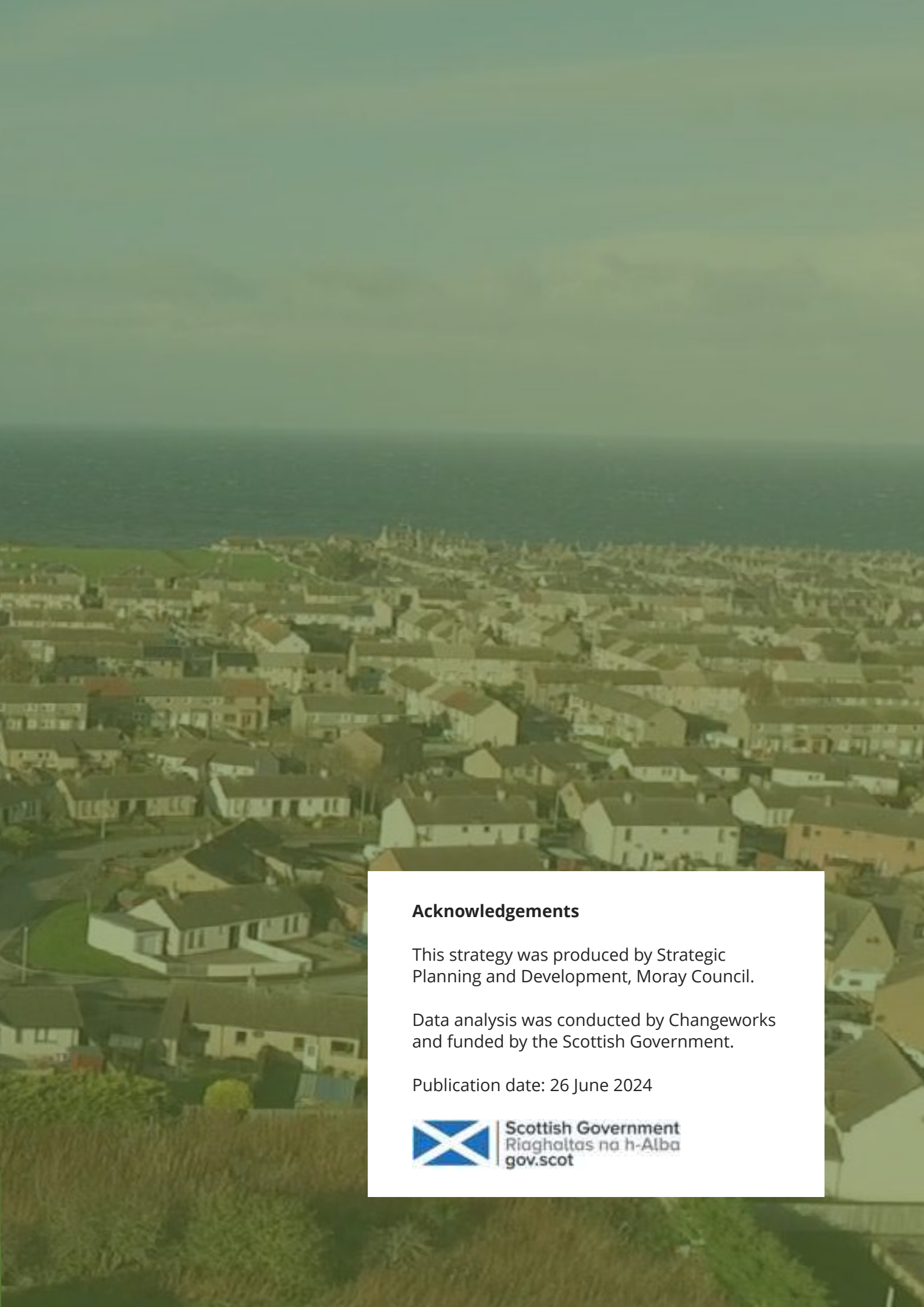
Local Heat and Energy Efficiency Strategy (LHEES) 2023 - 2028

Draft for public consultation

moray council

2023



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Contents

1. Introduction

1.1 Purpose of this strategy

The Local Heat and Energy Efficiency Strategies (Scotland) Order 2022[1] places a duty on Moray Council to prepare, publish and update a Local Heat and Energy Efficiency Strategy and Delivery Plan. These documents should be reviewed regularly and updated no later than 5 years after publication.

Moray's Local Heat and Energy Efficiency Strategy (LHEES) is at the heart of a place based, locally-led and tailored approach to the decarbonisation of heat in buildings. This strategy will underpin an area-based approach to heat and energy efficiency planning and delivery. It was developed in collaboration with key stakeholders across Moray and sets out the long-term plan for decarbonising heat in buildings and improving their energy efficiency.

The strategy:

- highlights how each segment of the building stock in Moray needs to change to meet national and local objectives, including achieving zero greenhouse gas emissions in the building sector, and the removal of poor energy efficiency as a driver of fuel poverty;
- identifies strategic heat decarbonisation zones, and set out the principal measures for reducing buildings emissions within each zone; and
- prioritises areas for delivery, against local and national priorities.

The 5-year delivery plan provides a strong basis for action by stakeholders, identifying early, low-regrets measures and areas where ongoing analysis is required. It also provides direction and informs wider energy planning in the public and private sectors. LHEES are designed to be indicative plans rather than fixed answers to the many complex and unique challenges which individual houses or neighbourhoods face. Therefore, this strategy should not be regarded as prescriptive but rather as indicative, providing an opportunity for local communities to influence the future course of the heat transition in their areas.

This strategy and delivery plan will also play a key role in helping the Council to meet its climate change aspirations and contribute to Scotland's goal of becoming net zero by 2045.

[1]The Local Heat and Energy Efficiency Strategies (Scotland) Order 2022 (legislation.gov.uk)

1.2 Strategy vision and priority areas

The vision for this Local Heat and Energy Efficiency Strategy is to:

Support Moray's just transition to a sustainable and climate resilient community by improving building energy efficiency and decarbonising heat sources.

Seven priorities (Table 1) form the basis of the strategy and delivery plan. They help to ensure that this strategy improves energy efficiency and decarbonises heat in buildings, alongside ensuring proposals are climate resilient, just, and supportive of a wellbeing economy. Priorities 1-4 are overarching strategic priorities which will underpin the work necessary to achieve Priorities 5-7. These priorities are explored in full in Chapter 4.

Table 1. LHEES priorities for Moray.

	1. Building sustainable and climate resilient communities
	2. Maximising knowledge and awareness and ensuring certainty of success
	3. A just transition for the energy system
	4. Supporting a wellbeing economy, jobs and skills
	5. Tackling fuel poverty and improving health
	6. Improving the energy efficiency of buildings
	7. Decarbonising building heat sources

2. Structure and function

2.1 Structure

The Local Heat and Energy Efficiency Strategies (Scotland) Order 2022 establishes a two-part structure to be followed to create an LHEES for each local authority area. This involves the creation of:

- **Strategy** – a long-term strategic framework for the improvement of the energy efficiency of buildings; and the reduction of greenhouse gas emissions from the heating of such buildings.

- **Delivery plan** – sets out how the strategy will be implemented and monitored in the local authority area by LHEES stakeholders.

2.2 Function

National guidance frames the function of LHEES around six considerations (Table 2)[2].

Table 2. National LHEES considerations.

	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	Poor building energy efficiency	Improving poor building energy efficiency
	Poor building energy efficiency as a driver for fuel poverty	Improving poor building energy efficiency where this is a driver for fuel poverty
	Mixed-tenure, mixed-use and historic buildings	Improving energy efficiency in mixed-tenure, mixed-use buildings, conservation areas

[2] Scottish Government (2022) Local heat and energy efficiency strategies and delivery plans: guidance (gov.scot)

These six considerations were used to develop the priorities pursued in this strategy as explained in Chapter 1.2 and will be explored fully in Chapter 5.

In addition, the strategy is required to:

- be evidenced-based;
- cover Moray's full building stock as far as reasonably possible;
- be developed in collaboration with stakeholders and use extensive consultation;
- be linked to any previous iteration to show progress achieved against outcomes and carry forward outstanding actions;
- demonstrate how it supports equality and addresses inequality;
- be forward looking and delivery focussed, working towards local and national targets; and
- be open and transparent regarding data used, its associated limitation in terms of scope, accuracy and coverage, and be continuously reviewed with progress monitored.

This strategy was developed by an internal team in Moray Council and through engagement with stakeholders in the public sector, private businesses and housing associations. Changeworks were commissioned to assist with external engagement and data analysis. Working alongside other local authorities in the North of Scotland, this strategy has been verified by HubNorth to ensure that the strategies are individually sound and collectively coherent to maximise opportunities to cooperate in their delivery.

The requirements to support equality and address inequality are covered under Priorities 1, 3, and 4 in Chapter 5.

The recommended methodology for creating an LHEES seeks that the strategy and delivery plan uses analysis and grouping of opportunities to identify and prioritise actions:

- **Strategic zones** – visualisation of potential ways to decarbonise buildings at a strategic level. These provide a mechanism to understand buildings' baseline performance; scale of potential; and prioritise initial areas of focus.

- **Delivery areas** – more granular level zoning presenting clusters of buildings within the same geographical area (area-based) or those with comparable characteristics with similar opportunities (theme-based).

During the development of the strategy, it was apparent that due to the rural nature of Moray, the region's varied housing stock, and dispersed nature of buildings of a similar type meant that there were less opportunities to geographically zone and cluster solutions for buildings of the same type. However, thematic based clustering for the whole of Moray was undertaken and the results of this are explained in Chapters 5 and 6.

This analysis will help the Council and the Scottish Government to work with partners in developing new policy and actions, as well as providing an evidence based for funding applications.

3. Policy and drivers

3.1 Policy and strategy drivers

Moray Council has an increasing number of statutory duties to take action on climate change. These national obligations, along with local priorities, have directed the development of this strategy. As such, the development was primarily driven by Scotland's statutory targets for greenhouse gas emissions reduction in the Climate Change (Scotland) Act 2019; Scotland's Heat in Buildings Strategy; the Heat Networks (Scotland) Act 2021; and national fuel poverty targets.

3.1.1 National policy drivers

The key national policies influencing this strategy are detailed in Table 3 below. These will be regularly reviewed by the Council's Climate Change Officers for future updates of the LHEES to highlight any changes, and report on how they may influence ongoing delivery plans.

Table 3. Summary of national policies relevant to the development of Moray's LHEES Strategy.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019[3]	Sets a national net zero emissions target and interim targets: 75% by 2030; 90% by 2040; and 100% by 2045.
Scotland's Climate Change Plan 2018-32[4]	Contains proposals/policies for meeting greenhouse gas emissions reduction targets up to 2032. Details a vision by 2032 that a substantial majority of homes will have achieved a good energy efficiency rating.
Scotland's Heat in Buildings Strategy (2021)[5]	Presents the pathway to meet 2045 net zero emissions from buildings, alongside ensuring poor energy performance is removed as a driver for fuel poverty.
Energy Efficiency Standard for Social Housing 2 (EESSH2)[6]	Aims to improve the energy efficiency of social housing, based on a minimum Energy Performance Certificate (EPC) rating. All social housing must meet, or be treated as meeting, EPC Band B, or is as energy efficient as practically possible, by December 2032. This standard has been replaced by the Social Housing Net Zero Standard.
Social Housing Net Zero Standard (SHNZS)	This new standard will replace the second Energy Efficiency Standard for Social Housing (EESSH2) and is currently in development. Consultation on this standard closed in March 2024.
Heat Networks (Scotland) Act 2021[7]	Regulates heat networks, supporting objectives in the Heat in Buildings Strategy to grow heat network opportunities. This strategy helps Moray Council meet part of its duty within the Act by identifying potential heat network zones. Other duties excluded from this strategy are identifying non-domestic building connections; designating zones; setting up permitting, regulation, and licencing processes; and developing a cost strategy.
Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019[8]	Sets targets for 2040 focussed on eradicating fuel poverty; defines fuel poverty; requires production of a fuel poverty strategy and makes provision for reporting. Targets include: ● <5% of households in Scotland are in fuel poverty. ● <1% of households in Scotland are in extreme fuel poverty. ● Median fuel poverty gap of households in fuel poverty is <£250.

[3] Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (legislation.gov.uk)
[4] Scotland's Climate Change Plan 2018-32 (gov.scot)
[5] Scotland's Heat in Buildings Strategy (2021) (gov.scot)
[6] Energy efficiency in social housing (gov.scot)
[7] Heat Networks (Scotland) Act 2021 (legislation.gov.uk)
[8] Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019 (legislation.gov.uk)

Table 4. Key targets from Scotland's Heat in Buildings Strategy (2021).

2028	2030		2033	2040	2045
Private rented homes to be EPC C	Emissions from buildings must be 68% lower than 2020 levels	Zero emissions heating in the equivalent of 50,000 non-domestic buildings	All homes to be EPC C Zero emissions heating in 170,000 off-gas fossil fuel heated homes, and 1 million on-gas homes	All fuel poor homes to be EPC B	Buildings no longer contribute to climate change

In November 2023, the Scottish Government published a consultation on a Heat in Buildings Bill with proposals for legislation to:

- Prohibit the use of polluting heating systems after 2045, and before then at point of property purchase or when a heat network connection is available in a Heat Network Zone; and

- Require a minimum energy efficiency standard by 2028 for Private Rental Sector and 2033 for owner occupiers. The Scottish Government has closed it's consultation on the new Social Housing Net Zero Standard (SHNZS) in March 2024. This will replace the post-2020 Energy Efficiency Standard for Social Housing (EESSH2). This will align any new standard with net zero targets, providing clarity for the social housing sector.

It is important to be cognisant of these consultations and any resultant changes in legislation as the strategy progresses.

3.1.1.1 National Planning Framework 4

National Planning Framework 4 (NPF4) is Scotland's national spatial strategy which transforms the way planning and climate change are viewed together. It sets spatial principles, regional priorities, national developments, and planning policy. Spatial planning priorities have been developed to help guide the preparation of regional spatial strategies and local development plans. This strategy will be delivered in conjunction with the Moray Local Development Plan, consulting with communities and ensuring that development meets the needs of communities and the climate.

3.1.2 Local policy drivers

The main local policies that this strategy aligns with/supports are detailed below in Table 5. These will be regularly reviewed by the Council's Climate Change Officers for future iterations to highlight any changes, and how they influence ongoing delivery.

Table 5. Summary of local policies relevant to the development of Moray's LHEES Strategy.

Moray Local Development Plan 2020[9]	Provides guidance to residents, developers and investors as to how much and where growth is proposed for land uses, such as housing and employment, as sets out a wide range of policies which are used to determine planning applications.
Moray Economic Strategy 2022[10]	A collaborative series of actions which set out how economic growth and opportunities will be pursued in Moray.
Moray Corporate Plan 2024[11]	Details the Council's vision, values and priorities and the context for implementing these
Moray Local Housing Strategy 2019-2024[12]	Sets out the outcomes the Council and its partners want to achieve, and the actions they will take, to address housing need and demand in Moray. Forms the basis for future investment decisions in housing and related services.
Moray Council Strategic Housing Investment Plan[13]	Sets out how investment in affordable housing will be directed over the next 5 years to achieve the outcomes relating to affordable housing detailed in the Moray Local Housing Strategy.
Moray Council Housing Need and Demand Assessment[14]	Estimates how much new housing, in all tenures, is required for the next 20 years, which types of housing and their locations.
Scheme of Assistance for Home Owners and Private Tenants in Moray[15]	Details how the Council will provide advice, information and assistance to private homeowners when carrying out work on their home.
Moray Council Climate Change Strategy 2020-2030[16]	Commits the Council to reduce its carbon emissions to net zero by 2030, including a requirement for heat decarbonisation.

[9] Moray Local Development Plan 2020 (moray.gov.uk)
[10] Moray Economic Strategy 2022 (moray.gov.uk)
[11] Moray Corporate Plan 2024 (moray.gov.uk)
[12] Moray Local Housing Strategy 2019-2024 (moray.gov.uk)
[13] Moray Council Strategic Housing Investment Plan (moray.gov.uk)
[14] Moray Housing Need and Demand Assessment (moray.gov.uk)
[15] Scheme of Assistance for Home Owners and Private Tenants in Moray (moray.gov.uk)
[16] Moray Council Climate Change Strategy 2020-2030 (moray.gov.uk)

Moray Council Climate Change Plan and Routemap to Net Zero Emissions[17]	Sets specific targets relating to energy efficiency: ● 2023-24: Complete school buildings condition and suitability review. Plans developed to achieve category B or higher in all schools. ● 2024-25: Complete Learning Estate Asset Management plan to identify opportunities for heating and power refurbishment to provide renewable alternative options for buildings, implemented over the next 10 years. ● 2025: All social housing to meet EPC Band C or higher ● 2032: All social housing improved to meet EPC Band B or higher
Moray Hydrogen Strategy[18]	Expresses an anticipation that between 2036-2045, hydrogen could be used for domestic heat alongside natural gas and other energy sources.
Moray Council Open Space Strategy[19]	Provides a strategic vision for the provision, development, maintenance and management of open space within Moray (excluding the Cairngorms National Park).

[17] Moray Council Climate Change Plan and Routemap to Net Zero Emissions (moray.gov.uk)
[18] Moray Hydrogen Strategy (moray.gov.uk)
[19] Moray Council Open Space Strategy (moray.gov.uk)

3.2 Other drivers

In 2019, just over half of all Scottish energy demand was for heating[20]. This was responsible for approximately 20% of all energy related greenhouse gas emissions[21]. Scotland has set a target of 50% of heating energy from renewable sources by 2030[22]. To support this, the Scottish Government has committed:

- £2.8bn of investment over the current parliament (to 2026);
- At least £200m investment in the public sector estate to improve and reduce energy use and install zero emissions heating systems; and
- £479.6m for energy projects in the 2023/24 budget, of which £231.1m is for tackling fuel poverty and improving energy efficiency.

The Scottish Government has indicated that Local Heat and Energy Efficiency Strategies will be a consideration when allocating future funding and designing national funding packages.

Another driver is the ongoing energy crisis. The rising cost of energy is adding pressure to all homes and businesses. Moray's domestic gas and electricity costs alone rose to an estimated £130m/year in 2022/23[23]. Higher fuel costs increase fuel poverty and costs for businesses. Total energy costs (including non-domestic) represent a sizeable proportion of Moray's total GDP which is mostly paid to external companies and so lost from the local economy.

Progressing this strategy can therefore bring potential financial benefits for Moray, and support the just transition to net zero by reducing:

- The financial burden of energy costs for buildings (domestic, business, public sector estate, and others including social enterprises and community organisations);
- 'Loss' to Moray's GDP and increasing local wealth retention as part of Community Wealth Building;
- Energy demand and costs as a driver of fuel poverty;
- Energy demand in the cost of doing business;
- Energy as a driver of the climate emergency in Moray; and
- Energy demand to increase energy resilience.

[20] Total final energy consumption by sector (2019) – BEIS (Scottish Energy Statistics Hub)

[21] Greenhouse gas emissions by source sector (2019) – Scottish Government (Scottish Energy Statistics Hub)

[22] Scotland's renewable energy targets (gov.scot)

[23] Based on data analysis by Changeworks using PEAT-OR fuel cost data from July 2023.

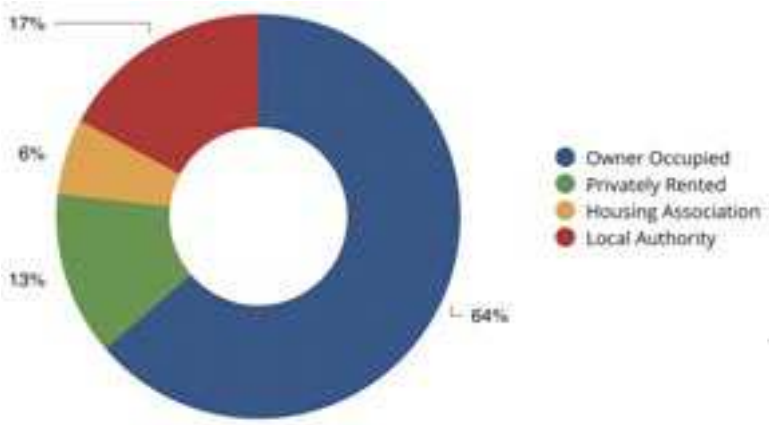
4. Non-domestic building stock

4.1 Domestic building stock in Moray

Moray has over 47,500 homes[24]. Of these, 68% were built before 1984 which is similar to the national average of 70%[25]. About 6% of homes in Moray are in conservation areas, and 3% are designated as listed buildings[26]. Most homes (70%) are detached, semi-detached, or end-terraced. Only 7% of homes on Moray are flats which is well below the national average of 40%. The pattern of tenure is similar to the national average, with 63% owner occupied, 23% social housing, and 13% private rentals.

Table 6. LHEES priorities and outcomes for Moray.

Tenure

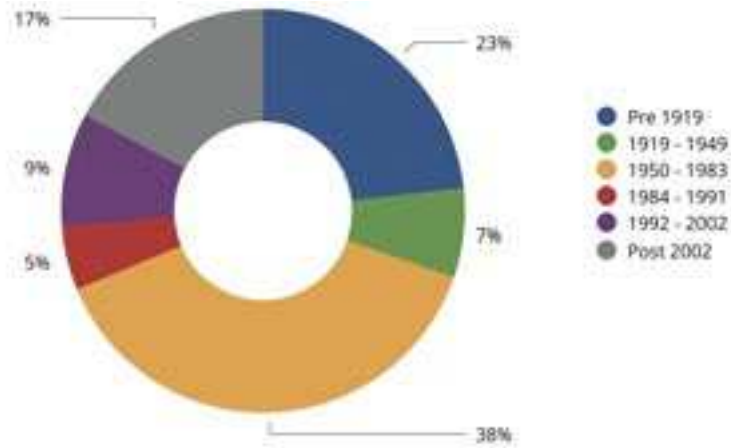


Listed Building and Conservation Status

A	Listed Buildings	0.2%
B	Listed Buildings	1.4%
C	Listed Buildings	1.5%
	Not Listed	96.9%

6.4% of homes are in conservation areas

Property Age



Housing Profile

Detached	35%
Semi - detached	25%
Mid - terraced	11%
End - terraced	10%
Small block of flats/dwelling converted into flats	10%
Block of flats	2%
Large block of flats	2%
Flan in mixed use building	3%
Other/unknown	2%

[24] LHEES Domestic Baseline Tool.

[25] National averages provided by Energy Savings Trust and are taken from Home Analytics v3.8.

[26] Historic Scotland categorises listed buildings based on their level of importance; Category A is assigned to buildings of national importance, Category B for buildings of regional importance, and Category C for buildings of local importance.

5. Priorities and outcomes

For each priority, outcomes have been identified. Table 6 explores these priorities in detail. These priorities were produced in conjunction with stakeholders. Elected members were provided with a presentation on the draft priorities and an opportunity to provide feedback in March 2024.

Table 6. LHEES priorities and outcomes for Moray.

1. Building sustainable and climate resilient communities	
1.1 Achieving net zero	Moray buildings move towards net zero and help address the climate emergency.
1.2 Adaptation	The resilience of Moray's buildings, communities and economy is supported to adapt to the impacts of climate change.
2. Maximising knowledge and awareness and ensuring certainty of success	
2.1 Maximise knowledge and awareness	Improved knowledge and awareness amongst key stakeholders of the need for change and energy efficiency measures.
2.2 Ensure certainty of success	Actions will be prioritised on certainty of success and minimal potential unintended consequences.
3. A just transition for the energy system	
3.1. A just transition	All communities experience a just transition to net zero, with actions only implemented where they are equitable and where the detrimental impacts are minimised.
4. Supporting a wellbeing economy, jobs and skills	
4.1 Skills and jobs	Skills and jobs required to support retrofit actions across Moray are identified and supported, as part of the just transition.
4.2 Community wealth building	Actions will continue to support recovery, focus on place, and work in partnership with Moray communities as part of the just transition.
4.3 Finance	Moray actions are identified where local, regional, and national expenditure or funding could support the just transition.

5. Improving the energy efficiency of buildings	
5.1 Domestic properties	Homes across Moray become more energy efficient and work towards national targets, while recognising the challenges this presents.
5.2 Non-domestic properties	Non-domestic buildings across Moray become more energy efficient, while recognising the challenges this presents.
5.3 Heritage buildings	Heritage buildings across Moray become more energy efficient, while recognising the unique challenges that this presents.
6. Tackling fuel poverty and improving health	
6.1 Reducing energy costs	Energy costs are reduced in fuel poor homes by improving energy efficiency.
6.2 Improved health outcomes	Physical and mental health outcomes are improved due to adequate heat and ventilation in homes and a reduction in energy bills.
7. Decarbonising building heat sources	
7.1 On and off gas grid	Homes across Moray have decarbonised heat sources and work towards national targets, while recognising the challenges this presents.
7.2 Non-domestic	Non-domestic buildings across Moray have decarbonised heat and work towards national targets, while recognising the challenges this presents.
7.3 Heat networks	Potential heat network zones are identified as a mechanism to decarbonise heat.

5.1 Priority 1: Building sustainable and climate resilient communities

5.1.1 Outcomes

	1. Building sustainable and climate resilient communities	
	1.1 Achieving net zero	Moray buildings move towards net zero and help address the climate emergency.
	1.2 Adaptation	The resilience of Moray's buildings, communities and economy is supported to adapt to the impacts of climate change.

5.1.2 Context

Our climate is changing faster than ever previously experienced. Scientists agree that greenhouse gas emissions from human activities are the main reason for global temperature increases over the past 150 years[27].

Increased carbon dioxide in our atmosphere also has a profound impact on the health and wellbeing of the population. There is approximately 1 excess death per 4,500 tCO_2e emitted and it is known that the impacts of climate change will be felt disproportionately by people with low income who have contributed least to the increase in greenhouse gas emissions.

Moray Council declared a climate emergency in 2019, and since then progress has been made in reducing emissions and enhancing resilience. However, the pace of these efforts must be amplified both within the council and across the region. Addressing the climate emergency demands a collective effort to curb emissions, enhance sustainability, and adapt to the effects of a changing climate. To achieve this, building owners across Moray must improve the energy efficiency of their assets and transition away from carbon-intensive heating systems.

The transformation of Moray's housing and building stock to net zero will require all stakeholders to work in partnership to deliver meaningful change. Organisations and communities should be encouraged to seek solutions and work together to explore long term solutions for their buildings and neighbourhoods. Collaborative working between business and agencies to further the aims of this strategy will be required.

The targets outlined in the Scottish Government's Heat in Buildings Strategy and EESSH2 align with the overall net zero objectives. Consequently, all actions outlined in the delivery plan will contribute to this priority and assist Moray's buildings in meeting net-zero and other related targets. These actions will

[27] IPCC (2021) Climate Change 2021: The Physical Science Basis.

consider the implications of a changing climate, such as the increased frequency of extreme weather events. For example, the level and type of insulation may need to be adjusted to ensure that buildings are resilient to the impacts of climate change.

The impact of global temperature increases has already been significant. Weather patterns are changing and sea levels are rising. These changes are leading to severe events such as heatwaves, floods, droughts and wildfires, and increasingly so in the Moray region.

Coastal flooding is of particular concern and impact in Moray due to rising sea levels and storm surges leading to property damage, infrastructure disruption and loss of habitable land.

Climate change also poses the greatest threat to the natural environment and the ecosystem services that it provides. This threat will in turn negatively impact the Moray food and drink sector, tourism sector, and overall health and wellbeing.

Implementation of NPF4 is crucial to delivering necessary climate change adaptation measures through the planning system. There are opportunities for communities across Moray to shape development in their areas through Local Place Plans, and for the new Local Development Plan to integrate adaptation into future spatial planning.

5.1.3 Summary

This priority is about building sustainable and climate resilient communities in Moray. The outcomes of this priority are to achieve net zero and to adapt to the impacts of climate change. The context of this priority is that our climate is changing faster than ever previously experienced and that this is having a profound impact on the health and wellbeing of the population. Moray Council declared a climate emergency in 2019, and since then progress has been made in reducing emissions and enhancing resilience. However, the pace of these efforts must be amplified both within the council and across the region.

5.2 Priority 2: Maximising knowledge and awareness and ensuring certainty of success

5.2.1 Outcomes

	2. Maximising knowledge and awareness and ensuring certainty of success	
	2.1 Maximise knowledge and awareness	Improved knowledge and awareness amongst key stakeholders of the need for change and energy efficiency measures.
	2.2 Ensure certainty of success	Actions will be prioritised on certainty of success and minimal potential unintended consequences.

5.2.2 Context

The just transition requires all building owners, and stakeholders, to be engaged with and informed on the Local Heat and Energy Efficiency Strategy. This includes its purpose and actions; how to improve building energy efficiency and decarbonise heat sources; and information around the support and funding services available.

Various organisations already exist to provide information and advice. These will be promoted across Moray, as well as any funding opportunities.

Table 7. Relevant information and advice services in Moray.

Business Energy Scotland	Provides support and access to funding to help small and medium-sized enterprises save energy, carbon, and money – including energy efficiency assessments.
Business Gateway	Provides free, impartial advice and guidance to new and existing businesses in Scotland.
Citizens Advice Bureau	Offers free, confidential, and independent advice to people on a wide range of issues, including energy.
Community Energy Scotland	Supports communities to develop their own renewable energy projects.
Energy Saving Trust	Provides independent advice on energy efficiency and renewable energy to householders and businesses.

Home Energy Scotland	Helps people create warmer homes, reduce bills, and lower carbon footprints, delivered via an advice centre network.
Local Energy Scotland	A network of local energy advice services that provide impartial advice on energy efficiency and renewable energy to householders and businesses.
Moray Council	Have webpages dedicated to heating advice, focussing on providing support following the increase in energy bills.
Moray CAN	A community-led action network that works to reduce carbon emissions in Moray.
Net Zero Nation	Scottish Government website providing resources and advice for a range of Net Zero issues including energy efficiency.
REAP	Provide free and impartial energy advice to anyone in Moray, including home visits.
Scarf	Delivers targeted energy efficiency advice and services to households and businesses.
Scotland's National Public Energy Agency	Will provide leadership and coordination to deliver heat decarbonisation, by: ● Accelerating transformational change in how we heat and use energy in buildings; ● Aiding public understanding and awareness; and ● Coordinating delivery of investment.
tsiMORAY	Provide support and networking opportunities for organisations in Moray.
UHI Moray	Performs a leading role in skills development, research, and community engagement. Currently exploring how to develop the green jobs which will be required to deliver this change in heating systems.

There is an ongoing requirement to provide information and support to help consumers make informed choices. However, there are challenges to raising awareness on Local Heat and Energy Efficiency Strategies, energy efficiency, and heat decarbonisation. These include:

- How best to encourage owners to improve their buildings;
- Knowing where to find the correct support;
- The cost of measures and potential disruption from retrofit lead to lack of engagement;
- Disinformation and mixed messaging from people led by ideology rather than science;
- Understanding how EPC bands are calculated, and how best to improve these; and
- The mass behavioural shift needed regarding how homes and buildings are used and heated.

To maximise knowledge and awareness, the Delivery Plan will focus on identifying and addressing gaps in information provision and support services. This will be achieved by integrating the roles and plans of key stakeholders to ensure a comprehensive and coordinated approach.

By aligning work plans and prioritising actions with a high likelihood of success and minimal unintended consequences, Moray can make best use of available resources and achieve short-term successes that will serve as stepping stones towards more ambitious initiatives. In the short term, the focus will be on addressing low regrets measures and building Moray's capacity to tackle larger challenges over time.

5.2.3 Summary

To achieve progress on this priority, all building owners and supporting organisations must be involved in the decarbonisation journey. All stakeholders will be informed about the considerations identified during the development of this strategy and the available national funding and support to ensure the success of retrofits. Actions include developing a communications strategy, materials, and presentations, and engaging with the Scottish Government to encourage a nationally coordinated campaign supporting all stakeholders.

5.3 Priority 3: A just transition for the energy system

5.3.1 Outcomes

	3. A just transition for the energy system	
	3.1. A just transition	All communities experience a just transition to net zero, with actions only implemented where they are equitable and where the detrimental impacts are minimised.

5.3.2 Context

As part of Moray's approach to achieving net zero and tackling the climate emergency, residents and the environment must benefit from this transition in a just manner. This means understanding and tackling socio-economic inequalities that will be created or exacerbated by the transition. A just transition will require Moray being "a resilient, fair, and prosperous place to live and work and puts fairness and social justice at the heart of achieving climate goals".

If we continue with business as usual, existing challenges to Moray communities will get harder, with those least responsible and most vulnerable being impacted the hardest and unable to adapt. Achieving positive socio-economic objectives will be impossible without addressing climate justice. This will aim to prevent disproportionate impacts to marginalized groups and ensuring all residents share in the health, economic, and social benefits of a clean energy economy.

Moray's just transition will see changes to the way existing energy infrastructure is used. This will be driven by the need for grid improvements and additional generation capacity, and by the long-term goal of moving away from natural gas. SSEN, SGN and the Scottish Government will all play a leading role in this effort. SSEN will be responsible for upgrading the electricity grid, SGN will focus on developing alternative fuels suitable for part or all of the gas network, and the Scottish Government will provide national coordination. Moray Council will play a supporting role by providing local context and input to these changes.

Understanding the amount of energy needed and how to minimise it is necessary for future generation planning. This sets a baseline for energy generation to meet demand. However, transitioning to renewable energy sources means that energy may not always be available when and where it is needed, necessitating the development of methods to transport and store it.

5.3.2.1 Electricity

This strategy proposes a substantial increase in decarbonised heating systems powered by electricity, including individual heat pumps and heat pumps connected to heat networks. The substantial number of heat pumps projected to be installed by 2045 will place significant strain on the electricity grid. This will

require careful collaboration with SSEN, as the Distribution Network Operator, to ensure grid limitations are identified and addressed when action planning.

Discussions with SSEN should also explore potential grid expansion opportunities and consider other energy projects competing for capacity. Investigating battery storage options will be crucial for managing the network, as current battery definitions categorise them as grid capacity consumers. However, this definition is expected to change. By collaborating with SSEN, this strategy will support their ability to make informed decisions regarding investments and grid upgrades, based on local context and priorities. This collaborative approach will ensure a robust and reliable electricity grid capable of meeting the demands necessary for a just transition and net zero future.

Meeting the Scottish Government's ambition for decarbonised heat is likely to require national fossil fuel consumption to reduce by 28 TWh in 2030 (based on a 2021 baseline)[28]. Therefore, work to drive heat decarbonisation should begin without delay. This means that in the short term such work will require to progress under current grid constraints or managing minor upgrades where necessary. To achieve this, regular engagement should take place with SSEN to assess the feasibility of short-term actions. The Council will also explore using SSEN's Local Energy Net Zero Accelerator (LENZA) software which is scheduled for release in 2024[29]. This geospatial planning tool empowers planners to make data-driven decisions regarding the placement of new energy assets in local areas. It does so by analysing current cable capacity and assessing the potential impact of additional loads. This enhanced understanding of local energy infrastructure will be crucial for informed place-based decision-making, ensuring that the just transition is implemented in a strategic and sustainable manner.

5.3.2.2 Natural gas

In Moray, most homes rely on natural gas for heating, accounting for approximately 30,850 properties. To achieve and surpass the Heat in Buildings Strategy's goal of zero emissions heating in 1 million on-gas homes by 2030, unabated natural gas usage must be phased out and replaced with low-carbon and renewable energy sources. Two mechanisms can be employed to achieve this transition. These are:

1. Introducing alternative heating systems

Heat pumps offer a promising alternative to natural gas heating in individual buildings. These systems extract heat from the air or ground and use electricity to transfer it to a building's heating system. Heat pumps are highly efficient and can significantly reduce energy consumption.

Heat networks, which distribute hot water from a central source to multiple buildings, can also play a role in reducing natural gas usage.

[28] Scotland's Heat in Buildings Strategy (2021) (gov.scot)

[29] SSEN Local Energy Net Zero Accelerator (LENZA) (ssen.co.uk)

2. Switching natural gas for decarbonised alternatives

Gas blending involves mixing natural gas with hydrogen, reducing the overall carbon content of the fuel. Hydrogen, produced using renewable energy sources, can be a clean and sustainable alternative to natural gas.

Whilst the Scottish Government does not anticipate hydrogen playing a role in heating buildings in the immediate future[30], shifting to 100% hydrogen gas for heating holds immense potential as a long-term decarbonisation solution, contingent on the success of ongoing trials. SGN is at the forefront of exploring alternatives, collaborating closely with other gas networks to gather evidence for the UK's 2026 heat policy decision regarding hydrogen's future role in residential heating.

The long-term potential of hydrogen in building heating should be thoroughly evaluated, considering opportunities and timelines. The Council should continue to discuss with SGN the opportunity of hydrogen to have a role in building heating as enhanced understanding could facilitate its integration into strategic planning. This knowledge will smooth the transition and inform the optimal timing for a hydrogen shift, should it be deemed suitable. Additionally, decisions must be made regarding the suitability of hydrogen compared to heat pumps and networks. Modelling should also account for potential decommissioning costs of gas network sections. Progress on this is the principally the responsibility of government and the gas distribution networks, with the Council providing support through this strategy and the provision of local knowledge.

5.3.3 Summary

This priority examines how this strategy and the just transition to decarbonised heat will interact with the broader energy system. It specifically considers the use of existing electricity infrastructure, the impact on future grid capacity, and the transition from natural gas to other fuels. SSEN and SGN are key stakeholders in leading this transition and will be involved throughout the strategy's lifetime to monitor their progress. To help achieve this priority, actions focus on supporting SSEN and SGN through:

- Collaborating with SSEN and using the LENZA tool to plan heat decarbonisation measures for buildings and guarantee that Moray's energy system requirements for heat decarbonisation are met; and

- Working with SGN to investigate the potential of hydrogen for heating buildings in Moray.

[30] Scotland's draft Energy Strategy and Just Transition Plan (gov.scot)

5.4 Priority 4: Supporting a wellbeing economy, jobs and skills

5.4.1 Outcomes

4. Supporting a wellbeing economy, jobs and skills	
4.1 Skills and jobs	Skills and jobs required to support retrofit actions across Moray are identified and supported, as part of the just transition.
4.2 Community wealth building	Actions will continue to support recovery, focus on place, and work in partnership with Moray communities as part of the just transition.
4.3 Finance	Moray actions are identified where local, regional, and national expenditure or funding could support the just transition.

5.4.2 Context

5.4.2.1 Skills and jobs

Enhancing energy efficiency and decarbonising heat sources can generate substantial economic benefits for businesses. These advantages include strengthening supply chains, fostering job creation, facilitating the adoption of innovative technologies, and supporting the emergence of new industry entrants. To achieve the goals of a just energy transition, supply chains must expand, particularly requiring a surge in skilled heating and energy efficiency installers.

Table 8. National economic opportunities and challenges from Scotland's Heat in Buildings Strategy.

Opportunities	Challenges
Heat and energy efficiency sectors generate turnover of £2bn/year and support around 12,500 FTE jobs.	Construction sector and supply chains are still recovering from COVID-19 and the UK's exit from the European Union.
An additional 16,400 jobs will be supported by 2030 due to investment in decarbonised heating deployment.	There is a skills gap to meet existing demand, with demand expected to grow.
Total investment to meet net zero targets for buildings is around £33bn, with investment set to peak at up to £2.5bn/year.	Requirement to understand supply chain demand to ensure availability of skilled labour will not increase prices and throttle ambitions.
Opportunities for Scottish companies to service demand across the UK alongside internal demand.	Consider just transition for jobs in traditional, fossil-fuel based sectors.
Maximise benefits for Scottish manufacturers (investment and access to a skilled workforce).	Materials shortages and increased prices.

In Moray, additional challenges currently being experienced include:

- **Lack of understanding of the whole-building approach:** Heat pump installation requires a comprehensive understanding of a building's thermal performance, including ventilation, air tightness, and potential condensation issues.

- **Inadequate insulation sector qualifications:** Many individuals working in the insulation industry may only hold manufacturer-specific qualifications, which may not provide them with the necessary knowledge for comprehensive heat pump installations. In addition, the Scottish Government do not deem these to be competent qualifications.

- **Insufficient understanding of local skill gaps:** There is a need for a clearer picture of the current skill level and the training needs across Scotland to effectively address the local skills shortage. A study is currently underway, led by researchers at UHI Moray, to report on green skills requirements across the region.

- **Potential workload increase due to delays:** Delayed heat pump installations could lead to a backlog of work in the future, further straining the already limited pool of qualified installers.

Retrofitting a significant number of homes annually necessitates a substantial skilled workforce. The more complex and extensive the retrofitting measures per dwelling, the greater the number of homes that need to be retrofitted each year to achieve the targets, consequently increasing job demand. This issue will intensify with each passing year that targets are not met. Skills and jobs required to support this include:

- Insulation installation;
- Emerging innovative technologies;
- Heat pump installation/maintenance;
- Funding;
- Heat network construction/operation;
- Retrofit co-ordination;
- Smart energy;
- Carbon management;
- Traditional skills for heritage buildings;
- Data and digital; and
- Supporting roles (e.g. welders, scaffolders).

5.4.2.2 Community wealth building

Community wealth building is a strategic approach that uses the economic influence of established local organisations, such as local authorities, healthcare providers, universities, colleges, housing associations, and major private sector employers, to address persistent systemic issues and structural inequalities within communities. It aims to reshape local and regional economic systems, empowering more communities and individuals to participate in, own, and benefit from the wealth generated within their economies. It can foster job creation, business growth, community asset ownership, and shorter supply chains, leading to enhanced resilience and alignment with net zero objectives[31].

This strategy will aim to support local supply chain opportunities as part of community wealth building and procurement by strategically identifying and prioritising areas for retrofit delivery. This approach will inform Moray businesses of potential opportunities and so allow them to maintain their competitiveness and contribute to the region's economic vitality.

5.4.2.3 Finance

As noted in Table 8, total investment required to meet net zero targets for buildings in Scotland is around £33 billion, with annual investment peaking around £2.5 billion by 2030. Moray has over 49,000 buildings, the majority of which will need to be retrofitted – necessitating significant levels of investment. It is estimated that the total cost of measures to fully retrofit domestic properties in Moray will be £955m, or approximately £22k per home. Whilst this presents a funding challenge, it is also a substantial economic opportunity for businesses in Moray.

[31] Community Wealth Building – Cities and Regions Policy (gov.scot)

5.5 Priority 5: Improving the energy efficiency of buildings

5.5.1 Outcomes

5. Improving the energy efficiency of buildings	
5.1 Domestic properties	Homes across Moray become more energy efficient and work towards national targets, while recognising the challenges this presents.
5.2 Non-domestic properties	Non-domestic buildings across Moray become more energy efficient, while recognising the challenges this presents.
5.3 Heritage buildings	Heritage buildings across Moray become more energy efficient, while recognising the unique challenges that this presents.

5.5.2 Context

Enhancing the energy efficiency of buildings will not only lower energy consumption but also allow the successful implementation of decarbonised heating systems. By reducing energy demand, this will help reduce fuel costs and contribute to alleviating fuel poverty and achieving net-zero emissions. Therefore, a fabric-first approach is a cornerstone of the Heat in Buildings Strategy.

5.5.2.1 Domestic properties

The Heat in Buildings Strategy and EESSH2 have targets on building energy efficiency as shown in Table 9.

Table 9. Relationship between Heat in Buildings Strategy and EESSH2 targets and progress in Moray.

Private rented homes to be EPC C by 2028	All social housing to be EPC B by 2032	All other homes to be EPC C by 2033
Currently 4,600 private rented homes in Moray not in EPC C	9,500 social homes in Moray not currently in EPC B	Currently 22,600 other homes in Moray not in EPC C

The energy efficiency challenge in Moray is substantial - only 5% of homes have an EPC band of A or B. 81% of Moray homes have an EPC band lower than C which is considerably higher than the national average of 51%.

The 2040 target of all fuel poor homes to be EPC B or above poses a significant challenge as it is difficult to pinpoint fuel poverty risk years in advance, and any household could potentially experience fuel poverty due to unforeseen changes in living circumstances. This strategy therefore applies the target to all homes.

Along with EPC bands, analysis identified other indicators for poor energy efficiency. This includes 5% of homes with single glazed windows; 13% with <100mm of loft insulation; and 54% with uninsulated walls.

5.5.2.2 Non-domestic properties

It is important to note that non-domestic data is less accurate than domestic data. Therefore, while the goal is to enhance the energy efficiency of all non-domestic buildings across Moray, the immediate focus will be on buildings where more reliable data is available, including Moray Council buildings and properties owned by key partners such as the NHS.

5.5.2.3 Heritage buildings

Heritage buildings, particularly those within Conservation Areas or with Listed Status, often present unique challenges in terms of energy efficiency and decarbonisation efforts. While these structures hold significant historical and cultural value, their distinctive architectural features and materials can hinder the implementation of standard retrofitting measures commonly applied to other buildings.

The preservation of heritage buildings demands a balance between enhancing energy efficiency and maintaining their architectural character. Altering original features or introducing modern elements that are aesthetically incompatible with the building's heritage can diminish its historical significance.

The Council has issued guidance for repair or replacement works to historic buildings within Moray, and this includes energy efficiency measures[32]. A grant scheme is already run by the Council for the replacement of windows in eligible properties[33]. The Council will continue to publicise these measures and identify and promote opportunities where further support can be provided.

[32] Replacement Windows & Doors Guidance (moray.gov.uk)

[33] Moray Council Window Grant Scheme Fund (moray.gov.uk)

5.5.2.4 Challenges

There are building-specific challenges that will need to be addressed at a project level, such as:

- Minimising disruption to building/services whilst works are carried out;
- The need to carry out repair work before retrofitting;
- Restrictions such as Conservation Areas and Listed Status; and
- Difficulties in financing energy efficiency measures.

5.5.2.5 Existing funding mechanisms for Local Authorities

A variety of funding is available to support Moray Council in undertaking and/or financing retrofits. In the short term, existing energy efficiency programmes supported by Moray Council will continue to deliver energy efficiency and fuel poverty reduction work. This strategy will prioritise existing projects and seek to provide justification for future potential projects where this funding can be most effectively used.

Table 10. Retrofit funding examples available for Moray Council.

Scottish Government Area Based Schemes (ABS)[34]	Awarded for energy efficiency programmes in high fuel poverty areas. This funding is blended with owners' contributions and funding from Registered Social Landlords who may choose to insulate their homes at the same time.
Energy Company Obligation (ECO) Help to Heat Scheme - Local Authority Flexibility[35]	Used by energy suppliers to meet up to 25% of their ECO Affordable Warmth obligation by installing energy saving measures in properties declared eligible by local authorities. Local authorities are responsible for ensuring households are in private tenure and either living in fuel poverty or have a low income and vulnerable to living in the cold.
HACT Retrofit Credits[36]	A carbon credits scheme that unlocks additional funding into retrofit projects by verifying the emission reductions and social value of retrofit projects.
Scottish Central Government Energy Efficiency Grant Scheme[37]	Capital grant funding support to enable the delivery of heat decarbonisation and energy efficiency projects across public buildings.

[34] Scottish Government Area Based Schemes (gov.scot)

[35] Energy Company Obligation (ECO) Help to Heat Scheme (gov.uk)

[36] HACT – Retrofit Credits (hact.org.uk)

[37] Scottish Central Government Energy Efficiency Grant scheme (gov.scot)

In addition, other funds and support are available directly for domestic and non-domestic properties including Warmer Homes Scotland[38]; Home Energy Scotland Grant and Loan[39] and Private Rented Sector Landlord Loan[40]; and Business Energy Scotland SME Loan Scheme[41]. All of these schemes are promoted across Moray and this will continue as a cornerstone of this strategy.

5.5.3 Summary

This priority focuses on improving energy efficiency of Moray's buildings to meet national targets, support decarbonisation, and help building owners to lower energy costs. To achieve this, short, medium and long term building level actions will be identified and prioritised. To ensure quality, building level actions have only been included where there is a high certainty of success and positive impacts or are already planned for implementation:

- Building level studies to understand specific energy efficiency measures required;
- Planned projects improving energy efficiency such as installation of wall insulation, floor and loft insulation, double/triple glazing, insulating pipes, and draught proofing;
- Ongoing analysis and modelling to identify further high certainty building level actions;
- Promotion of funding and support for energy efficiency measures; and
- Raising awareness and knowledge of energy efficiency.

38 Warmer Homes Scotland funding (homeenergyscotland.org)

39 Home Energy Scotland Grant and Loan funding (homeenergyscotland.org)

40 Private Rented Sector Landlord Loan funding (homenergyscotland.org)

41 Business Energy Scotland SME Loan funding (businessenergyscotland.org)

5.6 Priority 6: Tackling fuel poverty and improving health

5.6.1 Outcomes

6. Tackling fuel poverty and improving health	
6.1 Reducing energy costs	Homes across Moray become more energy efficient and work towards national targets, while recognising the challenges this presents.
6.2 Improved health outcomes	Non-domestic buildings across Moray become more energy efficient, while recognising the challenges this presents.

6.1 Reducing energy costs

Energy costs are reduced in fuel poor homes by improving energy efficiency.

6.2 Improved health outcomes

Physical and mental health outcomes are improved due to adequate heat and ventilation in homes and a reduction in energy bills.

5.6.2 Context

Fuel poverty is when total household fuel costs are more than 10% of adjusted net income; and if after deducting fuel and care costs, the remaining net income does not allow for an acceptable standard of living. For extreme fuel poverty, more than 20% of net income is needed. This priority focuses on reducing and preventing fuel poverty in Moray via energy efficiency and heat decarbonisation measures. Poverty increased in Moray pre-pandemic and it is expected to have increased further due to rising fuel costs and the cost-of-living crisis.

Fuel poverty is a significant issue in Moray, with over 31% of households experiencing it, exceeding the national average. This situation is even more concerning for 18% of Moray households, who face extreme fuel poverty, also surpassing the national average[42]. Off-gas homes are particularly vulnerable to both fuel poverty and extreme fuel poverty as electricity and oil heating can be more expensive than gas. Research has identified specific groups that are at an increased risk of fuel poverty, as outlined in Table 11.

Table 11. Groups most likely to experience fuel poverty.

Young & middle-age groups	Females	Single marital status	Couples with 2+ children/ lone parents	People with disabilities
Ethnic minority communities	People with the lowest net income	Social housing and private rented sector	Rural areas	People relying on electric heating

[42] Scottish House Condition Survey 2017-19 (gov.scot)

The energy efficiency of buildings plays a critical role in fuel poverty. National guidelines emphasise the need to identify areas where poor building energy efficiency contributes to fuel poverty within the strategy and delivery plan. However, the representation of this factor in the key domestic dataset is inconsistent, with energy efficiency measures not adequately weighted against fuel poverty. This, coupled with uncertainties regarding the combination of measures and potential heat pump inefficiencies caused by poor insulation, makes it challenging to identify building-level actions that will not exacerbate fuel poverty. This strategy therefore aligns with the Tackling Child Poverty Delivery Plan commitment to only take forward actions where they will not worsen fuel poverty rates[43]. Therefore, the immediate priority will be to continue area-based schemes as set out in Section 4.5 whilst collecting more accurate data to decide if schemes focussed on building types would be feasible and if so, what would be more efficient.

For health, a significant concern for this strategy is indoor air quality. This is influenced by several factors which make estimates of health impacts challenging. The Cleaner Air for Scotland 2 Strategy states a "need for policy integration and coherence to avoid the risks of unintended consequences." It notes non-health-related developments (e.g. energy efficiency measures) could have unexpected adverse health impacts if a wider perspective is not taken. Poor insulation installation may cause damp and mould, worsening indoor air quality, leading to negative health and wellbeing impacts. The Council will continue to engage with Scottish Government and other partners to ensure indoor air quality is researched further and considered in the context of Local Heat and Energy Efficiency Strategies.

5.6.3 Summary

Fuel poverty is a pressing issue in Moray, and improving energy efficiency is a key mechanism to tackle it. By enhancing energy efficiency, energy costs can be reduced, alleviating the financial burden on households. Proper implementation of energy efficiency measures can lead to positive physical and mental health outcomes. However, it is crucial that any measures implemented do not inadvertently worsen fuel poverty. At present, area-based interventions are deemed to be the most appropriate for an area like Moray due to our range and distribution of different building types. Further monitoring and research into indoor air quality will better inform future iterations of the strategy. Adopting a considered building-level approach will ensure that no one is left behind.

[43] Best Start, Bright Futures: Tackling Child Poverty Delivery Plan 2022-26 (gov.scot)

5.7 Priority 7: Decarbonising building heat sources

5.7.1 Outcomes

7. Decarbonising building heat sources	
7.1 On and off gas grid	Homes across Moray have decarbonised heat sources and work towards national targets, while recognising the challenges this presents.
7.2 Non-domestic	Non-domestic buildings across Moray have decarbonised heat and work towards national targets, while recognising the challenges this presents.
7.3 Heat networks	Potential heat network zones are identified as a mechanism to decarbonise heat.

5.7.2 Context

Decarbonised heat sources are low and zero emissions heating. They include heat pumps, heat networks, infra-red heating or electric heaters combined with solar PV; solar water heating; and thermal storage. Implementation of new heating systems will help reduce emissions and help Moray to achieve net zero and tackle the climate emergency.

Identification of 'strategic zones' for moving forward these measures, as suggested by the LHEES methodology, does not work for Moray. In Moray, building architypes are numerous and scattered, requiring a case-by-case approach to decarbonisation. Dividing work by on/off gas grid status, prioritising off gas properties first, is a better approach to suit local circumstances.

5.7.2.1 Domestic building stock

The Heat in Buildings Strategy outlines that there are low and zero-emission heating options available for all homes. It sets ambitious targets to achieve zero-emission heating by 2030. This includes 170,000 off-gas homes that currently rely on high-emission fuels, with approximately 12,720 of these homes located in Moray. Additionally, the strategy aims to transition 1 million on-gas homes to zero-emission heating, including approximately 30,850 homes in Moray.

To achieve the targets set out by the Heat in Buildings Strategy, it is crucial to accelerate the decarbonisation of heating systems. This strategy prioritises the implementation of proven and cost-effective measures that minimise potential regrets. In Moray, where 71% of properties are connected to the gas grid compared to the national average of 80%, a no/low regrets approach is adopted. This entails implementing heat decarbonisation measures for domestic properties only where there is a high likelihood of success (Chapter 4.2).

The national methodology classifies properties into four categories based on their suitability for heat pump adoption. Most on-gas homes in Moray fall into the moderately suitable category, indicating that they can be effectively decarbonised using heat pumps. Homes that are less suitable for heat pumps may require additional upgrades or alternative low-carbon heating solutions. Amongst off-gas properties, just over half are immediately suitable for heat pumps or require minor improvements[44].

5.7.2.2 Non-domestic building stock

Although decarbonised heating systems could be suitable for a considerable portion of the non-domestic building stock, enabling works, including distribution system upgrades and increased site electricity capacity, may often be required.

The Heat in Buildings Strategy sets a target for zero emissions heating in 50,000 non-domestic building by 2030: This would equal approximately 2,125 in Moray of which around 1,190 are on mains gas. Unlike domestic, most non-domestic properties in Moray have electric heating; with only 21% on mains gas and 14% on oil heating. This is similar to the national trend whereby over half of all non-domestic properties are already heated using low or zero emissions sources.

While there are ambitious Scottish targets for decarbonisation of heating for local authority owned non-domestic buildings by 2038, there are serious concerns about the levels of funding required to meet this target. Clarity over the amount and timing of any support is essential to create meaningful long-term decarbonisation plans for public sector non-domestic buildings.

As stated in section 4.5.2.2, it is important to note that non-domestic data is less accurate than domestic data. Therefore, while the ultimate goal is to ensure that all non-domestic buildings across Moray are fitted with decarbonised heating systems, the immediate focus will be on buildings where more reliable data is available, including Moray Council buildings and properties owned by key partners such as the NHS.

5.7.2.3 Existing district heat networks

Moray is home to five[45] existing heat networks, which provide a sustainable and affordable source of heat to a variety of buildings, including residential properties and businesses (Table 1). The potential to expand these, including options of switching to decarbonised heat sources, will be explored during the delivery stage of this strategy.

[44] Changeworks LHEES data analysis for Moray.

[45] Heat network analysis conducted by Changeworks only considered semi-public & public buildings. Therefore, there may be more than five heat networks in Moray which are presently unrecorded.

Heat network	Description
Roseisle Maltings	Bioplant maltings and distillery, heat piped to maltings at Burghead.
Findhorn Foundation Biomass District Heating System	Operational biomass district heating system with 13 connections. Extension under development.
West Whins Affordable Housing	Air Source Heat Pump district heating system with 6 connections.
Edgehill Forres	Operational biomass district heating system with 7 connections.
Dairy Cottage, Keith	Operational biomass district heating system with 4 connections.

5.7.2.4 Potential district heat network zones

There is significant potential to develop further heat networks in Moray. A number of locations in Moray have been identified as being potentially suitable for new heat networks, including Buckie, Burghead, Elgin, Forres, Keith and Lossiemouth.

To assist in the prioritisation of the heat network zones they have been divided into three categories:

- **Category 1:** Identifies areas with the highest potential for economically viable heat networks at present. This is determined using the national methodology that considers factors such as linear heat density, buffer radii, and the number of anchor loads. This represents the highest priority of zone for future progression.

- **Category 2:** Taking a broader approach by considering a wider range of factors such as heat sources, social housing, and strategic sites, to prioritise areas for heat networks that are not solely based on economic viability. This represents zones which will be more difficult to develop at present but may be suitable for development in the future.

- **Category 3:** Settlement-level zones which can be used for longer-term planning. It considers all the factors in Categories 1 and 2, as well as other factors that may be relevant to the specific settlement. This represents zones which will be difficult to develop but may be suitable for further consideration in the future.

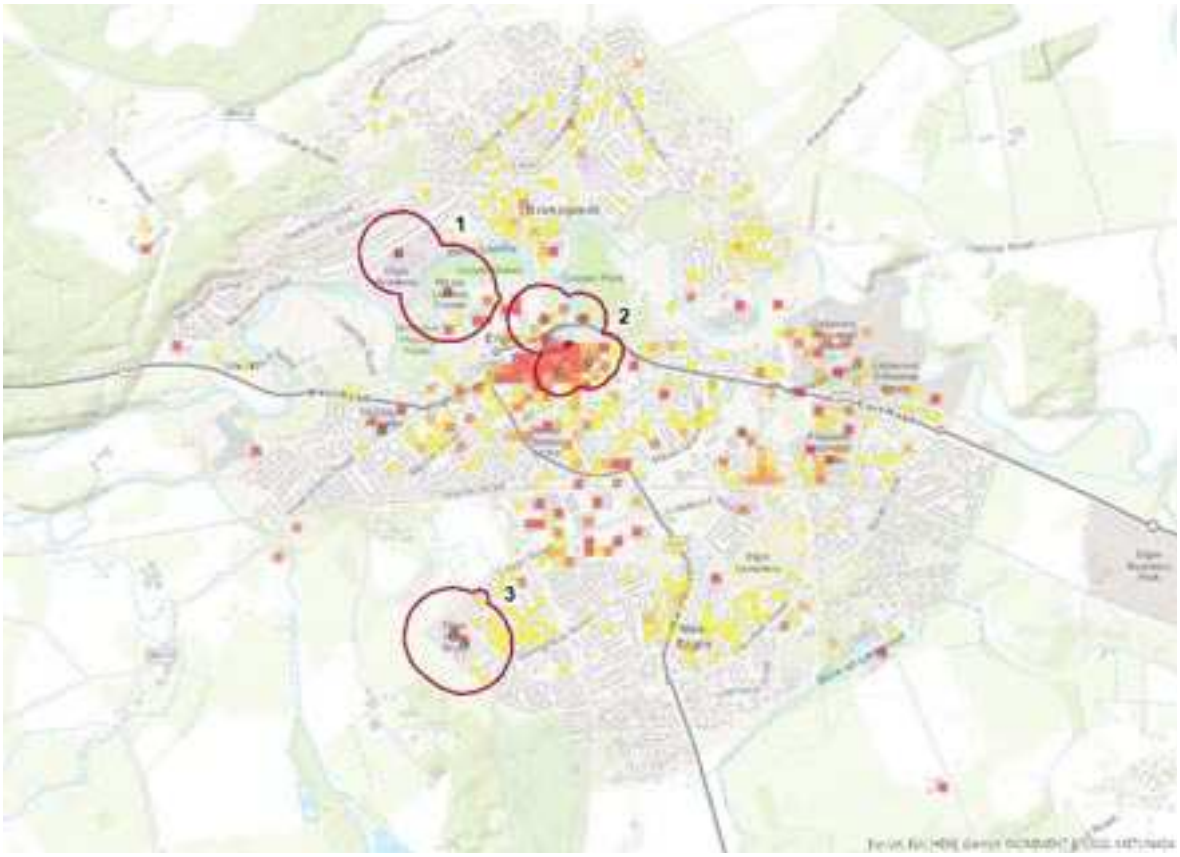
5.7.2.5 Category 1: Areas with the highest potential

A summary of the potential heat networks zones in Moray identified through the heat network mapping process is shown in Table 12. This identifies three areas in Elgin which contain suitable anchor loads and public buildings with sufficient heat demand near each other.

Table 12. Potential heat networks identified in Moray.

Zone ID	Category	Annual heat demand (MWh/yr)	Number of anchor loads
Elgin 1	1	7,503	2
Elgin 2	1	18,836	2
Elgin 3	1	7,442	2

Figure 2. Locations of Category 1 potential heat networks in Elgin.



Elgin 1 includes the Moray Leisure Centre (MLC) and Elgin Academy. Being a substantial consumer of heat, the MLC is currently pursuing potential retrofitting and enlargement. This opportune timing could prove beneficial for incorporating the MLC into a heat network. While Elgin Academy is situated near the MLC, the River Lossie might pose challenges or raise the expense of connecting the two buildings.

Elgin 2 includes buildings such as Elgin Town Hall, Elgin Library, Moray Council HQ and Moray Growth Deal projects in South Street. There are also other public buildings nearby such as Elgin Sheriff Court, UHI Moray campus and Dr Gray's Hospital. Therefore, a larger heat network in the centre of Elgin may be economically feasible with the opportunity to link to the MLC rather than having two distinct networks. There is also the opportunity to engage industrial facilities around the centre of Elgin which may have surplus heat to supply to the network.

Elgin 3 includes Elgin High School. This would involve linking the school and neighbouring buildings in a heat network. This network would be more difficult to develop than **Elgin 2** as there are fewer public buildings to act as anchor loads.

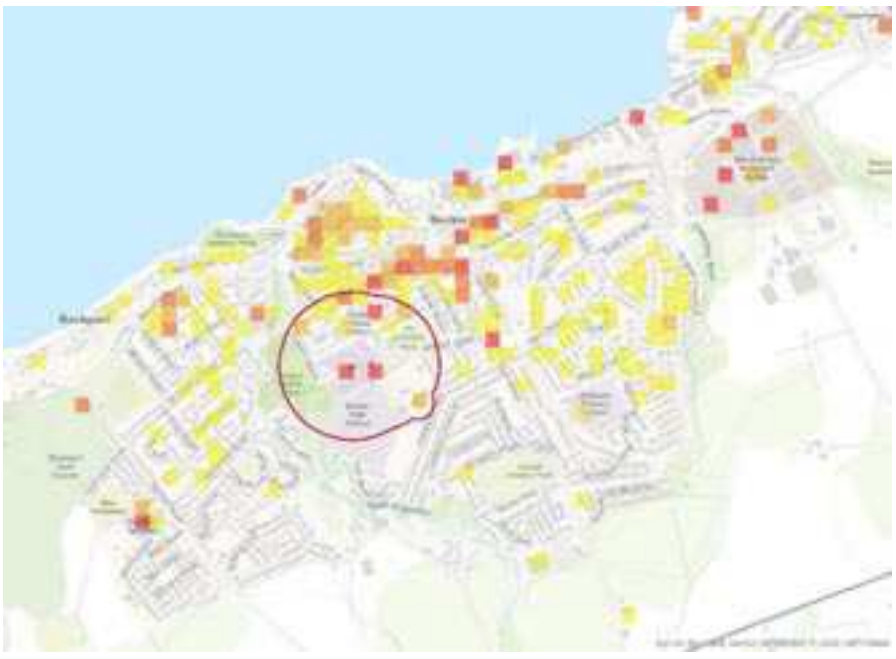
Although missing from the data, the Linkwood area to the southeast of Elgin may also be suitable for a heat network. This area includes Linkwood Primary School, Moray Sports Centre and Linkwood Distillery in relatively close proximity. There might be opportunities to use waste heat from the distillery as part of a heat network in this area or connect it to **Elgin 2**, the heat network identified in the town centre.

In terms of advancing these three potential projects, the immediate focus will be on investigating the viability of an expanded **Elgin 2** option. The timing of the Moray Growth Deal interventions at Elgin Town Hall, Elgin Library, and South Street presents an opportune moment to include these within the heat network. The Council has been successful in receiving support from the Scottish Government's Heat Network Support Unit for a feasibility study looking at this and potentially including more buildings into the network. This will be progressed in financial year 2024/25 when the funding is released.

5.7.2.6 Category 2: Areas with a wider range of factors

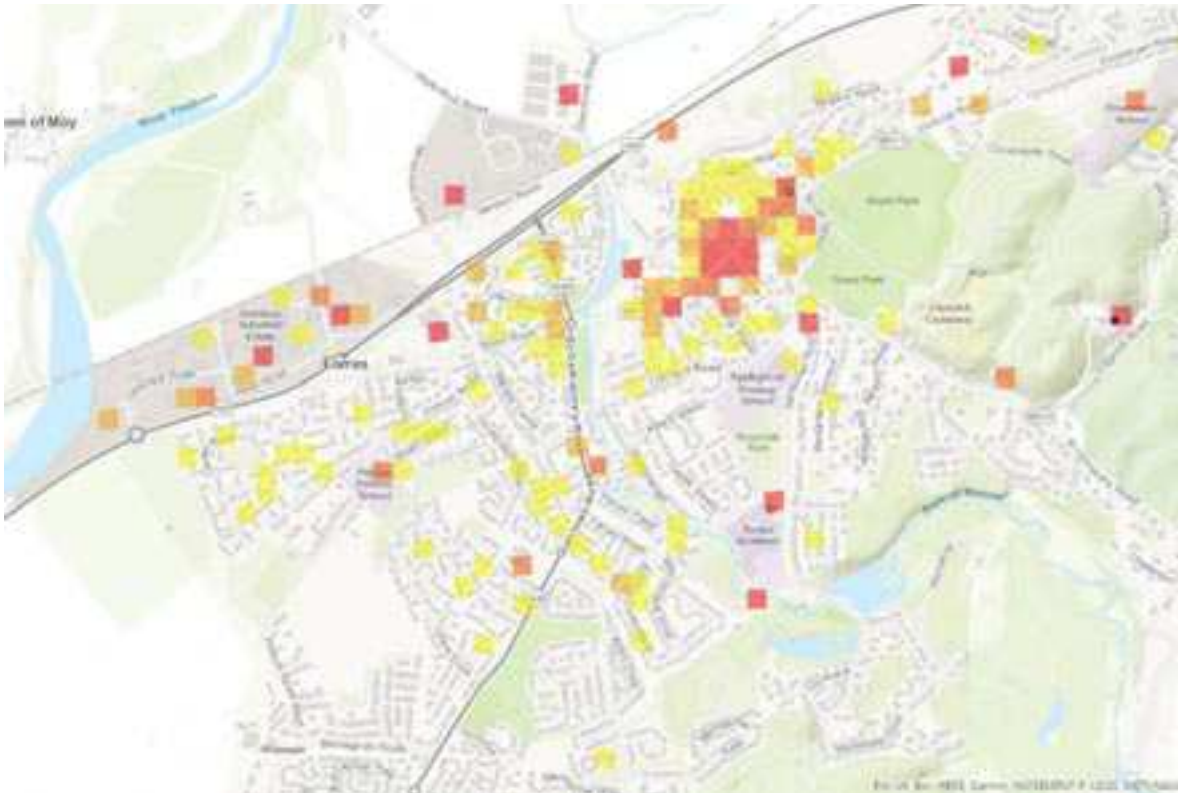
The towns of Buckie, Forres, and Keith lack the scale of public sector anchor loads that would suggest the financial viability of a heat network. Additionally, these locations present other limiting factors that require careful consideration.

Figure 3. Location of Category 2 potential heat networks in Buckie.



Buckie has a potential heat network zone around the primary and secondary schools. However, as there is a possibility for retrofitting or improvements to these buildings that have not been finalised, it is practical to wait until these plans are in a more advanced stage and then investigate the feasibility of a heat network in the area.

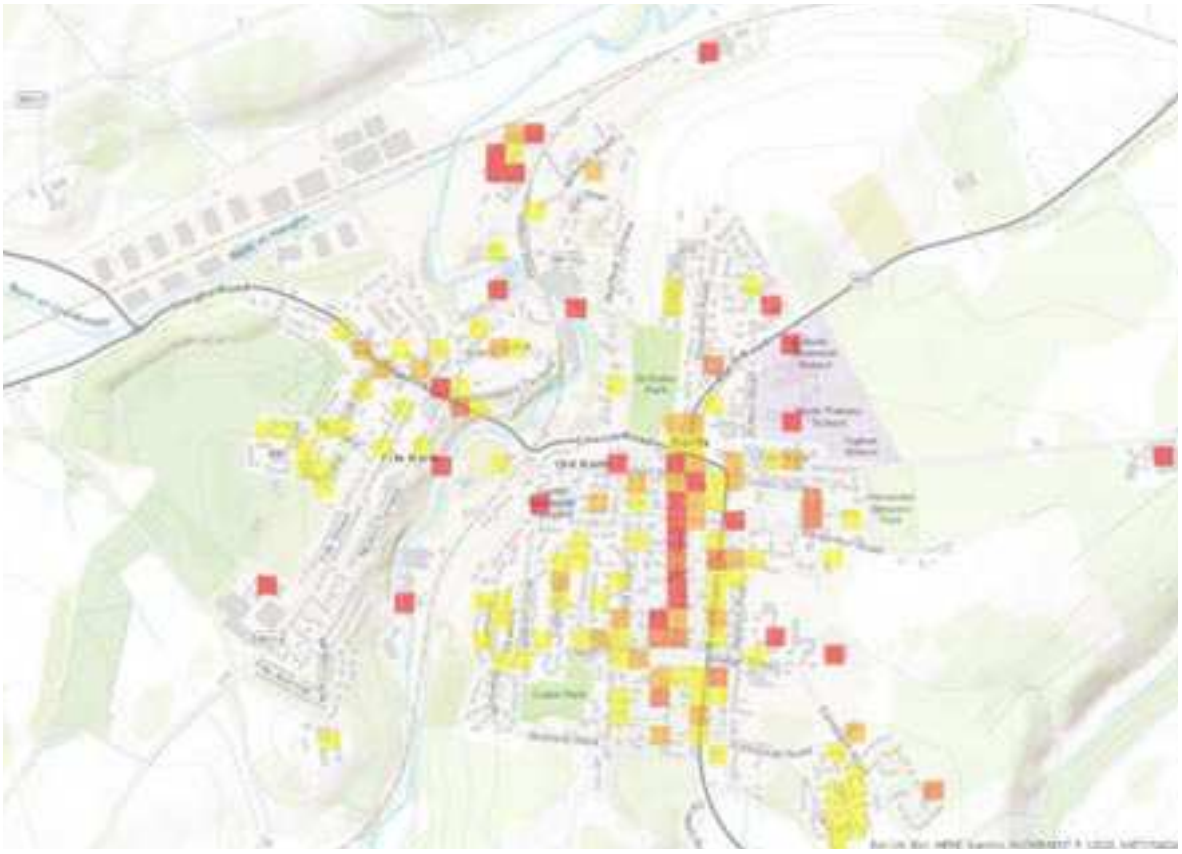
Figure 4. Heat demand map of Forres.



Forres' situation regarding possible heat network provision resembles that of Buckie. While there are various public buildings in the area, those with the highest heat demand are the schools. There are developing plans for a new Forres Academy, yet the location remains undecided at present. There could be potential for heat networks surrounding a new Forres Academy, which should be explored as part of the design of the new school. Due to the relatively substantial heat demand from businesses and public buildings in the Forres town centre, there is interest from the community in a heat network there. The feasibility of this is currently being investigated by the community.

While Keith does not have a significant concentration of public buildings with high heat demand, it has the potential to connect excess heat generated by distilleries to a heat network. While this approach may not be as commercially viable as other options, it warrants further exploration. The Keith Grammar School and the nearby swimming pool could contribute substantially to the heat demand of the network. Consideration should also be given to the potential relocation of industries like data storage centres to Keith, assuming the region's electricity infrastructure is upgraded due to the reinforcement of the grid and its connection to offshore wind energy projects.

Figure 5. Heat demand map of Keith.



For the purposes of strategic planning and development, these Category 2 sites will remain under review with their potential heat network status reassessed on a regular basis. If these areas are designated as potential Heat Network Zones, developers with planning applications in these areas will be required to outline anchor load status and/or capability to connect with a heat network. This will help to ensure that new developments are designed in a way that is compatible with future heat networks.

5.7.2.7 Category 3: Areas for further investigation as heat networks

Some sites were identified as having relatively high heat demand, though there were insufficient anchor loads to include them within the potential heat network zones at present. These areas include Burghead and Lossiemouth.

It is important to note that these sites may become potential heat network zones in the future. Further feasibility work could be undertaken to assess the potential for heat networks in these areas, considering factors such as the density of heat demand, the availability of renewable heat sources, and the potential for new anchor loads to be developed.

The establishment of an anchor load in one of these areas could make it feasible to create a heat network in these areas. For example, if a new public building is built in an area with high heat demand, this could make it possible to build a heat network that would also serve the surrounding homes and businesses. Similarly, if a waste heat recovery scheme is developed in an industrial area, this could be used to provide heat for a nearby heat network.

Figure 6. Heat demand map of Burghead.

Figure 7. Heat demand map of Lossiemouth.

5.7.3 Summary

This priority aims to decarbonise heating systems across Moray and achieve net zero emissions from heating by 2045. Most Moray properties are connected to the gas grid, but to achieve the level of decarbonisation required, this strategy takes a no/low regrets approach to prioritising actions. This involves having heat decarbonisation actions for domestic properties only where there is a high certainty of success. There is potential to develop further heat networks in Moray. Several areas in the region have been identified as being potentially suitable for new heat networks, including Buckie, Elgin, Forres, and Keith. However, most domestic properties in Moray will not be in areas suitable for heat networks so individual heating solutions such as heat pumps will be the most suitable solution for these.

6. Opportunities and challenges

6.1 Technology opportunities

Several technologies and measures exist which can help to reduce energy consumption and decarbonise heat in buildings (Table 13).

Table 13. Technological opportunities applicable to Moray.

Insulation	Heat networks	Air and ground source heat pumps
All types of insulation reduce heat and energy loss: ● Cavity wall and solid wall; ● Floor, roof and loft; ● Draught proofing; ● Double and triple glazing; ● Energy efficient doors; and ● Tanks, pipes, and radiators.	Bioplant maltings and Supplies heat (or cooling) to buildings by taking excess heat from a central source. Supplying multiple buildings removes the need for individual boilers or heaters. Sources of excess heat include combined heat & power plants, industrial operations, wastewater treatment works, mine water, landfill sites.	Transfers heat from air, ground or water outside of a building to radiators, underfloor heating and hot water cylinders. Heat is absorbed into a thermal transfer fluid, passed through a heat exchanger into the pump. This raises the temperature of the fluid and transfers heat to water.
New energy sources	**Energy storage**	**Other**
Expanding existing electricity supply to meet demand. Exploring new energy options such as hydrogen..	It is expected that due to the energy transition, the price of energy storage will increase. Thermal storage for buildings ensures efficient operation of zero emission heating systems. It usually consists of hot water storage tanks or compact heat batteries. Thermal storage may also support heat networks.	Other decarbonised heat sources include infra-red/electric heaters combined with solar photovoltaic panels; and solar water heating..

6.2 Other opportunities

6.2.1 Just Transition

Local Heat and Energy Efficiency Strategies focus on decarbonising heat in buildings and improving energy efficiency. However, it is important to consider the broader context of the energy transition when developing and implementing the strategy.

The transition to a new energy system presents an economic opportunity, as energy prices are a major factor in the cost of doing business. A just energy transition will create significant supply chain opportunities which will require new jobs, skills, and knowledge transfer. This could have substantial benefits for Moray, for example:

- If, on average, two measures are undertaken by all homes below EPC B, this would equal approximately 5,300 interventions per year in Moray from now to 2040.
- The opportunity for internalising even 10% of Moray's energy spend could equal an additional £9.5m per year[46] circulating the Moray economy, building community wealth.
- For every 1% reduction in energy demand through energy efficiency measures, Moray's energy cost would reduce by ~£1m per year.

As part of this opportunity, by collaborating with neighbouring local authorities on common areas of interest, the Council and relevant stakeholders can optimise the use of limited resources and achieve mutually beneficial outcomes for the entire north of Scotland.

6.2.2 Wider energy planning

This strategy acknowledges that energy is not limited by council boundaries or property ownership. There is a need to balance the use of energy for heating with other priorities, such as wider regional plans, local industrial uses and electric vehicle charging.

It will therefore provide direction and help inform wider energy planning with stakeholders and through the development of Moray's Local Development Plan (LDP) 2027. This LHEES will provide material considerations for the LDP to identify local policy priorities and heat network zones.

To leverage commercial investment in the just transition, wider energy planning is essential. Ensuring that this strategy and delivery plan feed into this wider planning will help further this aim.

[46] Based on total final energy consumption for Moray (2019) and an average price per kWh of 27.4 pence (gov.uk)

6.2.3 Stakeholder connections

This strategy and future iterations will cover all buildings in Moray. It is critical that all building owners are brought along as part of a just transition. To ensure ongoing success and development, as this LHEES evolves it will be necessary to continually engage and understand stakeholder needs and wants and ensure these are included in future iterations of the strategy. An engagement plan has been created by Changeworks and is included in the delivery plan.

New partnerships will be forged to move forward projects in line with the strategy's vision. Due to the variety of building stock and geographical challenges across Moray, investment and innovative technologies will be required to help meet deliver projects and associated targets.

6.3 Challenges

Several challenges must be addressed to ensure the success of this strategy and delivery plan. Short-term actions will focus on collaborative solutions to the challenges:

- Uncertainty of measures: using proven technologies as the basis for heat decarbonisation;
- Energy performance certificates: acknowledging data limitations and ensuring certificates are up to date;
- Skills and knowledge: understanding concerns and providing information and assistance, identifying skills shortages and taking action to address these; and
- Ongoing funding and delivery: working with stakeholders, government and the private sector to identify appropriate funding and delivery mechanisms.

Some of these challenges make it difficult to achieve robust delivery or have undesired short- and long-term impacts, potentially damaging confidence in the strategy and early actions. Potential impacts, if not addressed, include:

- Higher energy costs;
- Increasing or not reducing fuel poverty;
- Damp/mould; and
- Interstitial (inter-wall) condensation leading to internal degradation.

To address the uncertainty of measures, only those measures with a high likelihood of success and positive impacts will be pursued. A focus will be placed on research and analysis to identify high-certainty building-level measures. Additionally, the Council will raise nationally significant challenges to the Scottish Government to facilitate a coordinated response and action.

7. Governance, reporting and monitoring

7.1 Governance

TThis strategy provides a framework for future capital and revenue work to guide Moray's buildings towards achieving net zero targets. LHEES focusses on enhancing energy efficiency and decarbonising heat sources, detailing specific projects to be implemented, monitoring progress, identifying gaps and challenges, and outlining potential solutions.

It has been developed to align with existing governance structures; understand cross-cutting opportunities, such as the Local Development Plan, and work with partners to take the strategy forward.

Moray's LHEES will be managed as a project within the Council's Strategic Planning and Development section, working in partnership with stakeholders across the region. A draft strategy and delivery plan will be presented for the approval by the Council in April 2024. A public consultation will be held on the documents before final versions are presented for approval by the Council in June 2024. Thereafter, progress on the strategy will be reported to the Council's Climate Change Board and annually to the Economic Development and Infrastructure Services Committee.

7.2 Reporting and monitoring

To ensure the Council meets the requirements of the Local Heat and Energy Efficiency Strategies (Scotland) Order 2022, the following steps will be taken to report on and monitor Moray's LHEES and delivery plan.

Ongoing monitoring will be crucial to the success of the strategy and delivery plan. This will ensure that key outcomes are met, allowing for continuous improvements to adapt to changing requirements and incorporate new information and data. It will also help to ensure that Moray's LHEES and delivery plan remain dynamic and responsive documents. Significant delivery risks, changes, and achievements will be reported and incorporated into the Council's annual statutory Public Bodies Climate Change Reporting.

Regular progress updates will be reported to the LHEES Steering Group on a quarterly basis. A more formal review will occur every two years. This will include consideration on any new national or local policy and how these might influence this strategy and delivery plan. Furthermore, any new information and data will also be considered. Every 5 years the delivery plan will be reviewed and updated (if appropriate).

Significant achievements will be included in the Council's wider public-facing climate communications and communicated via established partnerships including Moray CAN and Moray Climate Assembly.

A series of targets/outcomes to measure success against each LHEES priority are included within the delivery plan.

8. Consultation summary

A public consultation was held on this strategy and delivery plan from 25 April to 16 May 2024. Copies of the documents were available on the Council's website and at libraries across Moray. Respondents were invited to comment on the documents as a whole and each of the priority areas and associated actions, indicating their thoughts and any associated remarks.

The results of the consultation are summarised as follows:

[to be included in final draft, post consultation]