AGENDA ITEM No. 6

EAST RENFREWSHIRE COUNCIL

CABINET

22nd February 2024

Report by Director of Environment

DRAFT LOCAL HEAT & ENERGY EFFICIENCY STRATEGY

PURPOSE OF REPORT

1. The purpose of this report is to seek approval to carry out a public consultation on the draft Local Heat & Energy Efficiency Strategy.

RECOMMENDATIONS

2. Cabinet is recommended to:

i. Note the contents of the draft Local Heat & Energy Efficiency Strategy (LHEES) contained within Appendix 1.
ii. Approve the publication of the draft LHEES, which will be subject to consultation with key stakeholders and the public until early April.

BACKGROUND

3. The Local Heat and Energy Efficiency Strategies (Scotland) Order 2022 requires each local authority to produce LHEES and accompanying Delivery Plans every five years. Local Heat and Energy Efficiency Strategies (LHEES) are long term plans for an entire local authority area to improve energy efficiency and transition away from burning fossil fuels for heating i.e. removal of natural gas boilers. As such, successful implementation of an LHEES can directly contribute to fulfilling the Council's climate change duties.

4. A LHEES follows an area-wide approach, meaning it addresses all buildings (domestic and non-domestic) in East Renfrewshire, not just the Council's own building stock. It covers all homes (whether owned by owner-occupiers, social landlords, or private landlords) and all non-domestic buildings, whether owned by the Council, other public bodies, businesses, or the third sector.

5. The Council declared a climate emergency in October 2021, and in November 2022 the Cabinet approved a target for the Council to achieve net zero carbon emissions by 2045. The LHEES will be a significant step to reduce both the Council's operational emissions and community emissions from homes and businesses.

6. The Scottish Government has provided £75,000 per annum until 2027/28 to allow the Council to complete a LHEES and begin implementing the related Delivery Plan. The Council has used the available funding to recruit a LHEES officer who has been in post since January 2023. The LHEES officer has led the preparation and internal consultation on the draft LHEES.

REPORT

7. A draft LHEES has been prepared, ready for publication and consultation with both the public and key stakeholders. The draft LHEES is provided in ***Appendix 1***.

8. A baseline data review informed the LHEES. Some of the key facts are:

i. East Renfrewshire has a larger proportion of owner-occupied properties (75%) compared to the rest of Scotland (65%).
ii. Domestic properties in East Renfrewshire are less energy efficient than the national average. Across tenure types, privately rented and owner-occupied properties are the least energy efficient.
iii. The insulation levels of cavity wall properties in the area (59%) are much lower than national levels (73%).
iv. In non-domestic buildings, 51% of assessed non-domestic properties are heated by electricity compared to 9% of domestic properties, and 47% of properties are in the lowest energy efficiency category.
v. Across all 40,437 domestic properties, 25% of homes are suitable for cavity wall insulation and 11% are suitable for internal wall insulation.
vi. Up to 39% of properties meet the criteria to be suitable for heat pumps now.
vii. The Council has greatest influence over its own properties. Social housing, leisure centres and schools are where heat demand is greatest and where action should be prioritised.

9. Our ambition is for every property in East Renfrewshire to have access to affordable, reliable and net zero heat. For homes, this would help reduce the risk of fuel poverty, and bring social, economic and public health benefits. However, significant funding and investment will be required if our ambitions are to be realised.

10. The strategy and the associated delivery plan will aim to achieve four main outcomes:

Outcome 1: Homes and buildings in East Renfrewshire are as energy efficient as possible
Outcome 2: Heat solutions are delivered to meet 2045 net zero target and tackle fuel poverty
Outcome 3: Investment and grant funding is secured to deliver net zero projects
Outcome 4: East Renfrewshire Council supports property owners to improve heating solutions

11. Combining the baseline data and the assessment criteria, the draft LHEES has identified six priority workstreams to help develop our Delivery Plan and achieve our four outcomes. The priorities below are not ranked, they are numbered for ease of reference only:

Priority 1 - Analyse potential Heat Network zones
Priority 2 - Deliver ground source heat pumps for socially rented properties
Priority 3 - Increase levels of cavity wall insulation in the private sector
Priority 4 - Improve uptake of wall insulation EES: ABS programme
Priority 5 - Deliver improvements for non-domestic, council-owned properties
Priority 6 - Determine most appropriate solar thermal & solar PV installations

12. The scale of the challenge is enormous – nearly all properties both domestic and non-domestic require some improvement in energy efficiency or to remove natural gas boilers in the next 20 years. The Council has most control over its own properties but the LHEES covers all properties in the area. The cost to private property owners across the Glasgow City Region to meet the energy efficiency and zero-emission heating standards has been estimated at £10.7 billion.

13. The availability of skilled tradespeople and the capacity of supply-chains to provide the necessary equipment are also noted as key challenges in the delivery of the energy and heat transition identified in the LHEES. This is not addressed specifically in the LHEES but provides the context for delivery of the strategy.

14. Consultation with key stakeholders will be an important stage before finalising the LHEES. Engaging with major infrastructure and institutional representatives will help gather crucial data to identify constraints and future plans. The main stakeholders the Council will seek to engage with are: Scottish Power Energy Networks (SPEN) – the operators for the electricity distribution network; SGN – operators of the gas network; and public bodies including NHS Greater Glasgow, Police Scotland, Scottish Fire & Rescue. Other stakeholders such as homeowners, private landlords and business owners are more difficult to engage but nonetheless the LHEES also seeks to engage with and support these groups.

15. Public bodies have an important role to play supporting the development and delivery of LHEES. Public bodies are encouraged by Scottish Government to share data that could support the heat transition such as the heat demand of their buildings and waste heat generation. The draft LHEES provides an opportunity to discuss local heat requirements with these other bodies.

16. The completion of the LHEES will be complemented with a Delivery Plan. This will be finalised with the final draft of the LHEES, after the consultation has concluded. The LHEES Delivery Plan will set out how the Council proposes to support implementation of the LHEES. The first LHEES Delivery Plan will incorporate actions with a near-term (5-year) focus. This will be informed by the existing policy landscape, but be flexible to adapt to the changing scope as the Scottish Government introduces future standards, regulations, and funding programmes. It is expected that actions in the Delivery Plan would therefore be reviewed and updated on an annual or biennial basis.

FINANCE AND EFFICIENCY

17. There are no immediate budget or staff impacts resulting from this report.

18. It should be noted that consultation on the draft LHEES is the first step in a process that will radically change how all types of building tenures across the local authority area are heated, maintained and managed over the next 20 years. Future costs for the Council to make the necessary changes to its own buildings has previously been estimated to be at least £250m. Additional funding and specialist skills will be required to take forward the actions outlined in the LHEES.

CONSULTATION AND PARTNERSHIP WORKING

19. The draft LHEES will be subject to consultation with key stakeholders and the public. This will take place from agreement of this report. Findings from this consultation exercise will inform the final LHEES and Delivery Plan which will return to Cabinet for final approval before publication.

20. A LHEES working group has been established with officers from across the Environment Department. The LHEES officer has engaged with other local authorities through networks organised by Scottish Government, the Improvement Service and Sustainable Scotland Network. This has been important in sharing and learning good practice as all local authorities are working towards publication of their LHEES. Findings from these groups has informed how the LHEES was prepared and the priorities set out within the strategy.

21. The draft LHEES will be available on Commonplace to allow wider public engagement for a period of 6 weeks from agreement of this report. Key external stakeholders, as outlined in paragraph 14 will be contacted directly to provide feedback within the same period.

IMPLICATIONS OF THE PROPOSALS

22. There are no immediate impacts on staffing, property, health & safety, IT and subsidy-control relating to this report.

23. A Climate Change and Equalities, Fairness & Rights Impact Assessment will be completed prior to the final publication of the LHEES and Delivery Plan. The reports will be presented to Cabinet for final approval.

CONCLUSIONS

24. LHEES are long-term plans for an entire local authority area to improve energy efficiency and transition away from burning fossil fuels i.e. removal of natural gas boilers.

25. A draft LHEES has been prepared and is ready for public consultation. After consultation the LHEES and Delivery Plan will be published. This is anticipated by summer 2024.

26. Priorities for action consider the development of heat networks, supporting private homeowners to install insulation, new heating systems and solar panels, and assessing and improving the Council's own estate. The scale of the challenge is enormous – all properties in the area, totalling over 42,000 domestic and non-domestic buildings, are likely to require some improvement action.

RECOMMENDATIONS

27. Cabinet is recommended to:

i. Note the contents of the Local Heat & Energy Efficiency Strategy (LHEES) contained within Appendix 1.
ii. Approve the publication of the draft LHEES, which will be subject to a consultation with key stakeholders and the public until early April.

Director of Environment

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February 2024

APPENDICES

1. Draft Local Heat & Energy Efficiency Strategy

Appendix 1

Draft

Local Heat and Energy Efficiency Strategy (LHEES)

East Renfrewshire Council

Executive Summary

East Renfrewshire Council has joined many local authorities in Scotland in declaring a climate emergency. Each local authority will publish a Local Heat and Energy Efficiency Strategy (LHEES), as a requirement of legislation. LHEES is a long-term plan to decarbonise heat and improve energy efficiency. This new strategy is at the heart of the Scottish Government's heat transition, with the aim of removing natural gas or oil as the main means of heating homes and buildings. As such, successful implementation of a LHEES will directly contribute to fulfilling the Council's climate change duties and will help reduce community emissions too.

For each local authority area, the Scottish Government's methodology advises that a LHEES should:

- Show how each segment of the building stock 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;
- Identify strategic heat decarbonisation zones and set out the principal measures for reducing buildings emissions within each zone; and
- Prioritise areas for delivery, against national and local priorities.

Accompanying the final version of the LHEES will be a 5-year Delivery Plan which will be developed in partnership with key stakeholders and provide a strong basis for action for local communities, government, investors, developers and wider stakeholders; pinpointing areas for targeted intervention and early, 'quick-win', measures.

In 2019, only 11% of homes in Scotland had low-emission heating systems. To meet the national target of net zero greenhouse gas emissions by 2045, a rapid acceleration of homes converting to zero-emission heating is needed. The rate at which homes are being retrofitted to meet low-emission heating targets will need to increase rapidly in the next 10 years, to support Scotland to achieve net zero emissions by 2045. From the current rate of 0.1% of homes making the conversion per year, it will be necessary for 5-10% of homes per year to achieve this target.

Zero-emission heating will involve converting properties to electrical heating (e.g. heat pumps). This can be done at individual property level (by use of air-source heat pumps or ground-source heat pumps), or communally via heat networks.

Key nationwide target dates and outcomes

- Net zero emissions by 2045 and 75% reduction by 2030.
- By 2030 emissions fall by 68% against 2020 levels, this includes:
  - All homes EPC C or equivalent by 2033 (1.2m homes);
  - Vast majority off-gas homes switching to zero emissions heat (>170k homes);
  - 1m on-gas homes switching to zero emissions heat;
  - Non-domestic buildings switching to zero emissions; and
  - By 2040 no more than 5% of households are in fuel poverty & 1% in extreme fuel poverty.
- 2.6 TWh of thermal energy to be supplied by heat networks by 2027 and 6 TWh by 2040.
- By 2045 our homes and buildings no longer contribute to climate change

An LHEES covers both domestic and non-domestic buildings. In East Renfrewshire the LHEES will cover 42,365 properties**.** This means:

- 40,650 properties in the domestic sector
- 1,715 properties in the non-domestic sector

This includes:

- 35,453 private sector domestic properties
- 1,515 private sector non-domestic properties
- 5,197 public sector (i.e. social housing) domestic properties
- 200 non-domestic council-owned properties

9% of the domestic properties are off gas.

32% of the private non-domestic properties are off gas.

36% of the domestic properties (15, 570) have an EPC band A, B or C.

10% of the non-domestic properties (170) have an EPC band A, B or C.

Our ambition is for every property in East Renfrewshire to have access to affordable, reliable and net zero heat. For homes, this would help reduce the risk of fuel poverty, and bring social, economic and public health benefits. However, significant funding and investment will be required if our ambitions are to be realised.

This strategy and the associated delivery plan will aim to achieve four main outcomes:

1. Homes and buildings in East Renfrewshire are as energy efficient as possible
2. Heat solutions are delivered to meet 2045 net zero target and tackle fuel poverty
3. Investment and grant funding is secured to deliver Net Zero projects
4. East Renfrewshire Council supports property owners to improve heating solutions

Contents

1. Introduction

In response to global climate change, the Scottish Government introduced the Climate Change (Emissions Reduction Targets) Act 2019. This introduces a legally binding target for Scotland to achieve net zero greenhouse gas emissions (GHG) by 2045, with interim targets for emission reductions of 75% by 2030, and 90% by 2040. Scotland's Climate Change Plan sets out the ambition to reduce emissions, particularly from heating buildings, which accounts for around 20% of Scotland's GHG emissions.

Decarbonisation is the process to reduce the amount of carbon dioxide and other greenhouse gas emissions by introducing new low carbon alternatives and technologies. Much of the decarbonisation strategy is based on switching carbon energy usage (e.g. petrol and diesel for transport, and natural gas and oil for heating) to electricity, and then using renewable generation to provide zero carbon electricity.

In 2019, only 11% of homes in Scotland had low-emission heating systems. To meet the national target of net zero greenhouse gas emissions by 2045, a rapid acceleration of homes converting to zero-emission heating is needed. From the current rate of 0.1% of homes making the conversion per year it will be necessary for 5-10% of homes per year to achieve this target.

Glasgow City Region (GCR) outlined in 2021 that bringing homes across the region to Energy Performance Certificate (EPC) level C and above is estimated to cost in the region of £10.7 billion, with up to £600 million investment per annum required for a 15-year period. There are approximately 428,000 properties across the region below EPC C.

Whilst owner occupiers comprise 71% of properties across GCR, East Renfrewshire has 75% owner-occupiers. Overcoming the range of barriers to upscaling retrofit with owner- occupiers will require a comprehensive framework of incentives and/or regulations being in place. The Scottish Government has stated that it is looking at regulation for owner- occupiers but this is unlikely to be in place until after 2025.

Heat decarbonisation can be done at individual property level (by use of air-source heat pumps or ground-source heat pumps), or communally via heat networks that are relatively large (i.e. district heating) or via smaller networks, such as shared ground-source heat pumps. Zero-emission heating will involve converting properties to electrical heating (e.g. air-source heat pumps) or by converting fossil-fuel boilers to Hydrogen gas. Continuing to burn natural gas for heating is not consistent with a zero-emission target.

In November 2022, East Renfrewshire Council set a target for net zero carbon emissions by 2045. A Local Heat and Energy Efficiency Strategy (LHEES), which is a legislative requirement, is identified in our draft Get to Zero Action Plan as a key action.

The legislation for LHEES sets out that each strategy should:

- Show how each segment of the building stock 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;

- Identify strategic heat decarbonisation zones, and set out the principal measures for reducing buildings emissions within each zone; and
- Prioritise areas for delivery, against national and local priorities.

The LHEES will also support the Scottish Government targets for fuel poverty: by 2040, as far as reasonably possible, no household in Scotland is in fuel poverty.

Accompanying the LHEES will be a Delivery Plan. The Delivery Plan will be developed in partnership with key stakeholders and provide a strong basis for action for local communities, government, investors, developers and wider stakeholders, pinpointing areas for targeted intervention and early, low-regrets measures. This will be prepared alongside the final version of the LHEES.

Completion of the LHEES, and the associated Delivery Plan, will support the Council and the community to reduce emissions from homes, businesses and public buildings. It will set out the long-term plan for decarbonising heat in buildings and improving their energy efficiency across an entire local authority area. We aim to deliver on 4 main outcomes:

Table 1 East Renfrewshire's four LHEES Outcomes

Outcome 1	Homes and buildings in East Renfrewshire are as energy efficient as possible
Outcome 2	Heat solutions are delivered to meet 2045 net zero target and tackle fuel poverty
Outcome 3	Investment and grant funding is secured to deliver Net Zero projects
Outcome 4	East Renfrewshire Council supports property owners to find improved heating solutions

Our ambition is for every property in East Renfrewshire to have access to affordable, reliable and net zero heat. The immediate priority is to ensure that all domestic and non-domestic properties are as energy efficient as possible. For homes, this would help reduce the risk of fuel poverty, and bring social, economic and public health benefits. However significant funding and investment will be required if our ambitions are to be realised.

The scope of LHEES is focused on energy efficiency and heat decarbonisation. It does not extend to wider local energy system planning directly, i.e. evaluating future energy demand, grid capacity/connections etc. However, the production of a LHEES does not preclude local authorities undertaking wider local area energy planning.

Indeed, LHEES will be an important building block for wider local energy planning. East Renfrewshire Council will work with distribution network operators (DNO) to understand where grid constraints may restrict the ability to install heat pumps. DNOs will also be able to use the outputs of LHEES to plan where they need to strengthen the grid in the future to support heat decarbonisation. Some local authorities are building on the analysis done as part of their LHEES to consider the wider energy system by producing a Local Area Energy Plan. Following publication of the final LHEES we will give this due consideration alongside the development of Local Development Plan 3.

2. Policy Context

The 'Heat in Buildings Strategy – achieving net zero emissions in Scotland's buildings' was released in October 2021. This sets the Scottish Government's vision for the future of heat in buildings. It sets out actions the government is undertaking in the building sector to deliver their climate change commitments, while at the same time maximising economic opportunities and ensuring a 'just transition', including helping to address fuel poverty.

A provisional target for renewable heat indicates that at least 22% of heat in buildings should be directly supplied from renewable sources by 2030. A summary of the national and local heat and energy efficiency policy landscape can be found below:

2.1 National Policy Context

- **Climate Change Plan Update (2020)** - Outlines the Scottish Government's pathway to achieving the targets set by the Climate Change Act 2019 and is a key strategic document for delivering a green recovery from COVID-19.
- **Heat in Buildings Strategy (2021) –** As above, this sets Scotland's vision for the future of heat in buildings, and the actions to be taken in the buildings sector. Key nationwide target dates and outcomes include:
    - Net zero emissions by 2045 and 75% reduction by 2030.
    - By 2030 emissions fall by 68% against 2020 levels, this includes:
        - All homes EPC C or equivalent by 2033 (1.2m homes)
        - Vast majority off-gas homes switching to zero emissions heat (>170k homes)
        - 1m on-gas homes switching to zero emissions heat
        - Non-domestic buildings switching to zero emissions.
    - By 2045 our homes and buildings no longer contribute to climate change.
    - By 2040 no more than 5% of households are in fuel poverty & 1% in extreme fuel poverty.
    - 2.6 TWh of thermal energy to be supplied by heat networks by 2027 and 6 TWh by 2040.

- **Heat in Buildings Bill** (upcoming) - The upcoming Heat in Buildings Bill builds upon Heat in Buildings Strategy. The Scottish Government sought the views on the proposals for:
    - All privately rented homes to meet a minimum energy efficiency standard by the end of 2028;
    - All other privately owned homes to meet a minimum energy efficiency standard by the end of 2033; and
    - The use of polluting heating systems to be prohibited by the end of 2045.

- **Heat Networks Act (2021)** - Places a duty on local authorities to carry out a review to consider whether one or more areas in its authority is likely to be particularly suitable for the construction and operation of a heat network.

- **Energy Efficiency Standard for Social Housing** (EESSH) - The Energy Efficiency Standard for Social Housing (EESSH) aims to improve energy efficiency of social housing in Scotland. It is set to be replaced with a new Social Housing Net Zero

Standard in the next couple of years. The Scottish Government consultation on this new standard sought the views on a standard that will require social landlords to:

- Improve fabric efficiency by 2033; and
- Install clean heating, across their stock, by 2045 where it is technically feasible and cost-effective to do so.

- **Scottish Energy Strategy & Just Transition Plan (2023)** - Sets out how Scotland will meet the challenge of reducing demand within main energy-using sectors such as heat in buildings, transport, industry and agriculture whilst using energy more efficiently, and becoming largely decarbonised by 2030.

- **Housing to 2040 -** Sets out a vision for housing in Scotland to 2040 and a route map to get there.

- **National Planning Framework 4** (NPF4) - NPF4 sets out the national spatial strategy for Scotland (up to 2045) and sets out where development and infrastructure are needed. It will guide spatial development, set out national planning policies, designate national developments and highlight regional spatial priorities that will guide the preparation of Regional Spatial Strategies (RSSs).

- **New Build Heat Standard -** From the 1st of April 2024, new buildings in Scotland applying for a building warrant will be required to use zero direct emissions heating systems (ZDEH) to meet their space and hot water heating and cooling demands.

- **Hydrogen Policy Statement (2020)** - Sets out the vision for Scotland to become a leading hydrogen nation in the production of reliable, competitive, sustainable hydrogen.

- **Review of Electricity Market Arrangements** (REMA) (UK Government) - Proposals under the scope of REMA include the exploration of fundamental changes to the electricity market to disable volatile gas prices from setting the wholesale cost of electricity, allowing consumers to benefit from lower cost renewable energy.

2.2 Local Policy Context

- **Community Plan** - East Renfrewshire Community Planning Partnership's Community Plan sets out how local services will work together to create stronger and fairer communities together with the people of East Renfrewshire. This plan includes Fairer East Ren.

- **Local Outcome Improvement Plan** (LOIP) - Fairer East Ren is the LOIP for East Renfrewshire Community Planning Partnership. It identifies how partners will work together to reduce socio-economic inequality and this is set out in a number of themed delivery plans.

- **Outcome Delivery Plan** (ODP) - The Council's Outcome Delivery Plan outlines the key contributions that council departments will make to the delivery of the Community Plan and Fairer East Ren. It presents the planned key activities in partnership with the Health and Social Care Partnership (HSCP), East Renfrewshire Culture and Leisure

Trust (ERCLT) and local partners including Voluntary Action East Renfrewshire, to help deliver our strategic outcomes.

- **Get to Zero Action Plan (GTZAP)** - The Council's GTZAP provides a framework for East Renfrewshire to combat climate change and deliver net zero carbon emissions by 2045. It covers more extensive topics than the LHEES, such as waste and transport. The LHEES will complement the wider work to be delivered through the GTZAP.

- **Local Development Plan 2** (LDP2) - Supports our economy to grow and take the necessary steps to tackle climate change and its impacts. LDP2 provides the Council with a development strategy that will guide the future sustainable growth of East Renfrewshire up to 2031 and beyond. The key objectives on future land use within East Renfrewshire relevant to LHEES are:

  1. Creating sustainable places and communities;
  2. Promoting sustainable and inclusive economic growth; and
  3. Promoting a net zero carbon place.

  New developments are required to demonstrate efficiency and sustainability, encompassing energy-efficient designs and effective carbon reduction measures. The emerging LDP Low and Zero Carbon Delivery Supplementary Guidance will emphasise the importance of heat networks, including dedicated measures such as the potential to safeguard land for energy centre utilisation and ensuring that new proposals are designed to seamlessly connect to nearby heat networks.

- **Local Housing Strategy** (LHS) - Currently in development, the refreshed LHS will ensure that our commitment to tackling climate change extends to our council house building programme which will see tenants move into more environmentally friendly, lower carbon homes.

- **Property Asset Management Plan** (PAMP) - Currently in development, the PAMP will set out the Council's plan for the management of its built non-domestic property assets including how to comply with zero emissions targets.

3. Structure of the LHEES

As established in the Local Heat and Energy Efficiency Strategies (Scotland) Order 2022, LHEES has a two-part structure:

- A Local Heat and Energy Efficiency Strategy - a long-term strategic framework for 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.
- A LHEES Delivery Plan - sets out how a local authority proposes to support implementation of its LHEES. The final version of the LHEES will include a 5-year LHEES Delivery Plan.

LHEES are framed around six considerations prescribed by the Scottish Government, as listed in **Error! Reference source not found.** below. The LHEES will eventually cover all tenures and all sectors, including the non-domestic sector. However, the current guidance provided

by the Scottish Government acknowledges that the first iterations of LHEES will have a large emphasis on the domestic sector.

Table 2 Summary of LHEES Considerations

	No.	LHEES Consideration	Description
Low regrets* heat decarbonisation	1	Heat networks	Decarbonisation with heat networks
	2	Off-gas grid buildings	Transitioning mainly from heating oil and LPG in off-gas areas
Secondary outcomes	3	Poor building energy efficiency	Poor building energy efficiency
	4	Poor building energy efficiency as a driver for fuel poverty	Poor building energy efficiency as a driver for fuel poverty
	5	Mixed-tenure, mixed-use and historic buildings	Covering mixed-tenure and mixed-use buildings, listed buildings and buildings in conservation areas
Heat decarbonisation	6	On-gas grid buildings	On-gas grid heat decarbonisation

*Low regrets are heat decarbonisation actions that are relatively low cost and provide relatively large benefits when it comes to heat decarbonisation. In the LHEES context they refer to heat networks and off-gas grid heat pumps.

Local authorities are not required to address all the LHEES considerations and the emphasis on any consideration should be informed by the profile and priorities of the local authority area. It may also be more suitable to combine analysis for multiple considerations at a time.

These considerations are explained further below.

1. **Heat decarbonisation: Heat networks -** The analysis highlights heat dense areas within the local authority where heat networks present a likely decarbonisation option. Different opportunities and constraints relating to development potential were considered to inform decisions, and the prioritisation of the different heat network zones.
2. **Heat decarbonisation: Off-gas grid -** The analysis identified off-gas heat decarbonisation pathways and considered opportunities for domestic properties at both the strategic and delivery level.
3. **Secondary outcome: Poor building energy efficiency -** The analysis identified locations where poor building energy efficiency (such as low levels of wall or loft insulation, the absence of double glazing, or a combination of these) exists across the local authority.
4. **Secondary outcome: Poor building energy efficiency as a driver for fuel poverty -** The analysis also identified locations where poor building energy efficiency (such as low levels of wall or loft insulation, the absence of double glazing, or a combination of these) may act as a driver for fuel poverty.

5. **Secondary outcome: Mixed-tenure, mixed-use and historic buildings –** The analysis identified where there are buildings of mixed-use or mixed-tenure and where there are historic buildings (covering listed buildings and conservation areas). This LHEES consideration area was not analysed in isolation.
6. **Heat decarbonisation: On-Gas Grid -** The analysis identified possible low regrets on-gas decarbonisation pathways for domestic properties and opportunities at a strategic and delivery level. At this stage, analysis explored only building readiness for heat pump retrofit.

The Scottish Government provided an LHEES Methodology to local authorities. This is a detailed, step by step approach, including models, tools and templates, and represents best practice in how to produce an LHEES. The LHEES Methodology structure and stages are detailed in figure 1.

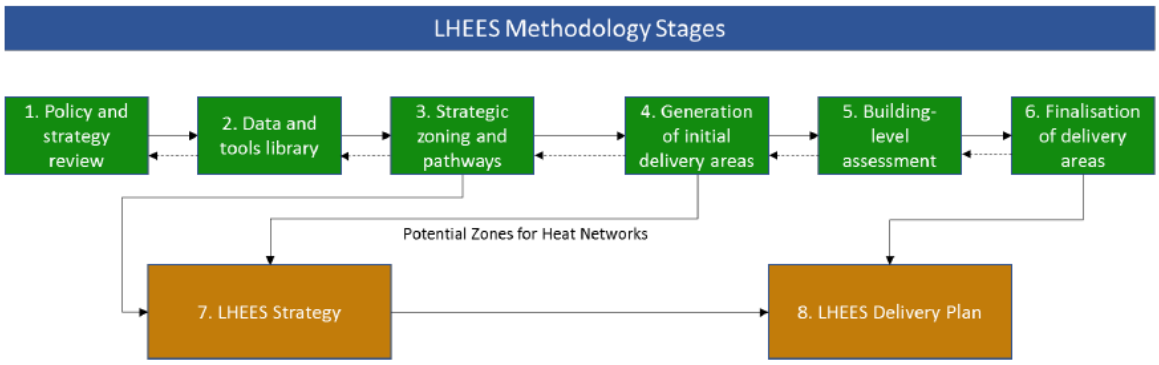

Figure 1 LHEES Methodology structure and stages

During 2020/22 East Renfrewshire Council worked with environmental consultants Changeworks to initiate our Local Heat & Energy Efficiency Strategy. Using the Scottish Government's LHEES methodology, Changeworks analysed local and national datasets and addressed the 6 LHEES considerations and produced a report which suggested recommendations for how East Renfrewshire could maximise heat decarbonisation and energy efficiency measures across its building stock.

The council created a LHEES working group with the remit to take forward the recommendations from Changeworks and consider how they can align with current policies and planned works (e.g.,EES:ABS and capital works) to help deliver East Renfrewshire's first LHEES and Delivery Plan, and ultimately realise our four main outcomes. To this aim the working group agreed on 6 priority workstreams:

- Priority 1 - Analyse potential Heat Network zones
- Priority 2 - Deliver Ground Source Heat Pumps for socially rented properties
- Priority 3 - Increase levels of cavity wall insulation in the private sector
- Priority 4 - Improve uptake of wall insulation EES:ABS programs
- Priority 5 - Deliver improvements for non-domestic council owned properties
- Priority 6 - Determine most appropriate solar thermal & solar PV installations

4. Progress to date

Heat networks

In June 2023, the Council applied for funding to progress the heat network assessment requirement of the LHEES. The Scottish Government's Heat Network Support Unit confirmed funding of circa £70k for 2 detailed feasibility studies on sites earmarked as possible heat networks in Eastwood Park and Barrhead Main Street. The feasibility studies will soon conclude, and at the time of writing, the Council is assessing the draft results.

Private tenure homes

The current pace of retrofitting homes has been slow. Grant funding is provided via the Energy Efficient Scotland: Area Based Scheme (EES:ABS) for private tenure homes, but this has not been well-utilised to date due to poor take up by homeowners due to the level of private funding contributions required in order to draw down the grant support. The challenges of maximising the EES:ABS funding is well understood and the Council have created and filled a new Energy Efficiency Officer post. The Energy Efficiency Officer will work with a contractor to ensure energy efficiency grants available to owners across ERC areas are maximised.

Social housing

99.67% of council housing stock of around 3,000 properties is already achieving EPC C, which is the statutory target by 2025 for Energy Efficiency Standard for Social Housing (EESSH). The EESSH requirement by 2032 is for all Council houses to be EPC B. However, this is going to be replaced with the Social Housing Net Zero Standard. Housing Services are assessing properties, researching options and piloting new approaches to inform the next investment strategy to achieve the proposed new Social Housing Net Zero Standard.

Local Development Plan

The requirement to move towards net zero has been given greater emphasis in Local Development Plan 2. LDP2 sets out a range of policies which contribute to tackling climate change. It provides a strong framework in developing place-based solutions to a zero-carbon future and contains strong policies on climate change adaptation and mitigation.

Council property

Maintaining, adapting, and constructing new property assets accounts for a considerable proportion of the Council's capital expenditure, and therefore the development of a property asset management plan is crucial to enable effective deployment of capital which can demonstrate clear alignment to the Council's strategic goals. The new Property Asset Management Plan which covers 2024-2026 acknowledges the net zero challenge and focuses on foundations to inform a longer term strategic plan thereafter.

Council decision-making

A comprehensive Climate Change Impact Assessment (CCIA) for all new council policies, plans and operations is now in place. The findings from any assessment will be incorporated in the Council's corporate report format in order to give climate change implications due consideration.

5. Findings from baseline data

The Council, supported by Changeworks consultants, completed a review of domestic housing stock, including property type and age, energy efficiency and insulation status and fuel types used. Home Analytics data was supplemented by data provided by the Council regarding tenure and property characteristics and reviewed to provide the overview of the domestic housing stock.

EPC data was provided for the non-domestic stock throughout East Renfrewshire; however, this does not account for all non-domestic properties and it is unknown how representative the data is.

5.1 Domestic stock in East Renfrewshire

- East Renfrewshire has a larger proportion of owner-occupied properties (75%) compared to the rest of Scotland (65%).
- East Renfrewshire holds a relatively large proportion of houses (72%) compared to the rest of Scotland (63%).
- The average energy efficiency of the domestic properties (D-63) is two Standard Assessment Procedure (SAP) points below the national average (D-65).
- Across property types, pre-1919 houses are the least energy efficient.
- Across tenure types, privately rented and owner-occupied properties are the least energy efficient.
- The proportion of properties using mains gas as their main heating fuel (88%) is higher than the national level (81%).
- The proportion of properties using electricity as their main heating fuel (9%) is slightly lower than the national level (10%).
- The insulation levels of cavity wall properties in the LHEES area (59%) are much lower than national levels (73%).
- Loft insulation rates are higher than national levels (51% vs 46%).

This analysis covers the entire housing stock in the area, for which data for 40,506 properties was available from Home Analytics. From the 40,506 Home Analytics entries, 70 properties were excluded as no useful data was provided. Data on the remaining 40,436 properties has formed the basis for the current analysis.

Tenure

Proportionally, there are more owner-occupied properties (75% of domestic properties) than the national proportion of 65%. Consequently, there are fewer social rented properties (10% of the stock), compared to the rest of Scotland (25%). The private rented sector in East Renfrewshire accounts for 10% of the stock, which is on par with Scotland overall. For 5% of the stock, the tenure is unknown. This is due to conflicts of tenure across datasets.

Table 3 Tenure for flats and houses

Housing type	Social rented	Owner-occupied	Privately rented	Unknown	Totals
Flats total	2,725	5,055	1,889	1,610	**11,279**
Houses total	1,379	25,193	2,030	555	**29,157**
Total	**4,104**	**30,248**	**3,919**	**2,165**	**40,436**

As for property types, the majority of rented properties (both privately and social rented) are flats (58%). This is on par with the national figures where 58% of privately and social rented properties are flats. However, when focussing on differences between the private and social rental sector, East Renfrewshire has more houses rented out privately compared to the national average, and less houses rented out by the Council.

Property types and age

Across all stock, 72% of the properties are houses, and more than one-quarter are flats (28%), indicating the overall council area has more houses than the national average (63% houses, 37% flats).

The predominant age band is 1950-1983 (43%), which is similar to the national average (42%) built during the same period. There are more properties built between1919-1949 (26%) compared to 11% in the rest of Scotland. Less properties were built after 1983 (24%) than in Scotland overall (27%). For pre-1919, the proportion is significantly lower (7%) than the Scottish average (19%).

Table 4 Property types and age-bands of the domestic properties

Property type	Pre-1919	1919-1949	1950-1983	1984-1991	1992-2002	Post-2002	Totals
Flats (total)	3%	4%	12%	4%	3%	3%	**28%**
Houses (total)	5%	22%	31%	5%	7%	3%	**72%**
Detached house	1%	9%	10%	2%	4%	2%	**28%**
Semi-detached house	1%	9%	13%	1%	2%	<1%	**27%**
End-terraced house	<1%	2%	4%	1%	<1%	<1%	**7%**
Mid-terraced house	1%	3%	5%	1%	1%	<1%	**10%**
Totals	**7%**	**26%**	**43%**	**9%**	**10%**	**5%**	

Energy efficiency

A home's energy performance is calculated using the Standard Assessment Procedure (SAP) methodology, which underpins the Energy Performance Certificate (EPC). The average Energy Efficiency rating (EE rating) across East Renfrewshire is 63 points, which is 2 SAP points below the national average of 65 points (e.g. less energy efficient). Overall, post-2002 built flats have the highest average EE rating, with an average EE rating of 81 points, equivalent to an EPC B-band. Pre-1919 buildings have the lowest EE ratings, with pre-1919 houses scoring an average 54 points, equivalent to an E-band, whereas pre-1919 flats score an average 61 points, equivalent to a D-band.

Table 5 Energy Efficiency rating/ band per housing type

Housing type		Pre-1919	1919-1949	1950-1983	1984-1991	1992-2002	Post-2002	Average
Flats	EE rating/ band	61 (D)	66 (D)	68 (D)	69 (C)	73 (C)	81 (B)	**69 (C)**
Houses	EE rating/ band	54 (E)	57 (D)	62 (D)	66 (D)	69 (C)	78 (C)	**61 (D)**
Overall averages	**EE rating/ band**	**56 (D)**	**58 (D)**	**63 (D)**	**67 (D)**	**70 (C)**	**79 (C)**	**63 (D)**

Looking at the Energy Efficiency bands, table 4 above shows that proportionally there are more flats in the higher bands (A-C), whilst most houses are in the lower banding (D-E)

When compared to the national pattern, a higher proportion of flats and lower proportion of houses in the LHEES areas are in the A-C banding, whilst a lower proportion of flats and higher proportion of houses are in the D-E banding. A slightly higher proportion of flats and slightly lower proportion of houses are in the lowest banding (F-G), when compared to national figures.

Fuel types

Mains gas is the main fuel type for 88% of the households in the overall council area (Table 5), which is higher than the national average of 81%. Electricity as the main off-gas fuel (9%) is slightly lower than the national proportion of 10%. Other fuels account for 3% of the properties, lower than the national proportion where fuels other than mains gas and electricity account for 9%.

Table 6 Main fuel type per property type

Housing type	Mains gas	Electricity	LPG	Oil	Biomass/ Solid	Communal
Flats	21%	6%	<1%	<1%	<1%	1%
Houses	67%	3%	<1%	1%	<1%	<1%
Total	**88%**	**9%**	**<1%**	**1%**	**<1%**	**1%**

Wall insulation

Under three-quarters of properties have a cavity wall construction (72%). The insulation levels of the cavity wall properties are lower than the national average (59% in East Renfrewshire, 73% in Scotland). Social rented properties in East Renfrewshire with cavity walls are most likely to be insulated (91%).

Most solid stone or brick properties have uninsulated walls (77%), which is lower than the national average (81%). Modern timber frame properties are assumed to have insulated walls from when they were built, however 25% are recorded as being uninsulated. It is worth noting that it is common for non-traditional pre and post-war timber houses to be recorded as timber frame (e.g., Swedish timber, Weir timber) when these should be recorded as 'system-built'. Over half of the system-built properties in Scotland have received external wall insulation over the past years (55%).

Table 7 Wall construction and insulation status of tenures

Tenure type	Cavity Construction	Solid Brick or Stone	System Built	Timber Frame
Privately rented	2,695	673	80	471
Uninsulated walls	1,443	553	29	149
Uninsulated walls (%)	54%	82%	36%	32%
Social rented	3,053	427	114	510
Uninsulated walls	275	230	4	57
Uninsulated walls (%)	9%	54%	4%	11%
Owner Occupied	22,465	4,592	324	2,867
Uninsulated walls	9,932	3,605	204	955
Uninsulated walls (%)	44%	79%	63%	33%
Unknown	748	229	31	1,157
Uninsulated walls	254	172	8	70
Uninsulated walls (%)	34%	75%	26%	6%
Totals	**28,961**	**5,921**	**549**	**5,005**
Uninsulated walls	**11,904**	**4,560**	**245**	**1,231**
Uninsulated walls (%)	**41%**	**77%**	**45%**	**25%**

Loft insulation

There are normally no lofts in properties such as ground and mid-floor flats, and in East Renfrewshire this covers 18% of the stock. Over half of the properties with lofts have loft insulation over 250mm (51%), which exceeds the national average of 46%. As for tenure, privately rented properties have the lowest loft insulation rates.

Table 8 Loft insulation status of domestic properties and of tenures

Tenure type	0-99mm	100-249mm	250mm+	No Loft	Total lofts
Privately rented	372	1,224	1,069	1,254	2,665
(%) of lofts	14%	46%	40%		
Social rented	165	973	1,303	1,663	2,441
(%) of lofts	7%	40%	53%		
Owner-occupied	3,562	10,012	13,492	3,182	27,066
(%) of lofts	13%	37%	50%		
Unknown	78	355	444	1,288	877
(%) of lofts	9%	40%	51%		
All	**4,099**	**12,209**	**15,864**	**7,387**	**33,049**
(%) of lofts	**13%**	**38%**	**49%**	***(18% of stock)***	***(82% of stock)***

Potential fabric upgrades for domestic stock

Loft and wall insulation opportunities were identified for 59% of the properties in East Renfrewshire (23,870 properties), with the majority of measures being top-ups of loft insulation (Table8). Consequently, for 16,566 of the domestic properties, no wall or loft insulation measures were identified.

Wall insulation measures are suitable for over one-third of domestic properties (37%), with cavity wall insulation being the predominant measure (25% of domestic stock). Internal wall insulation is suitable for 11% of the domestic stock and a very small proportion (1%) would benefit from external wall insulation.

Table 9 Potential fabric upgrades

Measure	Number of suitable properties	% of domestic housing stock
Loft insulation virgin	4,177	10%
Loft insulation top-up	12,564	31%
Cavity wall insulation	10,149	25%
External wall insulation	242	1%
Internal wall insulation	4,466	11%
Households requiring at least one fabric upgrade measure	**23,870**	**59%**
Households requiring both a loft and wall insulation measure	**7,728**	**19%**

Potential low carbon heating upgrades for domestic stock

Air-source heat pumps are believed to be most viable in off-gas-grid properties. A small number (758 or 2%) of such properties exist. However, when considering properties connected to the gas grid that are suitable for air-source heat pumps this increases to 39%. Biomass is suitable for 2% of the stock. In addition, 4% of the housing stock is potentially appropriate for high heat retention storage heaters.

Table 10: Potential domestic low carbon heating upgrades

Measure	Number of suitable properties	% of domestic housing stock
Air source heat pump	758	2%
Biomass	699	2%
High heat retention heaters	1,776	4%
Solar thermal	22,554	56%
Households requiring at least 1 low carbon heating measure	**24,594**	**61%**
Households requiring both low carbon space heating and solar measures	**1,193**	**3%**

Carbon savings

If all measures from Table 8 and Table 9 were installed, 29 kilotonnes of CO_2 per year could be saved given the current carbon intensity of the fuels used for heating, based on estimations from the Energy Saving Trust. This equates to 0.9 tonnes per household. Although air-source heat pumps have high install costs and long payback period, they are estimated to save up to just over 10 tonnes of CO_2 per household per year.

It should be noted that the carbon savings per measure will decrease in the future if heat itself becomes less carbon intense due to the use of renewables in electricity generation.

- Under half of buildings with an EPC have the lowest band of G (47%).
- A small proportion have an EPC band C or greater (14%).
- More than half of non-domestic properties with an EPC are heated by electricity (51%), compared to 9% of domestic properties.
- The most common use of buildings across all EPCs is for retail/ financial (46%).
- Buildings used for education or residential space are the most efficient.

5.2 Non-domestic property types

Table 11 below lists all property types by the EPC categorisation. It shows that the most energy efficient buildings are those used for education, which have an average band D/D+.

Table 11 Energy performance and use by property type

Property type	No.	% EPCs	Average EE band	Average Annual Global Performance (kWh/yr)	Median Annual Global Performance (kWh/yr)
Community/Day Centre	21	5%	G	47,867	30,574
Education	41	10%	D/ D+	119,022	63,070
General Assembly/Leisure	12	3%	G	162,941	54,635
General Industrial	10	3%	G	93,796	22,692
Hospitals/Care Home	13	3%	F/ F+	150,883	120,291
Hotel	3	1%	G	350,021	190,091
Library/Museum/Gallery	5	1%	F/ F+	50,329	50,134
Office/Workshop	49	12%	F/ F+	44,491	25,150
Primary Healthcare Building	9	2%	F/ F+	32,761	14,384
Residential space	1	<1%	D/ D+	11,520	11,520
Restaurant/Cafes/takeaway	40	10%	G	50,054	41,503
Retail/Financial	184	46%	G	34,270	19,482
Stand-alone utility block	1	<1%	G	53,569	53,569
Storage/Distribution	10	3%	E/ E+	82,133	54,877
Totals/ average	**399**		**G**	**59,425**	**24,951**

Based on EPC records there are at least 399 non-domestic properties in East Renfrewshire. From these properties, 346 (87%) EPC records contain recommendations for fabric and/or heating upgrades.

Most recommendations across all EPC certificates in East Renfrewshire concerned upgrading the lights to more energy efficient options (75%). Measures associated with air tightness and ventilation accounted for 54% of the properties. Likewise, many of the EPC certificates included control upgrades to the existing heating system (48%).

Fabric upgrades

The most common recommendation for all fabric upgrades was double glazing, and/or secondary glazing (Table12). Wall insulation measures were recommended to over one-third of the buildings (36%), with the most common being cavity wall insulation (25%). Loft and roof measures were recommended to 29% of the buildings.

Table12: Recommended fabric measures from the non-domestic EPC records (East Renfrewshire)

Measure	No.	% EPCs
Loft insulation	49	12%
Roof insulation	68	17%
Floor insulation	18	5%
Cavity wall insulation	100	25%
Internal wall insulation	42	11%
External wall insulation	2	1%
Glazing	181	45%

Low carbon heating measures

Under half of the buildings (45%) have been recommended heat pumps (either air source or ground source) and 38% of the non-domestic properties have been recommended solar thermal.

Table 13: Recommended low carbon heating measures from the non-domestic EPC records (East Renfrewshire)

Measure	No.	% EPCs
Air source heat pump	119	30%
Ground source heat pump	60	15%
Biomass	10	3%
Solar thermal	153	38%

If the EPC records are a representative sample of the non-domestic properties in the LHEES area, there is a substantial potential to improve the non-domestic stock through promoting glazing upgrades, cavity wall insulation, heat pumps (particularly ASHP) and solar thermal installs.

6. Key findings from baseline data

6.1 Domestic stock

- East Renfrewshire LHEES analysis covers 40,437 domestic properties.
- 37% of the domestic properties are suitable for wall insulation measures, with the majority being cavity wall insulation (25% of stock) and internal wall insulation (11% of the stock).
- Loft and wall insulation opportunities were identified for 59% of the properties.
- Given that many properties have mains gas as their main fuel type, a small proportion of the stock was considered suitable for air source heat pumps (2%). This increases substantially (up to 39%) when loosening this criteria to include properties heated by mains gas for heat pump suitability.
- For 20% of the properties, no suitable measures were identified. From the 7,968 properties with currently no suggested fabric or heating improvement, 1,675 properties (21%) have an EE band D or worse.
- Installing all the measures is estimated to save 39 kilotonnes of CO_2 per year, which equates to 0.9 tonnes per household.

6.2 Non-domestic stock

- EPC data was available for 399 non-domestic properties.
- Recommendations were provided for 87% of these properties.
- The most common recommendation for all fabric measures was double glazing, and/or secondary glazing.
- Wall insulation was recommended to 36% of the properties, with cavity wall insulation being the predominant.
- Heat pumps were recommended to 45% of the properties (either air source or ground source).

7. Prioritized areas for delivery

Data analysis identified high energy sectors where the most significant carbon savings can be made, but crucially also determined the level of council influence across sectors with specific relation to energy efficiency and heat decarbonisation. From this, key actions can be used to create a clearer roadmap for the LHEES, showing where the Council can clearly progress unhindered and where perhaps the only recourse is to signposting to and supporting recognised and available national solutions.

Identifying high energy sectors where the most significant carbon savings can be made, while considering the level of council influence across sectors with specific relation to energy efficiency and heat decarbonisation, provides the Council with a direction for planning the delivery stages of the LHEES.

Of the council-controlled sectors, domestic properties make up the largest proportion of total heat demand and secondary schools have the highest average heat demand per building, as shown in Figure 2 below.

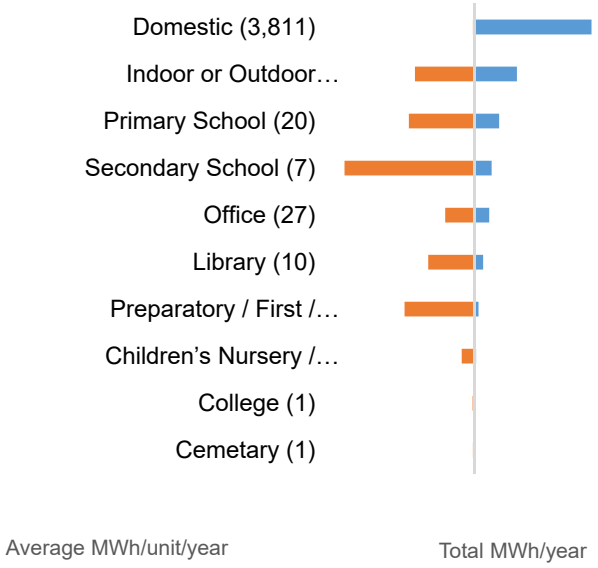

Figure 2 Average and total demand per Council controlled sectors

Both the average heat demand per unit and the total heat demand per sector are of importance for prioritising actions. Average heat demand indicates which sectors may be simpler to decarbonise, even if there are relatively few properties (i.e., leisure/sporting centres). Total heat demand is important because of the high aggregated heat demand across a large number of buildings (i.e., domestic sectors).

Three of the four domestic sectors (owner-occupied, private rented and Council owned) together have the greatest total heat demands of all sectors. Council-owned leisure centres and schools offer the best opportunities for 'quick-win' heat decarbonisation.

8. Priorities for action

The 6 priorities for East Renfrewshire's LHEES shown in table 13 below are numbered for ease of reference only. The priorities are not ranked; they were selected as most suitable to help develop our Delivery Plan and achieve our 4 outcomes, based on the background analysis and the following criteria:

i. Improving energy efficiency and introducing zero emissions heating to buildings;
ii. Aligning areas of largest heat demand with buildings which the Council has the greatest influence over; and determining the most suitable form of zero-emission heating and/or energy efficiency measures; and
iii. Consideration of all other measures which would positively impact on emissions created by heating and improve energy efficiency across all buildings.

Table 14 East Renfrewshire's six LHEES Priorities

Priority 1	Analyse potential Heat Network zones
Priority 2	Deliver Ground Source Heat Pumps for socially rented properties
Priority 3	Increase levels of cavity wall insulation in the private sector
Priority 4	Improve uptake of wall insulation EES:ABS programs
Priority 5	Deliver improvements for non-domestic council owned properties
Priority 6	Determine most appropriate Solar thermal & solar PV installations

Local Heat and Energy Efficiency Strategies aim to facilitate a joined up, long-term strategic approach to:

- 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.

Our priorities will help us address the two cornerstones of LHEES: heat decarbonisation and energy efficiency.

Heat decarbonisation

Heat decarbonisation can be done at individual property level (by use of Air Source Heat Pumps or Ground Source Heat Pumps), or communally via Heat Networks that are relatively large (i.e. district heating) or via smaller networks, such as shared Ground Source Heat Pumps. Priorities 1 and 2 in table 13 above directly address heat decarbonisation.

The analysis highlighted heat dense areas within the local authority where heat networks present a likely decarbonisation option. Different opportunities and constraints relating to development potential were considered to inform decisions, and the prioritisation of the different heat network zones.

Energy efficiency

The analysis identified locations where poor building energy efficiency (such as low levels of wall or loft insulation, the absence of double glazing, or a combination of these) exists across the local authority, as well as an analysis for areas where this may act as a driver for fuel poverty.

The energy efficiency of the domestic stock in the Council area is lower than the average of Scotland, with 60% of the properties being an EPC-band of D or lower, compared to 49% nationally. The proportion of uninsulated walls is similar to the national average (43% vs 41% nationally), whereas the proportion of loft insulation is six percentage points lower (89% vs 95% nationally). Priorities 3 and 4 in table 13 above directly address energy efficiency.

Priorities 5 and 6 shown in table 13 do not directly or immediately address the LHEES cornerstones of heat decarbonisation or energy efficiency but the analysis profile of the local authority area suggested their usefulness in ultimately delivering on the fundamental aims of the LHEES. Our six LHEES priorities shown in table 13 above are discussed more fully below.

8.1 Priority 1 - Analyse potential Heat Network zones

Section 47 of the Heat Networks (Scotland) Act places a duty on local authorities to carry out a review to consider whether one or more zones in its area is likely to be particularly suitable for the construction and operation of a heat network.

To assess the possibility of heat decarbonisation via heat networks, seven potential heat network zones have been identified in the East Renfrewshire Council area to explore further. Initial feasibility reports on two of the identified zones, Eastwood Park and Barrhead Main Street, have suggested potential in terms of anchor loads and heat demand from nearby properties. Anchor loads are high heat demand buildings and key connections on a heat network that make the operation of a heat network economically viable.

For the Eastwood Park Potential Heat Network Zone shown in figure 3 below, four potential public anchor loads were identified, including Woodfarm High School, Our Lady of The Missions Primary School, St. Ninian's High School and Eastwood Leisure Centre. Moreover, there is a relatively high demand coming from Woodfarm Sports Pavillion and Hall, Our Lady Of the Missions Primary School, Council Offices Headquarters, Eastwood House and Glenwood Nursery School.

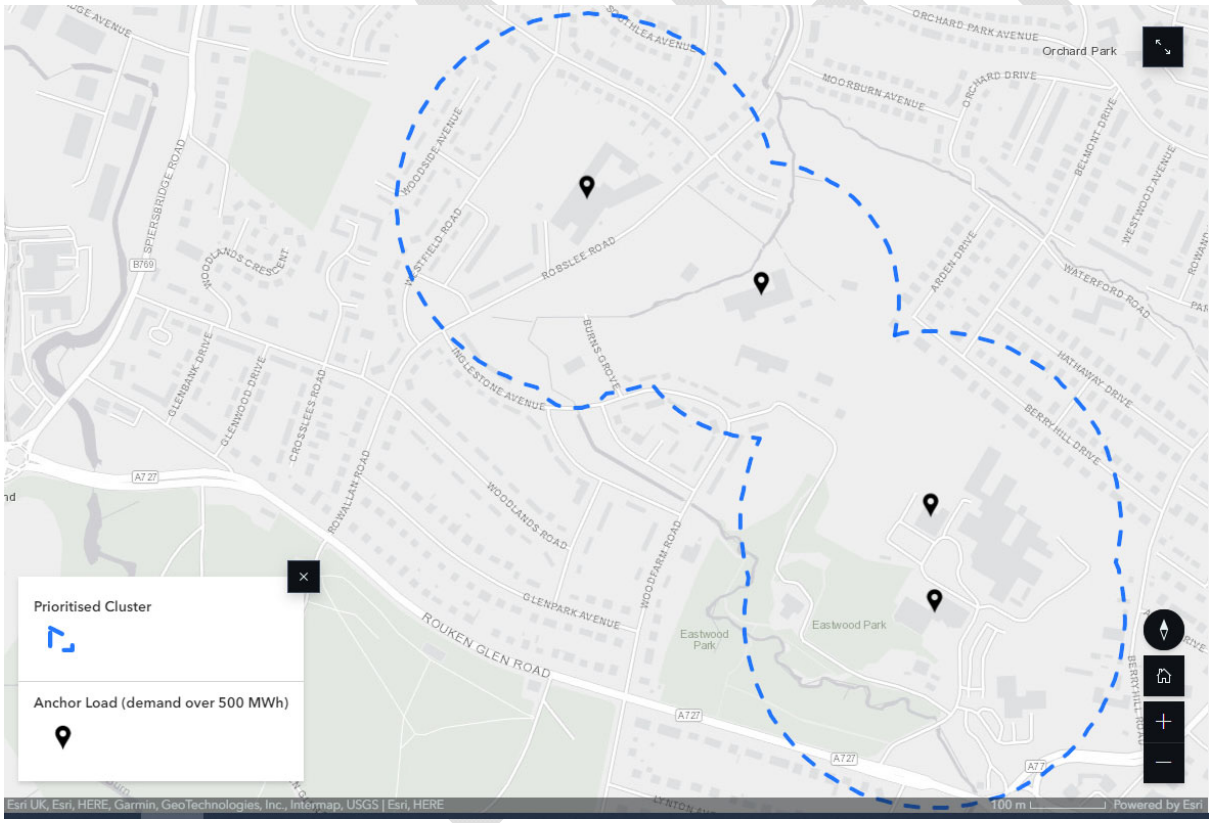

Figure 3 Eastwood Park Heat Network Zone

The majority of buildings are council-owned giving high influence over the decision to connect buildings to a heat network, and the recommended low-carbon heating technology was air-source heat pumps and back-up gas boilers. The feasibility report recommended to progress this study to the business case stage, but only after the Eastwood Park Masterplan has been published *(est. Sept. 2024),* and building level surveys undertaken.

For the Barrhead Main Street potential heat network zone, five potential anchor loads were identified, including the leisure centre and library, Council offices, the Barrhead Health and Care Centre and Carlibar Primary School.

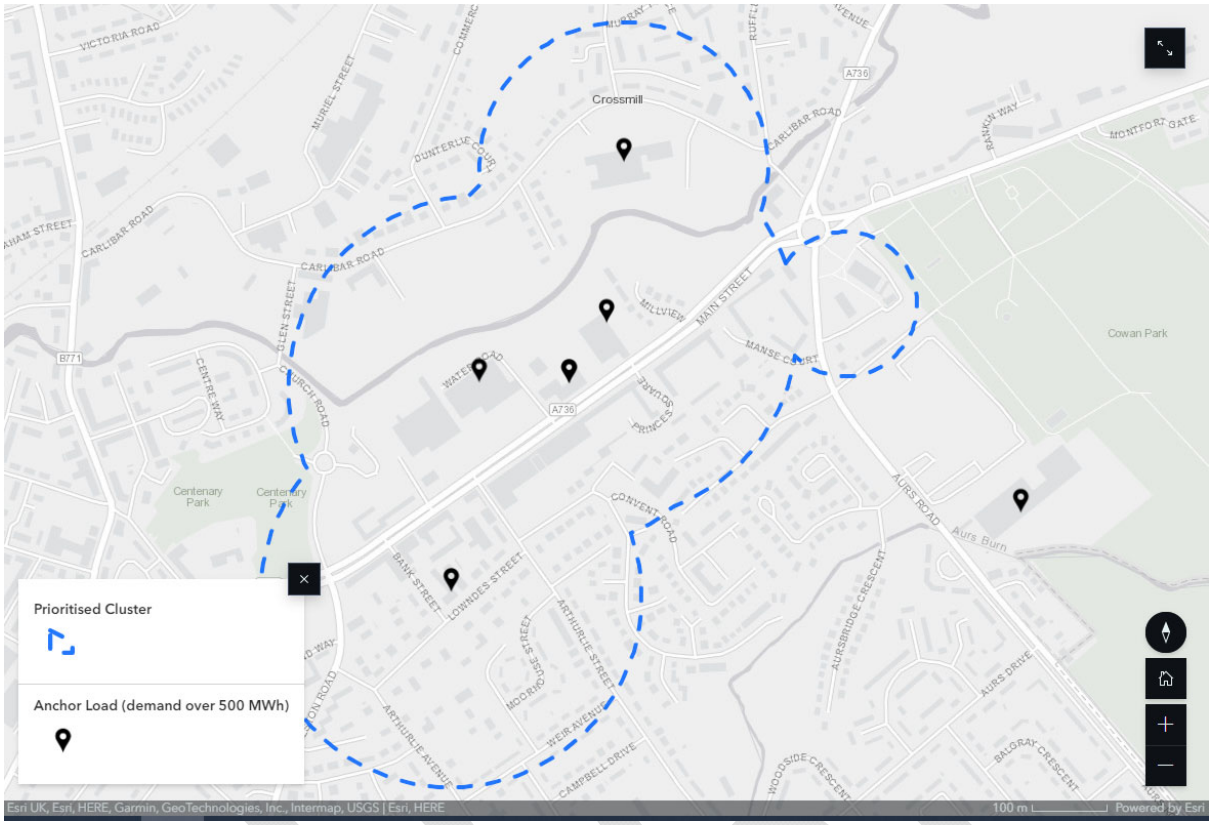

Figure 4 Barrhead Main Street Heat Network Zone

The draft feasibility report for Barrhead Main Street suggested that there is a potential opportunity for a heat network in Barrhead utilising wastewater and a water source heat pump with back-up gas boilers as the low-carbon heating technology. However, the final report suggests that alternative building-level low carbon heating solutions may be a lower cost route to heat decarbonisation than the heat network opportunity considered. For a heat network opportunity to be viable in Barrhead, there would need to be significant grant funding, and the overall lifetime costs incurred may be lower for a building level heating solution approach such as installing individual ASHPs on each building.

East Renfrewshire Council will align with the heat network development stages and associated partner guidance as recommended by the Scottish Government's Heat Network Support Unit and detailed in figure 5 below.

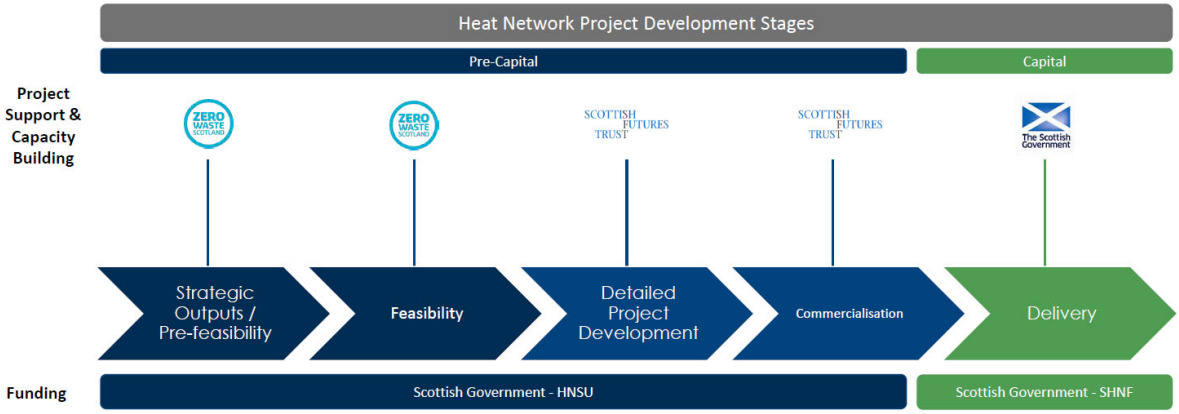

Figure 5 Heat Network Project Development Stages

Future development of any proposed heat network will depend on recommendations from partners and stakeholders following discussion on the feasibility reports; and building a strong economic case that addresses all technical, financial and network limitations. Indeed grid capacity is a consideration for any proposed decarbonisation measure and continued engagement with Scottish Power Energy Networks will be required.

However, the identification and consideration of heat networks in Eastwood Park and Barrhead Main Street does not oblige the Council to commit to delivering the proposed heat networks.

Individual Heat Pump readiness

While the suitability and location of heat networks will be analysed, decarbonisation of heat for the majority of homes in East Renfrewshire is more likely to be delivered by utilising individual Air Source Heat Pumps (ASHP). However, the low-regret options for ASHP installations are limited as 92% of the domestic properties in the Council area are on gas, which is more than the average for Scotland (83%).

Installing heat pumps in properties that are gas-heated is currently not considered a low-regret option. However, for the on-gas areas there are ample opportunities for 'heat pump ready' properties due to the relatively large amount of post-1992 properties with high energy efficiency levels. The areas of Crookfur and Fruin; Mearnskirk and South Kirkhill; and West Arthurlie and North Neilston are particularly suitable. Areas with buildings that are on the national gas grid network and which could easily convert to heat pumps are shown in Figure 7 below.

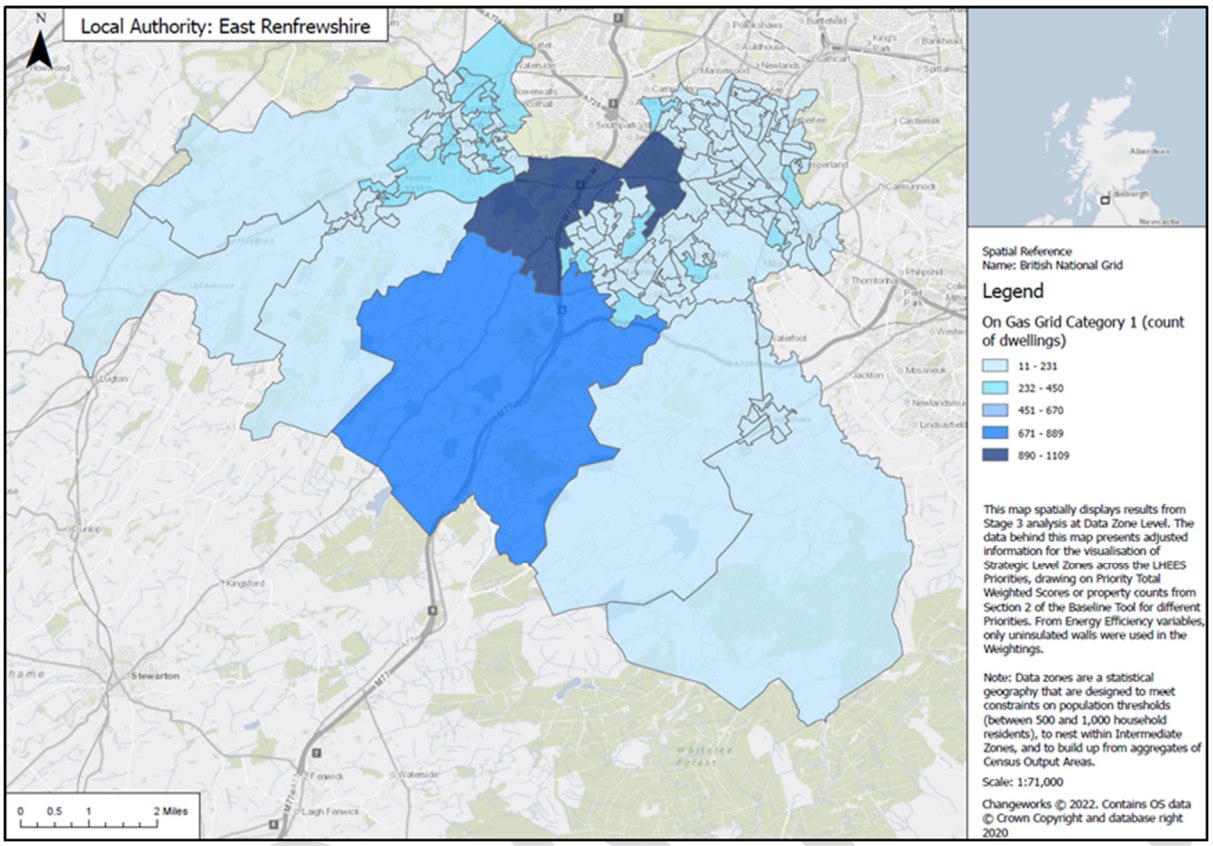

Figure 6 Heat pump ready properties in on gas areas

On gas buildings with secondary technical potential for heat pump retrofit: i.e. those in need of moderate fabric / heat distribution system upgrade are shown in figure 8 below.

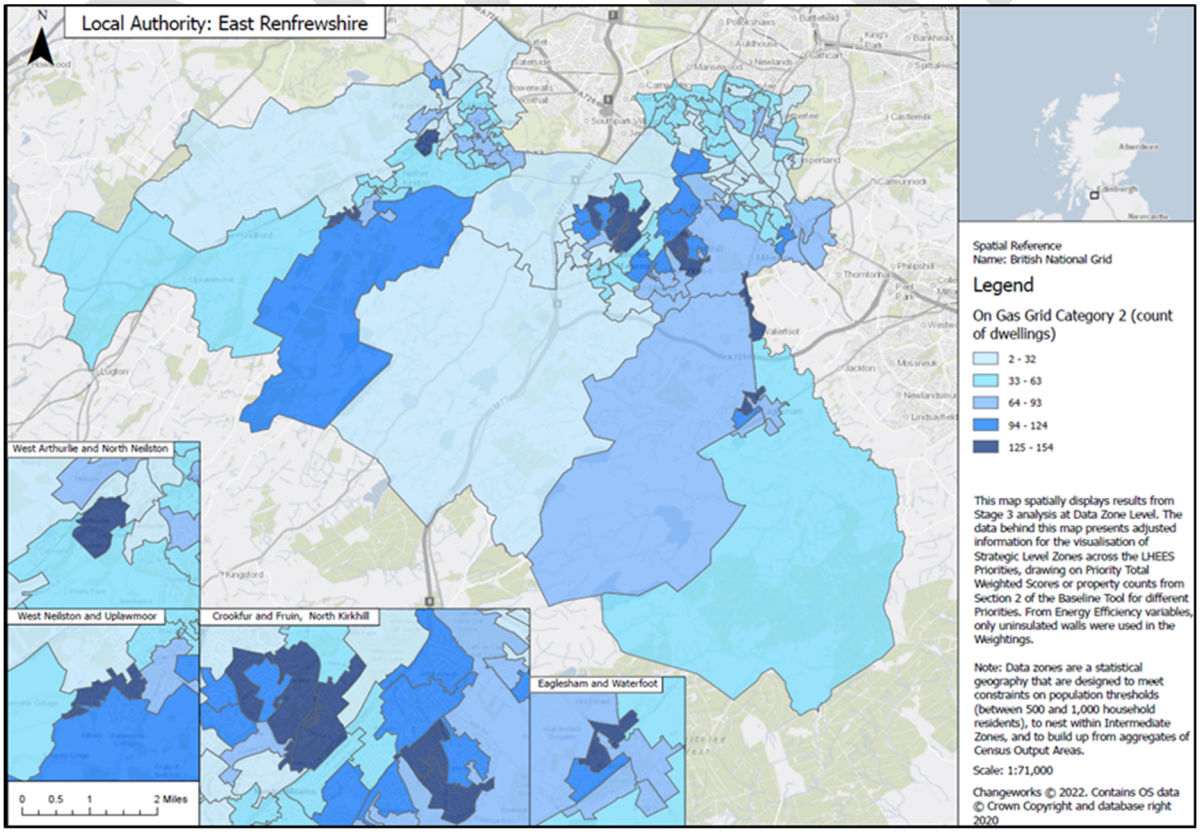

Figure 7 On gas buildings with secondary technical potential for heat pump retrofit

The Council will signpost the owner-occupier sector to any available grant funding or assistance. This will typically be via the Home Energy Scotland service but will include working with partners to run local awareness campaigns, and plan activities to encourage households to invest in insulation, heat pump and solar panel installations.

The Council will take a role to signpost householders to any available grant funding or assistance. Within identified areas of fuel poverty, or where there are low income and vulnerable households, specific funding will be targeted. This will include EES:ABS and ECO4 schemes.

8.2 Priority 2 - Deliver Ground Source Heat Pumps for socially rented properties

Analysis of 'heat pump ready' property clusters across (i.e. those which are well insulated with a wet heating system) in both the on-gas and off-gas areas, provided the following:

- 27 green spaces in the off-gas areas were identified which show a high potential for small-scale heat networks such as shared GSHPs for the nearby properties;
- 85 green spaces for the on-gas areas were identified which show a high potential for small-scale heat networks such as shared GSHPs for the nearby properties.

Greenspaces provide areas for the installation of GSHPs which utilise the relatively stable temperature of the ground to extract/deposit heat.

Following discussion on the feasibility reports for the two proposed heat networks at Barrhead Main Street and Eastwood Park, the Council will explore the potential for these smaller scale heat networks further, particularly for the socially rented properties with immediate potential for heat pump retrofit.

8.3 Priority 3 - Increase levels of cavity walls in the private sector

Analysis identified locations where poor building energy efficiency exists. This is typically low levels of wall or loft insulation, the absence of double glazing, or a combination of both these measures. The energy efficiency of the domestic stock in the Council area is lower than the average of Scotland, with 60% of the properties being an EPC-band of D or lower, compared to 49% nationally. The proportion of uninsulated walls is similar to the national average (43% vs 41% nationally), whereas the proportion of loft insulation is six percentage points lower (89% vs 95% nationally).

East Renfrewshire has substantially low levels of insulation for properties with cavity walls (40% uninsulated cavity walls vs 27% nationally), with uninsulated cavity wall properties representing more than a quarter of the properties in the area (>11k).

Figure 10 below shows the areas with higher levels of uninsulated cavity walls. Areas with the least amount of cavity wall insulation are North Kirkhill, Whitecraigs and Broom, North Giffnock and North Thornliebank. However cavity wall insulation potential is spread throughout the local authority area.

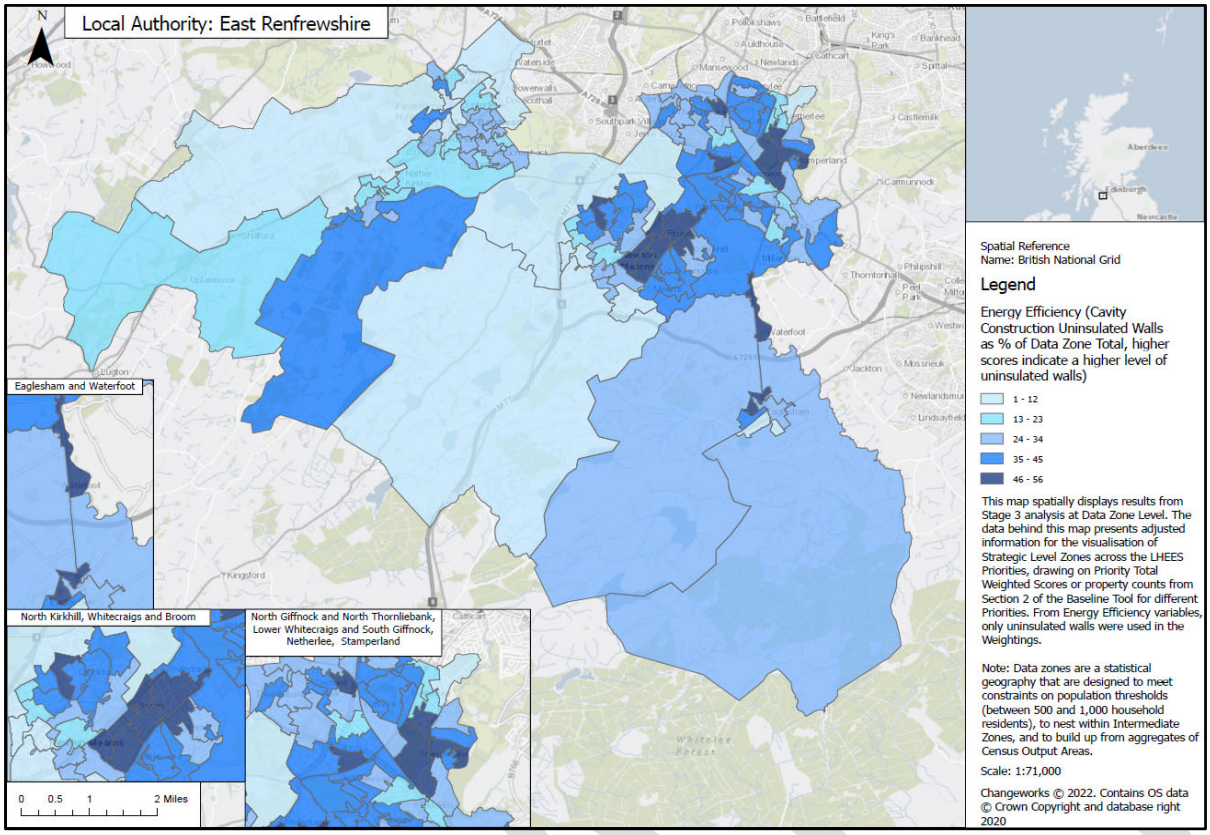

Figure 8 Percentage of Cavity Wall Insulation in domestic properties

Since cavity walls are a lot cheaper to insulate than other wall types, increasing the insulation levels of cavity walls in the private sector offers a good opportunity for 'quick-win' energy efficiency improvement measures.

Uninsulated cavity walls are much lower for socially rented properties across East Renfrewshire than the national average (14% vs 26% nationally). The Council is assessing the remaining uninsulated cavity walls in the social rented stock as part of our ongoing asset management improvement strategy.

The Council will signpost the owner-occupier sector to any available grant funding or assistance. This will typically be via the Home Energy Scotland service, but will include working with partners to run local awareness campaigns, and plan activities to encourage households to invest in energy efficiency and decarbonisation.

8.4 Priority 4 - Improve uptake of wall insulation EES:ABS programs

East Renfrewshire has wall insulation rates lower than the rest of the country but relatively few properties require solid wall insulation (4,370 properties requiring internal wall insulation and just under 250 properties needing external wall insulation). Figure 11 below shows the areas most affected.

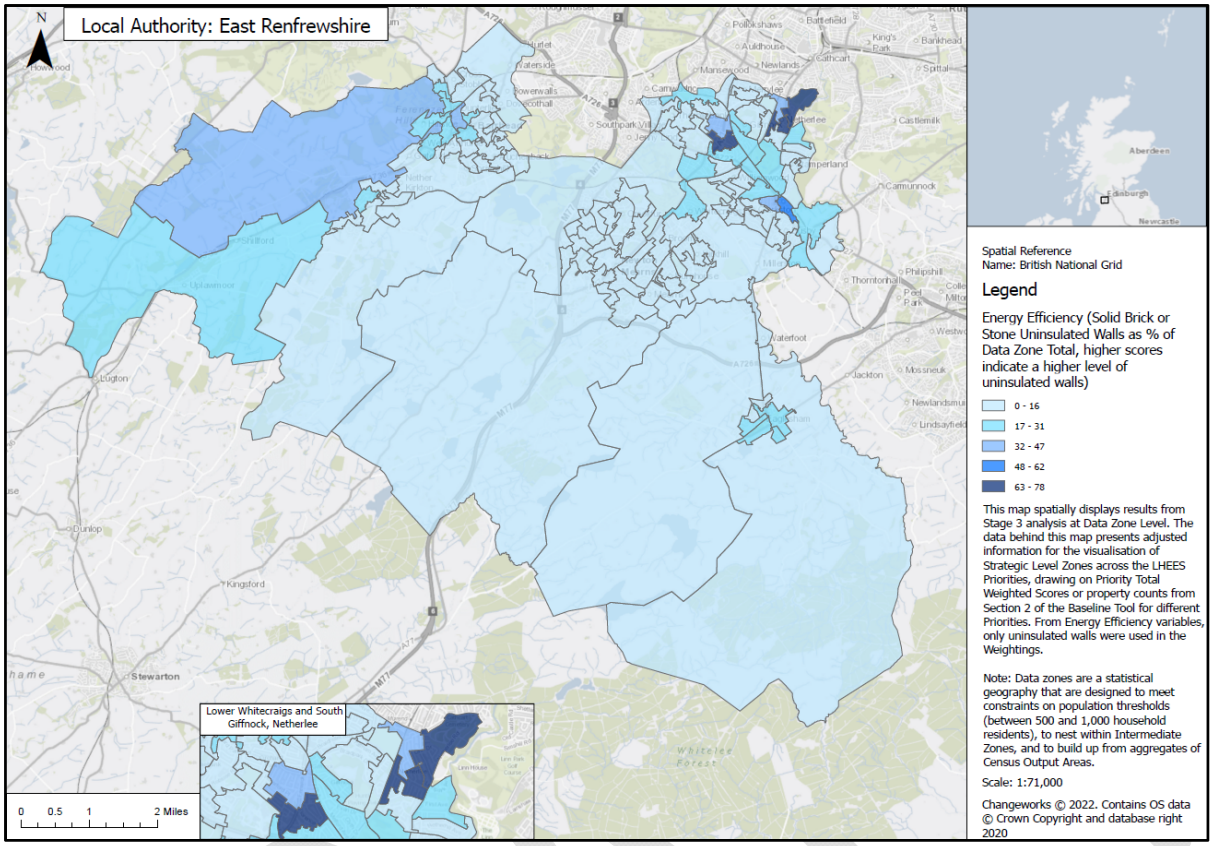

Figure 9 Solid brick or stone uninsulated walls

In areas that score high for fuel poverty, the importance in delivering wall insulation projects through Energy Efficient Scotland: Area Based Scheme (EES:ABS) cannot be underestimated. This is a Scottish Government funded scheme, administered by the Council. Areas with low levels of energy efficiency, particularly wall insulation, but high levels of estimated fuel poverty are: Dunterlie, East Arthurlie and Dovecothall; North Giffnock and North Thornliebank; Cross Stobbs; Neilston and Uplawmoor.

The Council has recently taken steps to improve the uptake of EES:ABS funding to owner-occupiers by funding a new Energy Efficiency Officer post. The Energy Efficiency Officer will work with a contractor to ensure energy efficiency grants available to owners across ERC areas are maximised. This will continue to be a focus over the term of the LHEES. Not only will this improve energy efficiency but could also be a key measure in preventing fuel poverty.

Areas that score high for fuel poverty will also be targeted for support from the Energy Company Obligation (ECO4) scheme, funded by energy companies and aimed at supporting low income and vulnerable households. The Council has an administrative role within the ECO4 scheme. The Council will also signpost householders to any available relevant grant funding or assistance.

8.5 Priority 5 – Deliver improvements for non-domestic council-owned properties

The available non-domestic dataset identified 1,635 properties in the Council area, with 200 of the properties being in ownership of the Council (this number reduces to 106 operational properties when storage units and leased properties are discounted). This council-owned portfolio includes both operational and non-operational properties.

The Council does not have direct influence over stock it does not own, but wishes to lead by example and deliver on its net zero targets. Data on the non-domestic sector in general is very limited, and recommendations for energy efficiency measures for council-owned, non-domestic stock requires further analysis.

The Council is updating its Property Asset Management Plan (PAMP) to outline how the assessment and identification of improvement actions for council buildings will be undertaken. Whilst this will give consideration to the suitability and need for buildings, those buildings that are to be retained will be recommended for the most suitable energy efficiency improvements and a pathway to install zero-emission heating will be established. However significant funding and investment will be required if our ambitions are to be realised.

Unlike the domestic sector, where only 7% of properties are heated by electricity and 91% by gas, most of the non-domestic properties are electrically heated (59% vs 36% gas), with many using plug-in heaters. The energy efficiency of the non-domestic properties is generally low, although it should be noted that many non-domestic properties, such as storage warehouses, churches or restaurants, are not constantly occupied. Hotels, restaurants and cafes and retail properties have low energy efficiencies compared to the average, whereas workshops and offices have a higher-than-average energy level of A-C EPC bands.

Overall, only 10% of the non-domestic properties have an EPC band C or higher, although for the council-owned properties this is more (26%).

Table 15 Non-domestic EPC band distribution of different property use categories

	EPC Band			
Property use	**A-C**	**D**	**E**	**F-G**
General Assembly (Churches, sports clubs)	9%	8%	12%	71%
General Industrial, Storage or Distribution	6%	1%	0%	93%
Hotels	0%	13%	0%	88%
Non-residential Institutions	30%	12%	18%	40%
Offices and Workshops	17%	12%	29%	42%
Residential Institutions and Spaces	6%	28%	17%	50%
Restaurants and Cafes	0%	1%	3%	97%
Retail and Financial Services	2%	6%	18%	74%
Overall	**10%**	**8%**	**19%**	**63%**
All ERC owned	**26%**	**11%**	**17%**	**46%**

To understand how the remaining council-owned properties can increase in energy efficiency with specific measures, more detailed surveys of these properties is needed as the available dataset does not provide enough information.

8.6 Priority 6 - Determine most appropriate solar thermal & solar PV installations

Though not considered a primary or secondary consideration in the prescribed LHEES considerations, domestic renewables provide an opportunity towards the decarbonisation of heat in the short term when combined with storage and electric heating.

Given the relatively high proportion of houses in the area (72% vs 64% nationally), there is ample potential for solar thermal and solar PV installations. Figure 12 below shows solar opportunities across the council area.

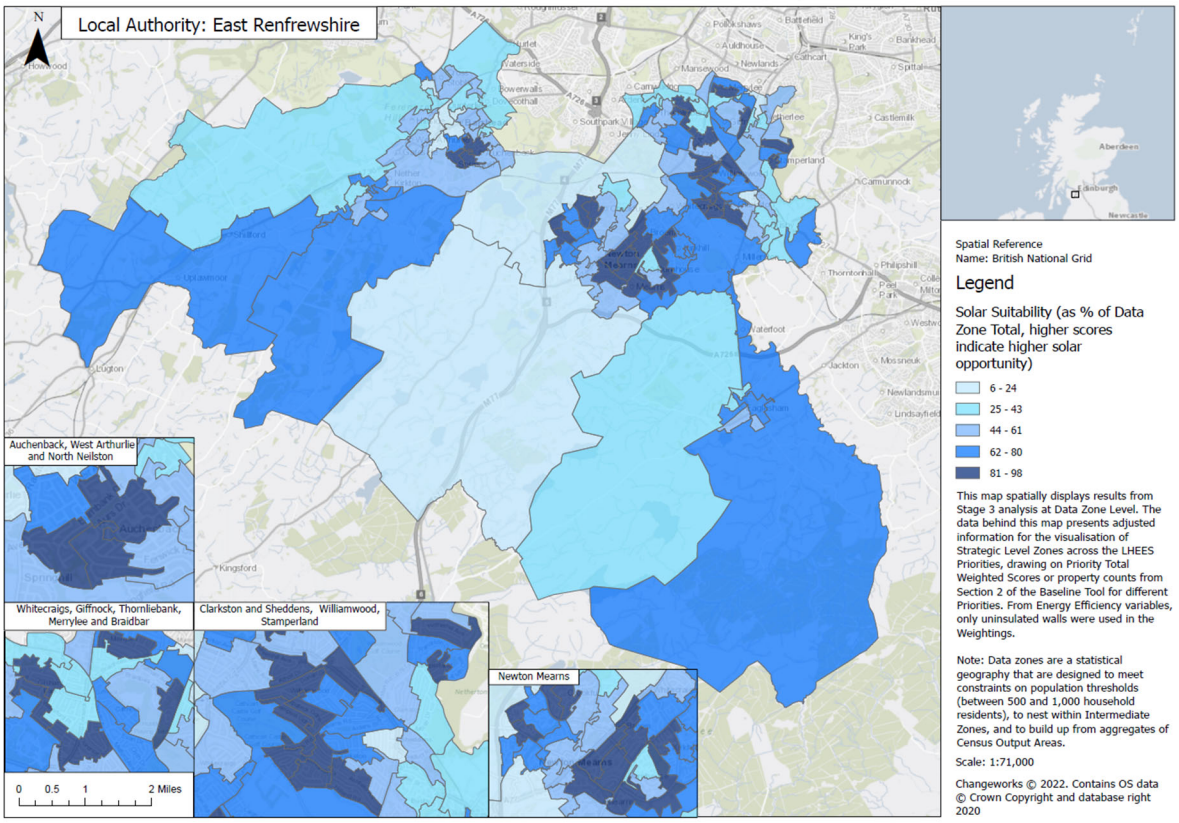

Figure 10 Percentage of properties with suitability for Solar PV

Consideration of solar applications when evaluating future energy demand will also extend to the consideration of solar farms and the greater scale of electricity generation they bring.

The Council will take a role to signpost householders to any available grant funding or assistance, and discuss delivery in social housing stock through the Scottish Government's Social Housing Net Zero Heat Fund. Consideration will also be given on how to incorporate such installs through special projects in the EES:ABS schemes and as part of our ongoing asset management improvement strategy

9. Summary and Next Steps

Local Heat and Energy Efficiency Strategies aim to facilitate a joined up, long-term strategic approach to:

- 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.

The combined outputs of every local authority's LHEES will provide an evidence base for further policy-making and for implementation of delivery programmes helping the Scottish Government to target appropriate nationwide action.

For instance, in supporting actions to decarbonise and improve energy efficiency, LHEES provide appropriate analysis to tackle fuel poverty. By improving the fabric of buildings with poor energy efficiency, we can reduce the energy households are using as well as reducing greenhouse gas emissions.

LHEES also provides analysis which can be built upon in scoping out the potential for the roll-out of heat networks.

More broadly, LHEES also have an important role in supporting local energy planning. Local authorities will work with distribution network operators to understand where grid constraints may restrict the ability to install heat pumps. Distribution network operators will also be able to use the outputs of LHEES to plan where they need to strengthen the grid in the future to support heat decarbonisation.

Our ambition is for every property in East Renfrewshire to have access to affordable, reliable and net zero heat. For homes, this would help reduce the risk of fuel poverty, and bring social, economic and public health benefits. However significant funding and investment will be required if our ambitions are to be realised.

This strategy and the associated delivery plan will focus on achieving four main outcomes:

Table 16 East Renfrewshire's four LHEES Outcomes

Outcome 1	Homes and buildings in East Renfrewshire are as energy efficient as possible
Outcome 2	Heat solutions are delivered to meet 2045 net zero target and tackle fuel poverty
Outcome 3	Investment and grant funding is secured to deliver Net Zero projects
Outcome 4	East Renfrewshire Council supports property owners to find improved heating solutions

The priorities to help us achieve our outcomes for East Renfrewshire's LHEES were selected based on the background analysis and the following criteria:

i. Improving energy efficiency and introducing zero emissions heating to buildings.
ii. Aligning areas of largest heat demand with buildings which the Council has the greatest influence over; and determining the most suitable form of zero-emission heating and/or energy efficiency measures.
iii. Consideration of all other measures which would positively impact on emissions created by heating and improve energy efficiency across all buildings.

Table 17 East Renfrewshire's six LHEES Priorities

Priority 1	Analyse potential Heat Network zones
Priority 2	Deliver Ground Source Heat Pumps for socially rented properties
Priority 3	Increase levels of cavity walls in the private sector
Priority 4	Improve uptake of wall insulation EES:ABS programs
Priority 5	Deliver improvements for non-domestic council owned properties
Priority 6	Determine most appropriate solar thermal & solar PV installations

The priorities we have identified are considered to be the most suitable for East Renfrewshire in terms of how we improve energy efficiency and decarbonise our homes and buildings, while ensuring a flexible, fair and just transition to net zero and will be fundamental in shaping our Delivery Plan.

The LHEES Delivery Plan will set out how the Council proposes to support implementation of its LHEES. The first LHEES Delivery Plan will incorporate actions with a near-term (5-year) focus. This will be informed by the existing policy landscape, but be flexible to adapt to the changing scope as the Scottish Government introduces future standards, regulations, and funding programmes. It is expected that actions in the Delivery Plan should therefore be reviewed and updated on an annual or biennial basis.

10. Glossary

Heat decarbonisation: The process of removing emissions from heating buildings. Typically, this is achieved using a combination of improvements to the heating demand in a property (e.g. from improving insulation and reducing drafts) and changing to a zero-emission heating system for heating and hot water.

Zero emission heating: A heating system for properties that does not use polluting fuels (e.g. gas/oil/LPG), but instead is using heat pump, electric storage, or heat networks that are derived from clean sources. Hydrogen gas may also be considered zero-emission if the hydrogen gas was derived from renewable sources.

Heat pump: Usually air source or ground source – are modern, low carbon heating systems that are much more energy efficient than boilers and traditional electric heating. They work by taking warmth from the surrounding air, ground or water and heating this using a refrigerant gas. Typically this then heats hot water to provide heating and hot water to properties, but can also provide hot air, which is similar to an air-conditioning system.

Heat networks: A network of pipes by which hot water is distributed from one or more sources of production to more than one building. They are a tried and tested technology used extensively across Europe. They are a key strategic technology for reducing emissions from heating homes and non-domestic buildings.

Greenhouse Gas (GHG): Greenhouse gases are gases that trap heat in the earth's atmosphere, a process called the greenhouse effect. These gases occur naturally, but are also produced by human activity.

Fossil Fuels: Fossil fuel is the term given to non-renewable energy sources that formed beneath the Earth's crust as a result of geological processes acting on the remains of plants and animals that existed millions of years ago. Examples of fossil fuels include coal, natural gas or crude oil.

Energy Performance Certificate (EPC): An Energy Performance Certificate (EPC) gives information on how energy efficient a building is and how it could be improved. You need an EPC when: applying for a completion certificate for a new building; selling a building; or renting a building to a new tenant.

TWh: Terrawatt hours abbreviated as TWh is a unit of energy representing one trillion watt hours. A kilowatt hour is equivalent to a steady power of one kilowatt running for one hour.

Just Transition: An approach to meeting environmental targets which addresses potential sources of unfairness and to provide better outcomes for different groups of people.

Home Analytics: The Energy Saving Trust's service which pulls together data on residential properties across Great Britain. It combines energy efficiency metrics with the full range of property attributes, geographical factors, such as region or rurality, and socio-demographic information, such as tenure and fuel poverty.

Appendix 1 - Funding and Investment

Significant funding and investment will be required if the ambitions outlined in this document are to be realised. Some of the current funding and delivery programmes that could be utilised to support LHEES Delivery actions are stated below.

Scheme Name	Details
Energy Efficient Scotland: Area Based Scheme (ABS)	Funded by Scottish Government. Targets energy efficiency measures for owner-occupiers and private landlords owning 3 or less properties. This ongoing scheme is delivered by East Renfrewshire Council and prioritises fuel poor areas (usually Council Tax Band A-C)
Heat Network Support Unit	Funded by Scottish Government to support and develop heat networks. Can offer 100% funding for feasibility studies and up to 50% of Outline Business Cases.
Heat Network Fund	Funded by Scottish Government with a total of £300m available before April 2026. Heat network projects must be of a large scale and demonstrate a positive social and economic benefit.
Public Sector Heat Decarbonisation Fund	Funded by Scottish Government via Salix. Total of £20m to help public sector decarbonise their heating systems by replacing them with zero direct emissions systems, as well as for retrofit energy efficiency measures to support the overall decarbonisation of heat in buildings
Social Housing Net Zero Heat Fund	Funded by Scottish Government and also open to other social landlords. Total of £200m by 2026 with two themes: 1 – zero direct emissions heating systems 2 – “fabric first” energy efficiency only projects
ECO4 Flex	Focuses on supporting low-income and vulnerable and fuel poor households through installation of insulation and heating measures, the “ECO4” scheme, covers the period July 2022 to 31 March 2026.

Funding for social landlords

The main opportunity for social landlords is the Social Housing Net Zero Heat Fund, as mentioned above. For properties within a Heat Network Zone, confirmation of heat network plans will enable applications. These should be linked with further energy efficiency measures and getting ‘heat network ready’. The fund could potentially contribute towards the capital cost of network connection.

Funding for private landlords

The Private Rented Sector Landlord Loan is a Scottish Government funded loan that helps landlords improve the energy efficiency of their properties and meet minimum standards. This is administered by the Energy Savings Trust.

Up to £15,000 can be borrowed per property for insulation measures and £17,500 for up to two home renewable systems per property plus an energy storage system up to a maximum of £6,000. Landlords with five properties or fewer can borrow up to £100,000 and those with six or more can borrow up to £250,000 with the loan repayable over eight years.

Funding for homeowners

Advice on the range of grant and loan funding that is currently available to support owner occupiers with energy efficiency improvements and net zero heating solutions is available via Home Energy Scotland.

Appendix 2 – Priority geographical areas for each LHEES consideration

Table 12 Summary table of most important areas for each LHEES consideration

LHEES Priority	Description	Main geographical areas to prioritise	Data Zone codes
1. Heat networks	Decarbonisation with heat networks	Seven clusters were identified, of which the ones in Eastwood Park and Barrhead show the most potential in terms of anchor loads and potential extensions to exiting heat networks and local development sites.	No specific Data Zones, clusters as per output file
2. Off-gas grid buildings	Transitioning mainly from heating oil and LPG in off-gas areas	Areas and properties to prioritise mostly involve flats that currently have storage heaters[1]. They are located in the following areas: Mearnskirk and South Kirkhill; Crookfur and Fruin; North Giffnock and North Thornliebank; Merrylee and Braidbar; Clarkston and Sheddens.	S01008347, S01008328, S01008410, S01008396, S01008378
3. Poor building energy efficiency	Poor building energy efficiency	Areas with a lack of cavity wall insulation are North Kirkhill; Whitecraigs and Broom; North Giffnock and North Thornliebank[2]. Areas which lack solid wall insulation are Netherlee; Lower Whitecraigs and South Giffnock.	S01008363, S01008345, S01008407 S01008392, S01008405, S01008394
4. Poor building energy efficiency as a driver for fuel poverty	Poor building energy efficiency as a driver for fuel poverty	Areas with high level of estimated fuel poverty and low levels of energy efficiency (particularly wall insulation) are: Dunterlie, East Arthurlie and Dovecothall; North Giffnock and North Thornliebank; Cross Stobbs; Neilston and Uplawmoor.	S01008309, S01008406, S01008304, S01008299, S01008314
5. Mixed-tenure, mixed-use and historic buildings	Covering mixed-tenure and mixed-use buildings, listed buildings and buildings in conservation areas	The areas with highest levels of mixed-use and/or mixed tenure are in Mearnskirk and South Kirkhill; Crookfur and Fruin; Dunterlie, East Arthurlie and Dovecothall; and North Giffnock and North Thornliebank. The areas with most properties in conservation areas or listed buildings are Lower Whitecraigs and South Giffnock; Eaglesham and Waterfoot; and Mearnskirk and South Kirkhill.	S01008354, S01008328, S01008309, S01008406, S01008315 S01008355, S01008356, S01008349, S01008402, S01008405
6. On-gas grid buildings	On-gas grid heat decarbonisation	Areas for this priority mostly involve a high level of recently built properties (i.e. post-1992) with high energy efficiency levels. Particularly the areas of Crookfur and Fruin; Mearnskirk and South Kirkhill; and West Arthurlie and North Neilston.	S01008328, S01008354, S01008318