that preserves and enhances its significant character. This includes guidance to support measures to address climate change. The management plan takes into consideration EV charging points, energy efficiency and renewable energy including heat pumps and solar PVs.

Borderlands Place Programme (2022)



As part of the Borderlands Place Programme there is a focus on town centres and an ambition that all towns and their centres are economically vibrant and resilient to change. The key objectives are to:

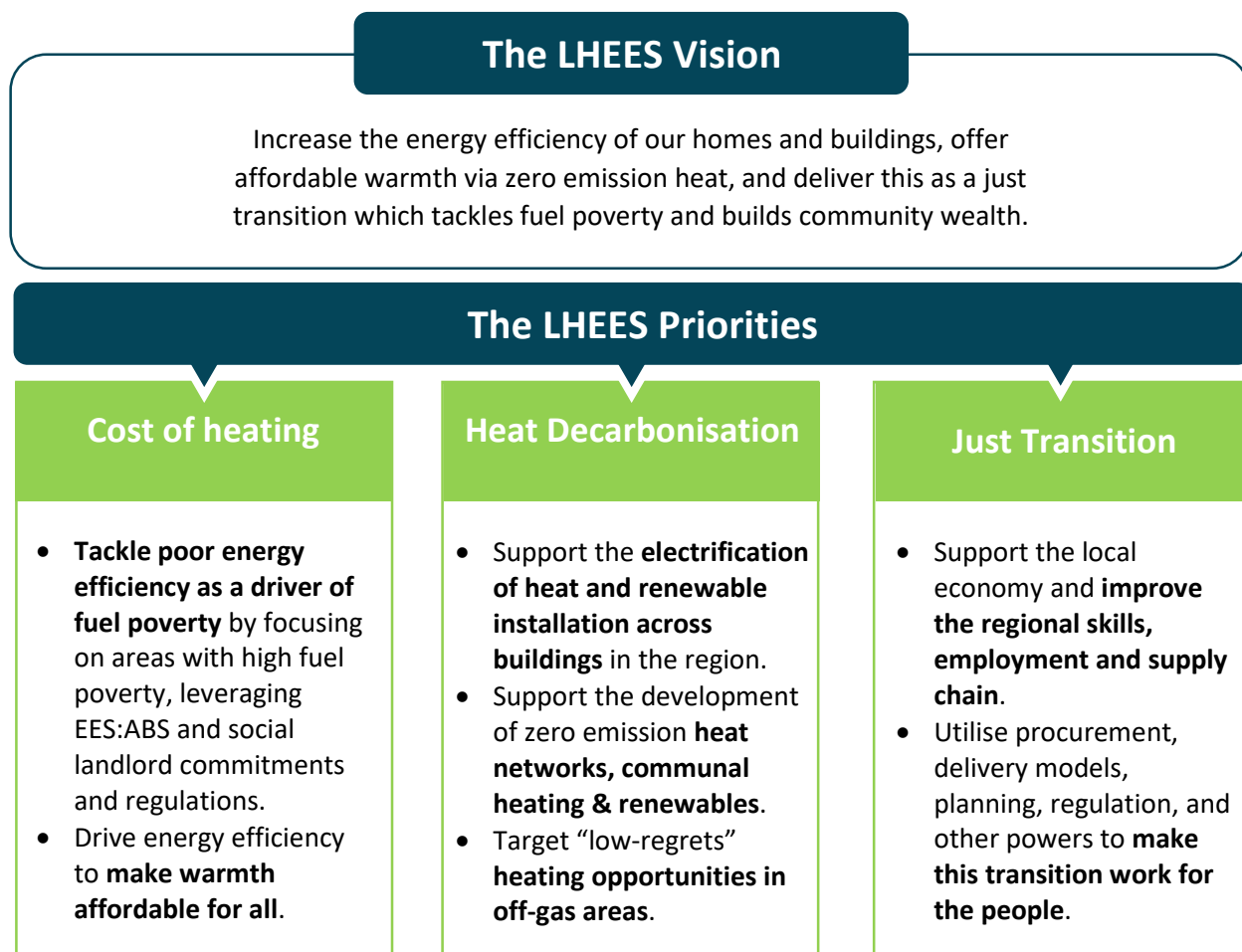
- Attract new businesses to our towns and town centres.
- Increase and retain our working age population.
- Raise the standard of the physical environment in our towns and town centres.
- Increase the number of people living in our towns and town centres.
- Deliver new jobs and opportunities for economic and social participation.
- Increase the number of visitors who spend time and money in our towns and town centres.

Towns across the Borders have held workshops and meetings to develop local place plans.

6 The Scottish Borders LHEES Vision

LHEES represents an opportunity for the Scottish Borders to align areas of regional and national focus. The is committed to creating a region that is fair for everyone and where all have an equal and positive chance to succeed. Our aim is to provide affordable warmth and healthy homes and buildings in the Scottish Borders whilst contributing to carbon reduction and the transition to renewable heating and energy. Therefore, the council combined the relevant aspects of the above national and local policies to develop an LHEES Vision (Figure 7) which addresses fuel poverty, decarbonisation, and building energy efficiency while contributing to the development of a strong and sustainable local economy, boosting skills and delivering a just transition so the benefits of developing a green economy are shared widely.

Figure 7: The Scottish Borders LHEES Vision



The LHEES Vision brings together the relevant outcomes and objects across policies into three priorities tied together by an overall vision statement:

- The negative impacts of the **cost of heating** impacts all residents and organisations in the Scottish Borders. At it’s worst, it can push individuals, households and communities into fuel poverty and extreme fuel poverty, causing distress, discomfort, ill-health and debt. Living in a cold home can be damaging to physical and mental health and older people, children and those with disabilities are often at the most risk. The priority for this LHEES is to work collectively with stakeholders, especially social landlords, to improve affordable warmth and energy efficiency in all our homes and buildings. Addressing poor energy efficiency as a driver for fuel poverty is the most important element of this priority.
- The council is committed to making the Scottish Borders a net zero emissions area. The council has declared a climate emergency and developed policies which reinforce this commitment. Several key actions to **decarbonise heat** from our buildings been identified as part of declaring a climate emergency, including:
 - the electrification of heat

- moving away from reliance on fossil fuels and towards renewable energy generation and heat infrastructure (heat networks and communal heating systems)
- promoting measures to help reduce energy use and encourage positive behaviours in how people use energy.
- developing an approach to decarbonise the council’s own building stock in line with national targets (currently under consultation as part of the Heat in Buildings Bill), providing local leadership by example.
- Another priority of this LHEES is to enable coordination across policy areas to use the delivery of retrofit and decarbonisation projects to go beyond just delivering climate and fuel poverty goals, but to also bolster supply chain development, green skills development and economic development of the region as part of a **just transition**. Success of the LHEES will also be determined by delivering on these economic strategic outcomes and by actions that can build our communities’ wealth. This includes providing multiple benefits that reach out to homeowners, businesses, and the wider supply chain. With such momentum and commitment at a national level, the LHEES will need to leverage the energy transition to deliver for people at the local level. The LHEES will build upon the council’s partnerships across the region to deliver the LHEES in a way which realises these goals. This will include collaboration with public bodies and local enterprises to channel opportunities appropriately. It will also involve delivering heat network and energy generation projects in a way which prioritises the benefits for local communities.

7 Scottish Borders Progress

A significant amount of activity relevant to the LHEES Vision has been undertaken to date across the Scottish Borders, including programmes to improve the energy efficiency of buildings, reduce fuel poverty, decarbonise buildings and develop heat networks. These are summarised in Table 5 and detailed in following sections. The LHEES will build on these successes first and foremost, using the knowledge and experience gained through these as a launchpad for further activity. A Principle LHEES Officer has been recruited as a dedicated LHEES coordinator to lead the development and delivery of LHEES.

Table 5: A summary of the activities, progress and achievements in relation to the LHEES Vision.

Year	Activities
2017/18	<ul style="list-style-type: none"> ● SBC awarded £1.05m ABS grant funding from Scottish Government. Over 700 private households supported with installing energy efficiency measures on their properties via ABS. ● Changeworks in Peebles opened, offering the local community face to face advice and support via a hub on Peebles High Street. ● Borders Home Energy Forum established.
2018/19	<ul style="list-style-type: none"> ● Affordable Warmth and Home Energy Efficiency developed with significant engagement. ● SBC allocated £1.29m grant funding from Scottish Government for ABS. ● Over 2,000 referrals for support via Home Energy Scotland on energy efficiency and fuel poverty. ● Changeworks in Peebles continues to operate and has been expanded to cover the whole Tweeddale locality. ● Scottish Borders Council has almost 6,000 approved registered landlords and over 8,700 rental properties approved.

2019/20	<ul style="list-style-type: none"> • SBC allocated £1.34m ABS grant funding from Scottish Government. ABS Air Source Heat Pump installation scheme was developed to support properties in off-gas areas. • 724 referrals for support via Home Energy Scotland energy efficiency and fuel poverty. • Pilot of Missing Shares Scheme initiated in Hawick Conservation Area. This scheme enables essential common repairs to be undertaken to private properties within the town's conservation area where property owners with shared responsibility are unwilling or unable to contribute to their share of the costs. • Landlord Forum held in Galashiels with around 100 landlords/agents attending. • Training course in Tenancy Agreements & Notices for private landlords and letting agents within the Scottish Borders held in Hawick in November 2019.
2020/21	<ul style="list-style-type: none"> • Scottish Borders Council allocated 1.7m ABS grant funding from Scottish Government. • 5,501 advice interactions with Home Energy Scotland • Successful joint bid by 4 Scottish Borders RSL's to secure £450k from the Scottish Government's Fuel Poverty Fund. • Online training courses held in conjunction with Landlord Accreditation Scotland (LAS) • Over 300 households supported with energy savings of £300,000. • The council developed the Climate Change Route Map in June 2021, showing a pathway to climate change resilience and to net zero emissions for the Scottish Borders, over a 25-year time horizon
2021/2022	<ul style="list-style-type: none"> • The launch of Scottish Borders Home Energy Forum a catalyst for building collective support for ongoing Strategies including ABS and Energy Efficiency Standard for Social Housing (EESH) 1 & 2. • Increase in EPC ratings across all tenures and wards. • Insulation levels (cavity wall, solid wall, and loft) have all increased. • Increase in EESH compliance within Social Housing Sector. • Establishment of Construction Forum to support local supply chain and build on outputs of Home Energy Forum. • Two years extension to the Warm & Well programme offering support advice and income maximisation to Borders households, particularly those in Fuel Poverty. • Increased spend and allocation on ABS and development and introduction of renewable technologies.

7.1 LHEES pilot

Scottish Borders Council participated in the LHEES pilot for Peebles in 2018/19, allowing officers to gain an early understanding of the process involved in developing an LHEES, which has been an essential skill in the development of this region wide LHEES.

7.2 Affordable Warmth and Energy Efficiency Strategy (AWHEES)

The Affordable Warmth and Home Energy Efficiency Strategy (AWHEES)¹⁵ is a multi-agency Strategy designed to support the provision of warm, energy efficient homes for everyone in the Scottish Borders. The Strategy involves key partners within the council, as well as a wide array of stakeholders spanning the full breadth of the energy efficiency and fuel poverty agenda. Covering the period 2019-23, it contains a Vision, Priorities and an Implementation Plan. It was progressed in parallel with the Local Housing Strategy (LHS) and was a core part of the LHS 2017-2022. The AWHEES has generated significant activity and stakeholder engagement, all of which will be used to build the momentum for this LHEES.

¹⁵ Affordable Warmth and Home Energy Efficiency Strategy, Scottish Borders Council (link)

7.3 Energy Efficiency Scotland: Area Based Scheme

The Scottish Government provides funding for home energy efficiency improvements via the Energy Efficient Scotland: Area Based Scheme (ABS)¹⁶. The funding enables local authorities to invest in external and internal wall insulation, cavity wall insulation, loft insulation, and underfloor insulation. As well as offering insulation and fabric first measures, the scheme also aims to deliver renewable technology, such as air source heat pumps, solar PV and battery storage systems.

7.4 Fuel poverty

There has been a considerable amount of ongoing works by the council and partners to mitigate the impacts of the cost-of-living crisis with a dedicated webpage offering access to a wide-ranging information and advice (financial support and advice¹⁷, help with rising energy costs¹⁸ and help with access to food). The council has been working with community and voluntary groups to create a network of Warm Spaces throughout the region, resulting in the Warm Spaces Initiative where community centres, libraries and clubs offer a warm and welcoming space, free to anyone struggling to heat their home.

7.5 Borders Home Energy Forum

The Borders Home Energy Forum was established in March 2018 to ensure that a strategic, multiagency approach is taken to help reduce fuel poverty, improve energy efficiency, and improve health and well-being in the Scottish Borders. The Forum comprises of organisations representing housing providers, statutory bodies, advisory groups, bodies associated with energy, affordable warmth, health and income maximisation, and representative officers of the council. The forum has helped progress core priorities, including:

- Increase in EPC ratings across all tenures and wards.
- Increased insulation levels (cavity wall, solid wall, and loft).
- Increase in EESSH compliance within the social housing sector.
- Establishment of the Construction Forum to support the local supply chain and build on outputs of Home Energy Forum
- Two years' extension to the Warm & Well programme offering support advice and income maximisation to Scottish Borders households, particularly those in fuel poverty.
- Increased spend and allocation on ABS.
- Development and introduction of renewable technologies into ABS.

7.6 Green Homes Pilot

The council supported the Green Home Pilot project led by the Eildon Housing Association (EHA) and Built Environment – Smarter Transformation (BEST), to undertake studies on new building techniques to optimise energy efficiency. Four of the Eildon Housing Association's affordable housing projects were selected for inclusion in the Green Homes Pilot, comparing the cost, design strategies and post-construction building energy performance.

This has seen plans for new energy efficient properties built to the Passivhaus standard by EHA at St Boswells, utilising heat recovery heating systems. EHA are progressing Passivhaus standard aspirations whilst considering best value and there are four development locations which will see up to 50 new green

¹⁶ Energy Efficient Scotland Area Based Schemes (EES:ABS), Scottish Government ([link](#))

¹⁷ Scottish Borders Council, Financial support and advice ([link](#))

¹⁸ Scottish Borders Council, Help with rising energy costs ([link](#))

homes built using different building methods. This pilot will provide valuable real time insight and enable comparison of project journeys, construction costs, time to build and the experience of tenants living in the homes.

The St Boswells project was completed in March 2020 and was the first Passivhaus development in the Scottish Borders. The insights and learnings from the pilot projects will provide a better understanding of best practice approaches to future green housing in the region.

7.7 Improvement in EPC ratings

Since the previous Local Housing Strategy (LHS) (2017-2023) there have been consistent improvements made in average EPC ratings, shown in the table below. The improvements are in line with EPC improvements required by the Energy Efficiency Standards for Social Housing regulations - EESSH 1 & 2. These improvements have been driven by ABS and Warmer Homes Scotland schemes providing funds to support homeowners in implementing energy efficiency measures.

The private rented sector has seen the lowest increase in EPC ratings. ABS is available to some private landlords in addition to Energy Saving Trust loans. Delayed Minimum Energy Efficiency Standards may have slowed improvements, although the ongoing consultation on the Heat in Buildings Bill is proposing new ambitious standards for improving the energy efficiency of private homes.

Table 6: Average EPC ratings within the Scottish Borders area

Averages - EPC C or higher ¹⁹	2018	2023	Increase
Owner Occupied	24%	30%	+6%
Social Housing	42%	72%	+30%
Private Rented	19%	22%	+3%

7.8 Warm and Well Borders project

The council secured two years of funding worth £551,000 from the National Grid’s Warm Homes Fund to deliver the “Warm and Well Borders” project. The scheme was able to support 771 households and resulted in savings of £1.2 million for households across the region. This project has been extended for another 24 months in a revised delivery model, delivered by the regional Citizens Advice office in the Borders with support from the council via the Cost of Living Fund. In this revised format, the project has supported 628 clients, putting £2,394,960 of client financial gains and realised benefits back into the Scottish Borders, and offering energy advice and advocacy as well as referring households onto appropriate agencies such as Home Energy Scotland, Warm Homes Scotland and Changeworks. The project has also discharged £10,000 of discretionary funds for urgent cases.

7.9 Supply chain

To effectively deliver LHEES, a sustained development of the national and local supply chains is required. The council has a provision to support the growth of skills and trainings in the manufacturing sector and is already working with Borders College and South of Scotland Enterprise and other local stakeholders to explore how this activity can be supported. Additionally, the council is engaging with the Borders Construction Forum to share opportunities and insight.

¹⁹ Home Analytics v3.8 (February 2023)

8 Local Area Profile and Baseline

8.1 Demographics

The Scottish Borders is a medium-sized council area in terms of population though with a much larger than average geographical area when compared to other Scottish local authorities, giving it a unique set of challenges. As of 2021, the population of the Scottish Borders was 116,020 and increasing, though with population loss in certain towns and villages, especially in the younger age range (16–24-year-olds). The number of births within the area has been steadily declining since 2001 therefore the trajectory seems to be that in the future there will be a high proportion of older people who are financially and physically dependent on an unequal number of working aged people. The council's population forecast is that population will increase but with a larger proportion of pensioners, number of children stabilising, and the working age cohort population dropping. Therefore, the population of vulnerable people living in the area will increase, potentially resulting in resource issues in the future.

The current population is spread across 4723 sq. km, making the SBC the fourth most sparsely populated area in Scotland. Of the total population, 48% are living in rural areas, 27% in a small town and the remaining population is in various urban areas (there are no 'large urban areas' within the Scottish Borders). These statistics vary significantly from the Scottish average, meaning the Scottish Borders will have varying risks to mitigate and considerations around the implementation of their LHEES including supply chain constraints, a vulnerable older population, loss of young talent, a diverse range of stakeholders spread across a large area, grid-related challenges, and barriers to achieving economies of scale and cost-effective solutions. The 2020 SIMD shows that 6% (9 of 143) data zones in the Scottish Borders are within the 20% most deprived of all of Scotland. A further 17% (24 of 143) of the data zones in the Scottish Borders are amongst the 21–40% most deprived in Scotland. Poverty-stricken areas will be prioritised to ensure the council is targeting its resources for vulnerable residents.

8.2 Domestic housing stock baseline

There are 62,296 properties within the Scottish Borders. Of these, 61,369 (88.4%) are domestic properties, 5% of which are listed buildings and 16% are located within conservation areas. The majority of domestic properties (74%) were built before 1984, close to the national average of 70%. Of all domestic properties, 57% are either detached, semi-detached or mid terrace houses, and 32% are flats, lower than the national average of 40%.

Since domestic properties constitute a significant proportion of Scottish Borders building stock, they have been established as a priority for the LHEES. This has also been carefully considered in the council's new Local Housing Strategy 2023-2028. The LHS vision was developed jointly with stakeholders and is: "Everyone in the Scottish Borders has access to a home that meets their needs and is part of a sustainable community". In order to deliver this vision successfully and contribute to the LHEES, the strategic outcome three (of five) was defined as: improved energy efficiency of homes and a reduction in fuel poverty while supporting a Just Transition to Net Zero through decarbonising domestic heating and energy. Many of the identified actions in the LHS Action plan in relation to Strategic Outcome 3 have been supported and considered in the LHEES and Delivery Plan.

Houses and flats both have their opportunities and challenges to retrofit and decarbonise. Houses may require larger investments and might present a challenge in terms of generating demand at scale when compared with flats. However, compared to flats they do not require engagement with individual

owners/tenants for approval from multiple decision-makers. This is because it is a simpler challenge to engage and agree with individual owners to plan for interventions, compared to facilitating agreement of retrofit from majority flat owners. Of 61,369 domestic properties 7,500 are in buildings with mixed tenures and 928 are of unknown tenure type.

The domestic stock within Scottish Borders mostly precedes 1983 construction; 74% of the properties are from 1984 or prior, with 35% being built in the mid decades of the 20th century and 30% from before 1919. This presents a challenge in terms of energy efficiency since old homes tend to be less energy efficient. The majority (60%) of the domestic stock have EPCs between D and G, highlighting a large potential area of improvement. Two-thirds of domestic properties have walls that are not sufficiently insulated, and many of these may be difficult or impossible to insulate. Although a large proportion (86%) of buildings already have at least double glazing.

Over 21% of the domestic properties within the Scottish Borders are listed buildings or within conservation areas, requiring special planning and considerations. It will be important to consider the possible energy efficiency measures, practically achievable efficiency and costs in relation to the benefits when planning and delivering projects concerning these properties.

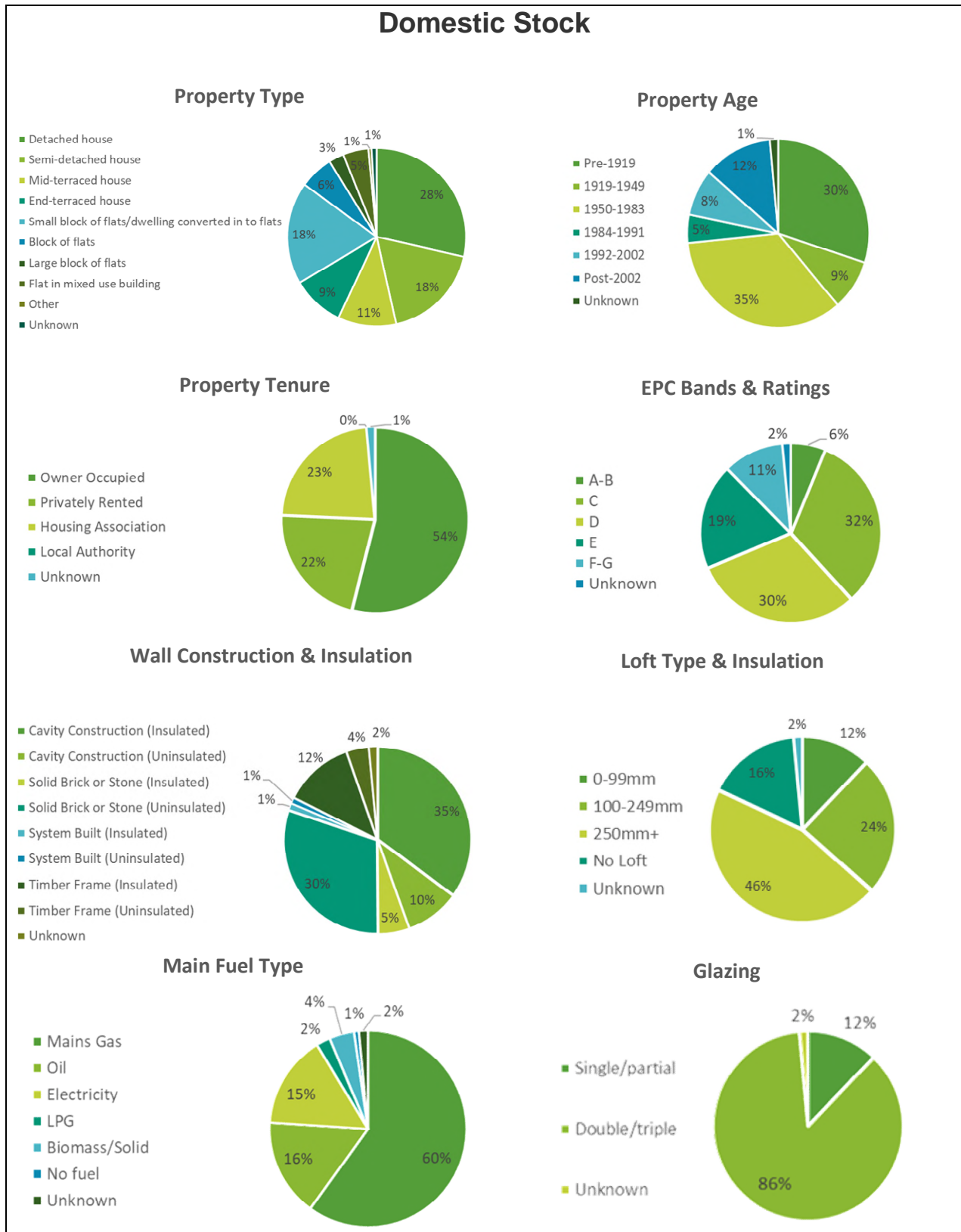
As discussed in section 4.1, according to the most recent 2019 data 29% of households in the Scottish Borders are fuel poor, and this number is likely much higher due to the ongoing cost of living crisis. Poor building energy efficiency is a major factor in driving fuel poverty. It causes or exacerbates fuel poverty through a number of factors in the Scottish Borders:

- 11% of dwellings in Scottish Borders have an F or G EPC rating, 19% have an E rating and 30% have a D rating. Altogether this 60% of the domestic stock has a lower than reasonable level of energy efficiency.
- 33% of dwellings in Scottish Borders were built before 1945.
- 35% of Scottish Borders dwellings are off the gas grid²⁰ meaning they must use other means of more expensive heating, largely oil and direct electric heating.
- The Scottish Borders has a lower wage economy.
- 48% of the population in the Scottish Borders live in rural areas.

A visual summary of all the key statistics relating to the domestic building stock is provided in Figure 8.

²⁰ Energy Saving Trust - Home Analytics Scotland V3.8

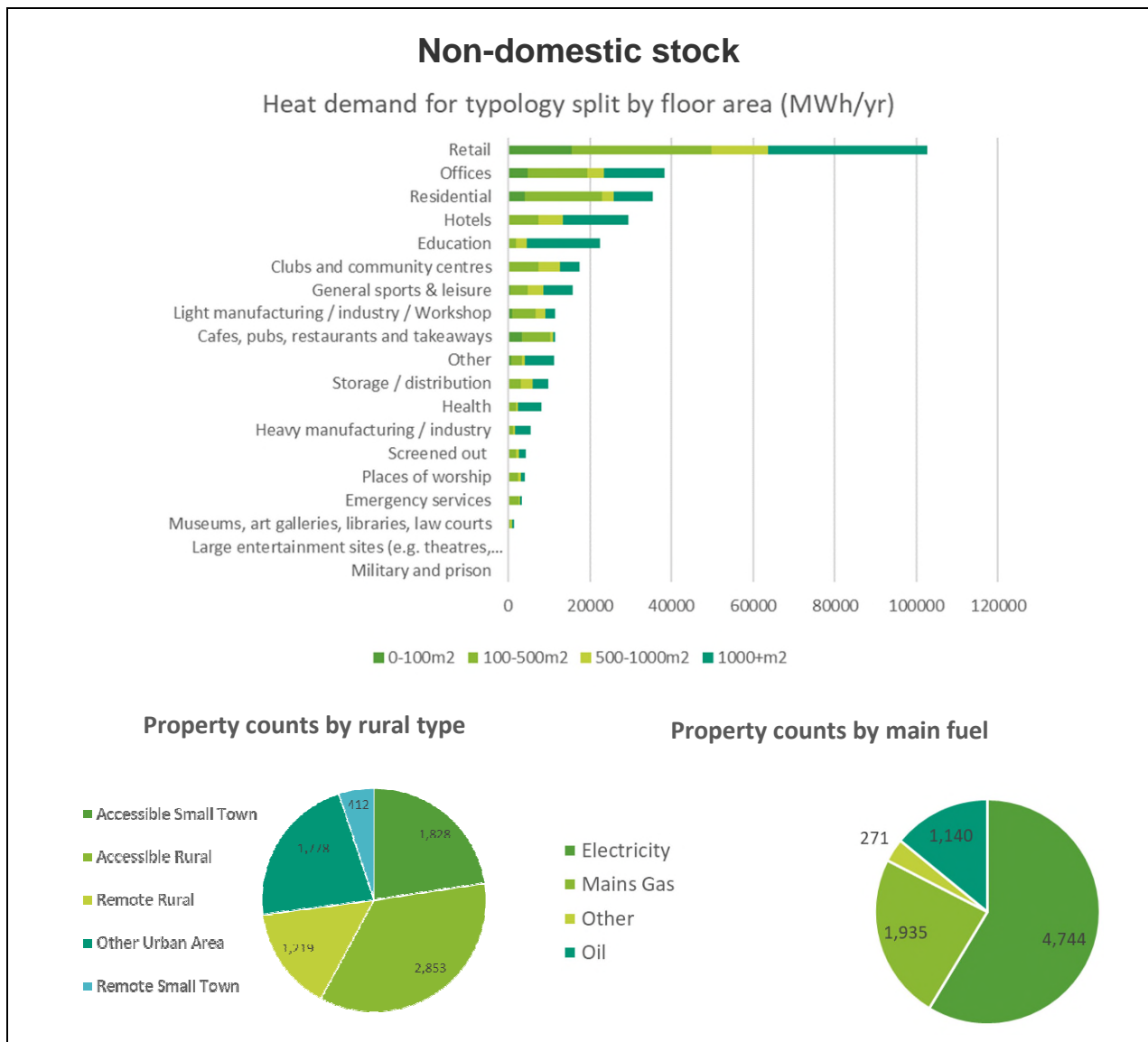
Figure 8: Baseline summary of the domestic stock



8.3 Non-domestic stock baseline

There are 8,090 non-domestic buildings within the Scottish Borders. Of these, 3,500 are retail, 1,250 are offices, and the remaining are split between various types of buildings such as the cafes/restaurants, education, industry, storage/distribution and clubs and community centres. The majority of non-domestic buildings (66%) were built pre-1949, 9% were built between the years of 1949-1983, and 25% were built post 1983. This means the majority are older and less efficient properties unlikely to be the most cost-effective option for the organisations using them. Almost 80% of the non-domestic buildings are located either in an urban area or a well-connected accessible area which presents an opportunity for planning and delivering retrofit interventions at scale. Currently, 59% of the non-domestic buildings are already using electricity as the main source of energy meaning they are already connected to the grid as a route of decarbonisation. There is limited performance data for non-domestic buildings due to the very low percentage of EPCs. Figure 9 provides an overview of the non-domestic stock.

Figure 9: Baseline summary of the non-domestic stock



9 Strategic Zones and Pathways

One of the key steps in developing the LHEES was mapping the data from the preceding two sections to develop and understanding of how the council will target and prioritise. In essence, this was done to understand what approach needs to be taken in each area and where the priority areas are. This mapping was done through the lens of the LHEES Considerations (as discussed in section 3.1.2) to develop a set of 'strategic zones'. Strategic zones provide an overview of the key challenges and opportunities across the region. The subsequent sections present results of this zoning in relation to two priorities²¹ of the LHEES Vision:

- Cost of Heating (section 9.1)
- Heat Decarbonisation
 - Building Level (section 9.2)
 - Heat Networks & Communal Heating (section 9.3)

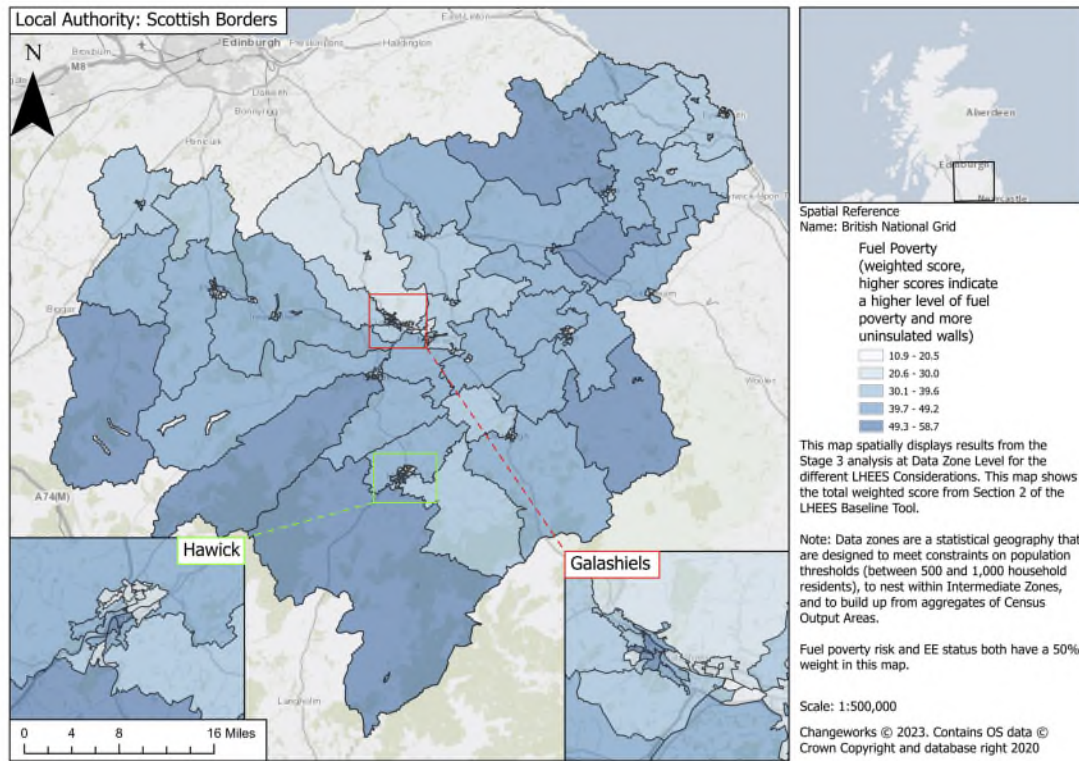
These strategic zones provide the understanding and basis for developing delivery areas and building-level pathways, which define what needs to be done to each property in these areas to bring it to a good level of energy efficiency and zero emission heating. The zones help prioritise where the council should focus its efforts and how it should approach each area. The delivery areas they helped generate are detailed in the Delivery Plan.

9.1 Cost of Heating

As part of the cost of heating priority, tackling, and eliminating poor energy efficiency as a driver of fuel poverty is a paramount objective of the council. As such, data was analysed to understand areas with the greatest number of properties which are low energy efficiency and have a high indication of fuel poverty to find those struggling most with their heating bills. Figure 10 provides the geographic summary of these areas. As part of this LHEES, these will be a focus for the ABS programme, local and national fuel poverty schemes, and other initiatives.

²¹ The third priority of Just Transition is not a building or heat decarbonisation action but rather the way in which these projects should be carried out. Thus, it is not something which could be mapped as a Strategic Zone. This priority is instead discussed in the Delivery Plan.

Figure 10: Areas with high indication of fuel poverty and more uninsulated walls



9.2 Heat Decarbonisation: Building Level

This section discusses the properties with heat pump installation as the appropriate decarbonisation route. The LHEES Methodology provides a way to organise the heat decarbonisation pathways of each property based on the level of intervention:

- Category 1: these are largely 'heat-pump ready' properties. They typically have a good level of energy efficiency and either ready for a heat pump or could be made so with a relatively non-disruptive measure (e.g. loft insulation). They have wall insulation, are not listed or in a conservation area and do not have a communal main heating system.
- Category 2: these properties do not have a good level of energy efficiency and their standard needs to improve before a heat pump is installed. For example, they need cavity wall insulation. They may have a communal main heating system and cavity construction walls without risk of them being uninsulated narrow cavity walls.

The data was analysed to map these properties based on whether they were on-gas grid or off-gas grid to provide further granular information about their existing fuel type. This selection of strategic zones was made with a view to installing the following measures where possible:

- Wall insulation
- Loft insulation
- Single glazing
- Solar PV suitability

The following figures display the density of category 1 and category 2 buildings which are, both, on gas and off gas. These areas will help guide the development of delivery area projects.

Figure 11: Map showing density of On Gas Grid Category 1 dwellings within the Scottish Borders

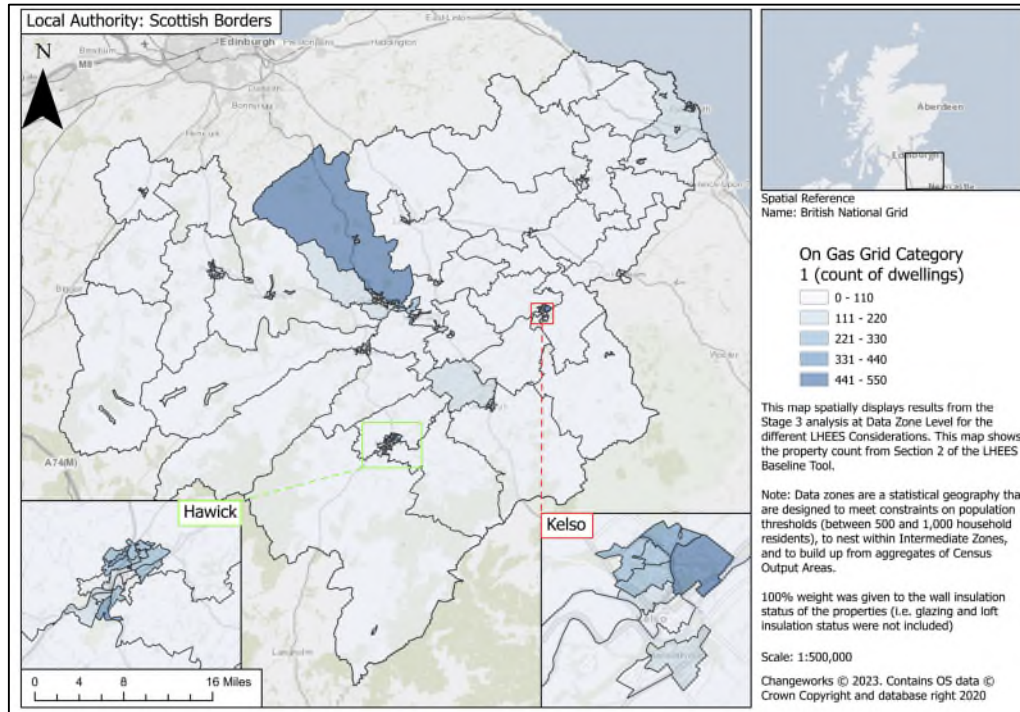


Figure 12: Map showing density of On Gas Grid Category 2 dwellings within the Scottish Borders

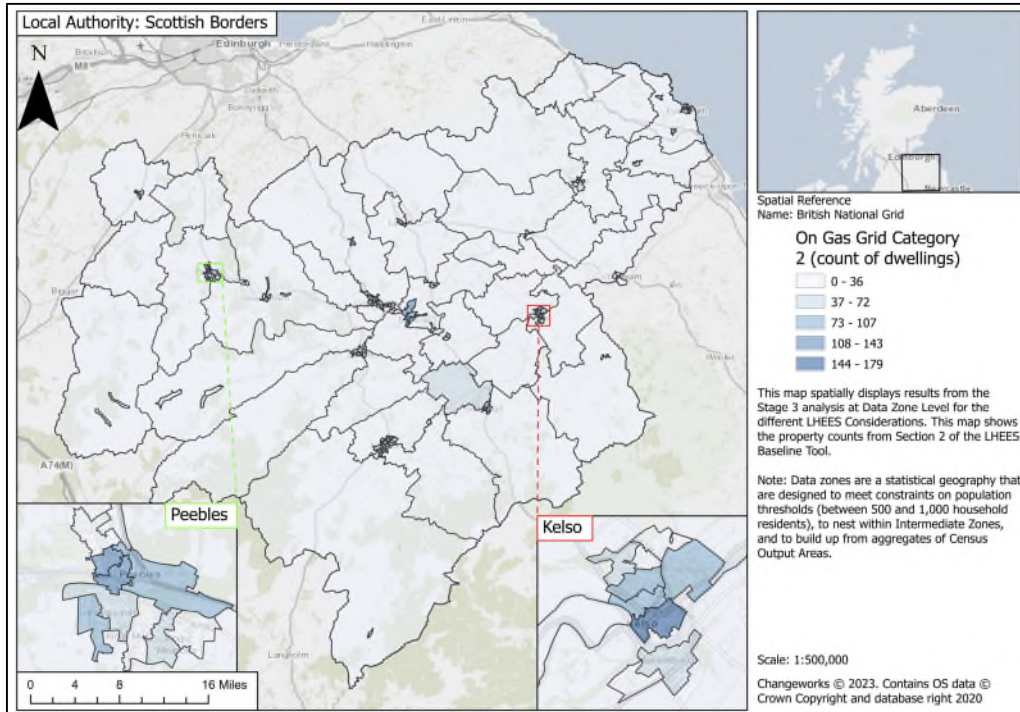


Figure 13: Map showing density of Off Gas Grid Category 1 dwellings within the Scottish Borders

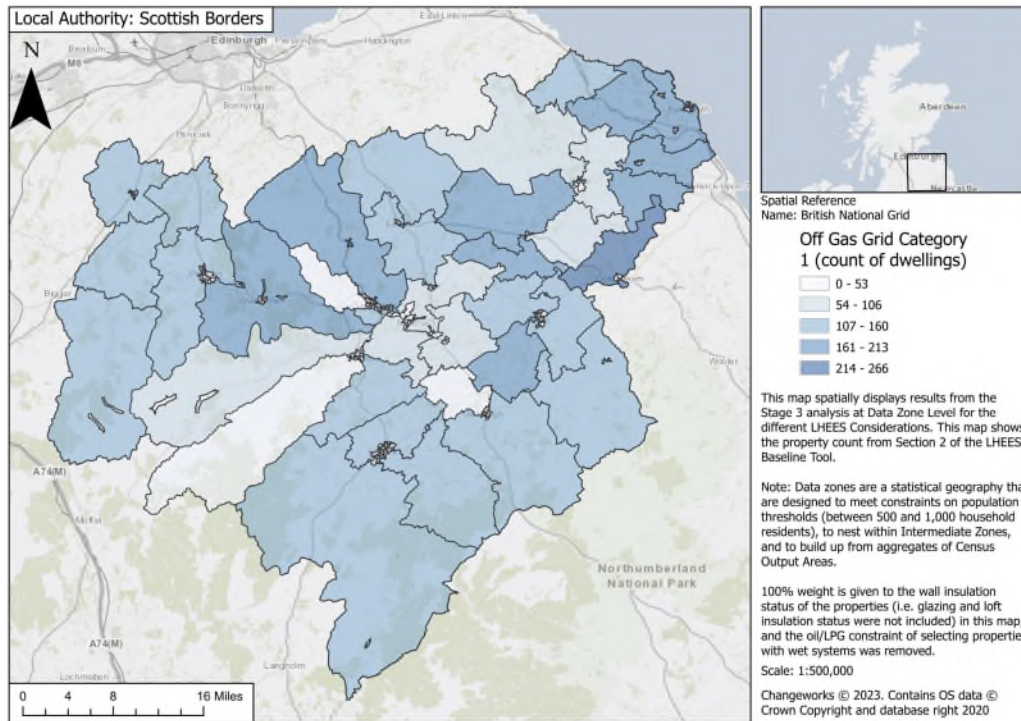
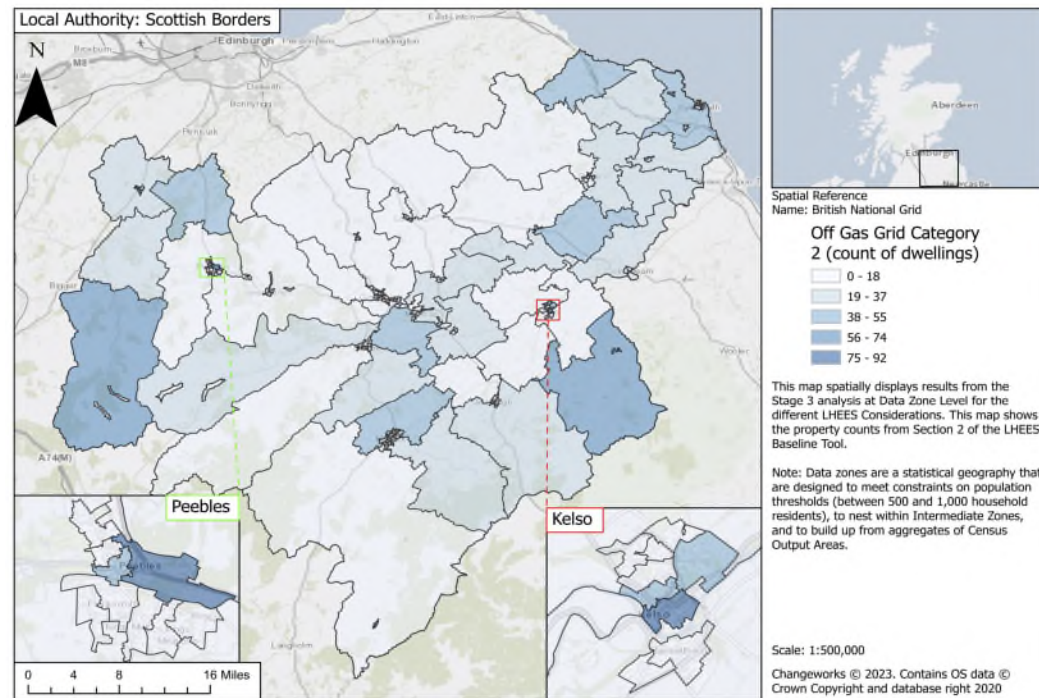


Figure 14: Map showing the density of Off Gas Grid Category 2 dwellings within the Scottish Borders



9.3 Heat Decarbonisation: Heat Networks & Communal Heating

All Scottish local authorities are required through the Heat Networks (Scotland) Act 2021 to identify potential areas or opportunity zones for Heat Networks to help meet the national targets. Heat Networks are more efficient and viable in energy dense areas with high numbers of properties in close proximity that can be served by the network. Larger energy users (anchor loads) can also be critical to help balance and sustain the network. The council is already assessing heat network opportunities at Tweedbank (a new development) and Croft Street, Galashiels (existing buildings with potential for sufficient heat demand).

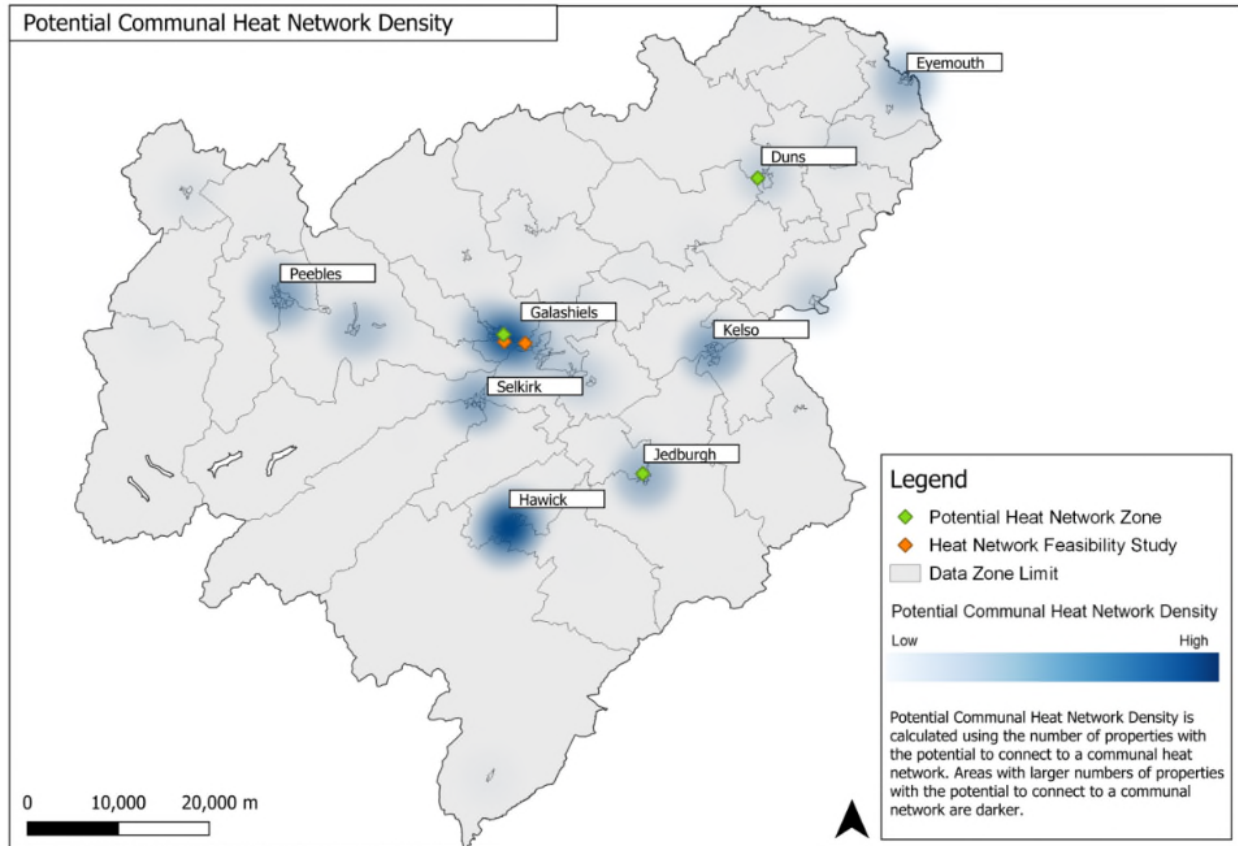
Through this LHEES, the council has carried out an initial investigation, and generated three further potential options for heat network developments. These clusters are around the populations of Jedburgh, Duns and Galashiels. The analysis was based on potential for heat network where there is a significant heat demand from public buildings. This approach to the analysis means that only a limited number of heat network opportunities (centred around public building heat demand) have been identified, but these opportunities are based on heat demand with public sector control and thus could be a major enabler in progressing the development. Through ongoing work on this LHEES, the council will continue to explore the large number of other sites (outside of major public building heat demand spheres), either through data analysis, local knowledge of the area or working with stakeholders. Where potential for a heat network is identified, steps will be taken to assess feasibility and progress its development if appropriate.

According to the First National Assessment Report on Heat Network Potential²², areas with the highest potential in Scotland are large and mid-size urban areas, while properties located in small rural settlements or remote locations account for less than ten percent of the potential properties which could be connected to a heat network (see Appendix 1). These types of properties, however, account for over two-thirds of the domestic properties within Scottish Borders. There are local limits on large-scale and interconnected heat networks due to the rurality, sparse population and limited suitably dense areas. As such, it is likely that the only viable large-scale heat networks in the Scottish Borders will be in the larger towns and new build developments.

To ensure the council takes a balanced approach to providing low-cost heating to residents across the Scottish Borders, this LHEES investigated the potential for communal heating systems. Communal heating is a priority for the council to ensure rural areas of the Scottish Borders benefit from lower cost heat where there is the potential and that the council is able to support heat decarbonisation at a greater scale than individual heat pump installations. Where communal systems present a feasibility to be more cost effective for property occupiers, they may also be a larger, more attractive business opportunity for installers, ultimately also reducing the cost of installation. The Home Analytics data indicates that 912 properties in the Scottish Borders already have communal heating as their primary heating. The council conducted further analysis matching energy and heat use with building types to identify potential communal heating opportunities across the Scottish Borders. This analysis was fruitful and resulted in multiple hotspots across the region, including in rural and urban areas. The council will take these forward as important decarbonisation options, preferable over individual heat pumps where they are economically and practically more advantageous.

²² Potential heat network zones: first national assessment, Scottish Government, 2022 ([link](#))

Figure 15: Map of Scottish Borders highlighting existing feasibilities on heat networks (orange diamonds) the areas identified for potential heat networks (green diamonds), and potential for communal heating systems (blue heat map).



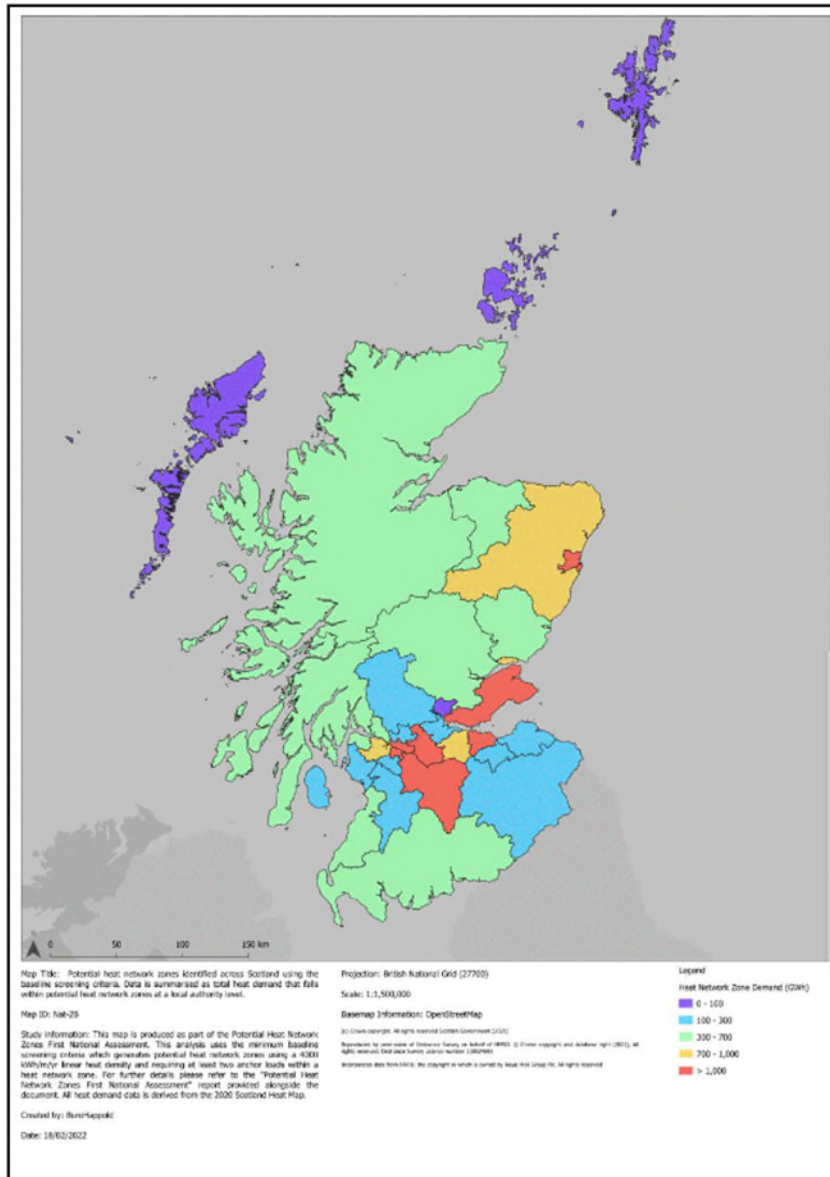
10 Appendix 1

The First National Assessment

Results from the first National Assessment for potential heat network zones carried out by Zero Waste Scotland (Figure 16) show the potential heat network zone demand across Scotland, estimated using the baseline criteria. Baseline criteria assessment means that for an area to be considered a heat network it has the following characteristics:

- A linear heat density of 4,000 kWh/m/yr and
- The presence of at least two anchor loads

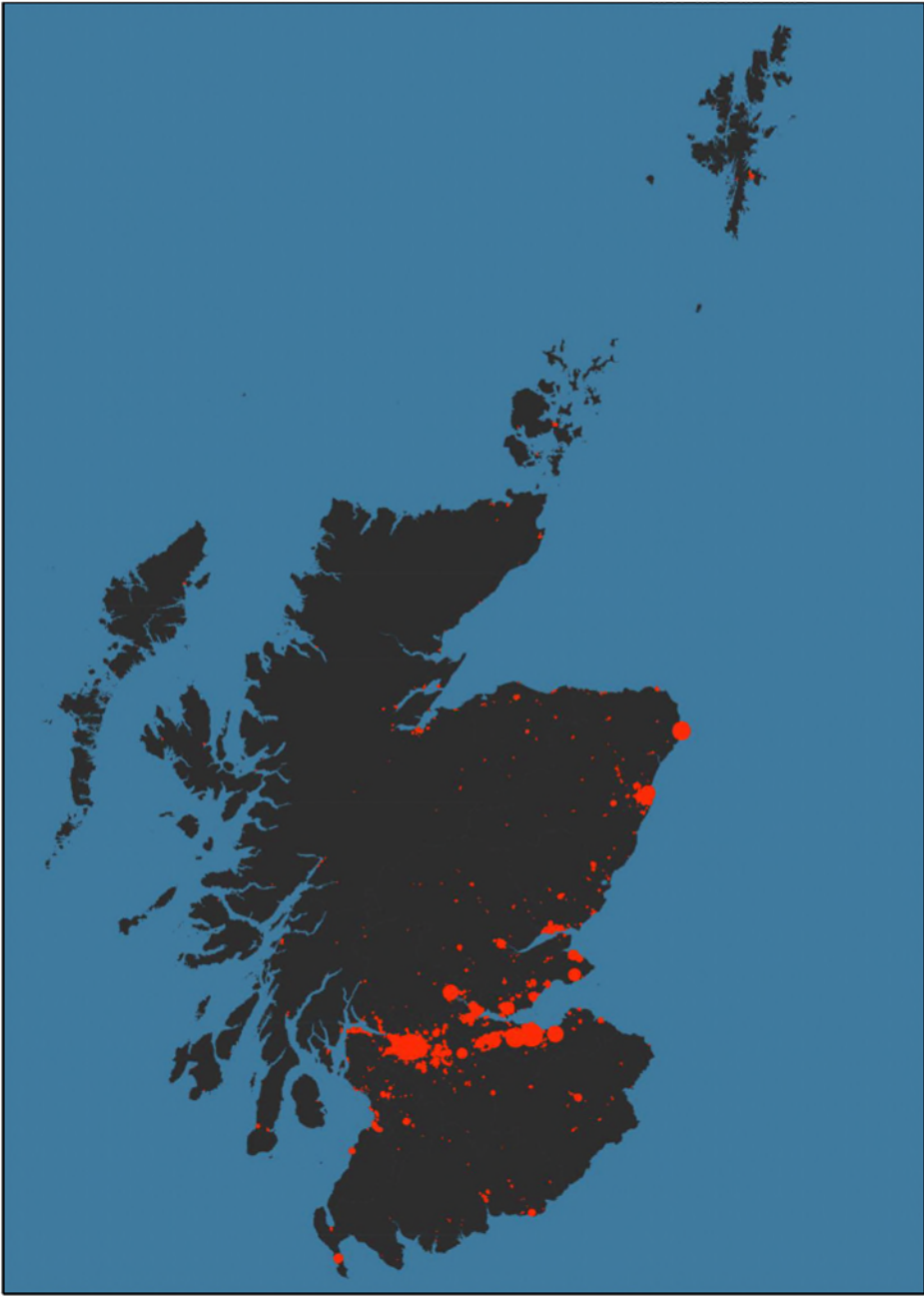
Figure 16 Potential heat network zone demand identified using a baseline criteria²³



²³ Potential heat network zones: first national assessment, Scottish Government, 2022 ([link](#))

The assessment report outlines the potential locations of the neat networks based on this analysis (Figure 17).

Figure 17 Potential Heat network outline considering a baseline criteria²⁴



²⁴ Potential heat network zones: first national assessment, Scottish Government, 2022 ([link](#))