Inverclyde Council

Local Heat and Energy Efficiency Delivery Plan

April 2024

Inverclyde Local Heat and Energy Efficiency Delivery Plan

Contents

1 Foreword

Inverclyde Council is delighted to introduce the first iteration of the Local Heat and Energy Efficiency Strategy (LHEES). This Strategy underpins the place-based approach to improving the energy efficiency and decarbonising the heat supply of all of Inverclyde.

The Strategy addresses the changes required to Inverclyde's buildings and infrastructure, including all domestic and non-domestic buildings, setting out how these works could be coordinated and undertaken to progress and achieve Scotland's Net Zero Carbon target. The Strategy will help steer interventions over the coming years aimed at making buildings in Inverclyde more energy efficient and migrating the heating of buildings away from fossil fuel-based solutions such as gas boilers to zero direct emissions solutions such as heat pumps and heat networks.

It is important to highlight how challenging these targets are, with nearly 90% of homes in Inverclyde connected to the gas grid. This will require large-scale activity from both the public and private sector, alongside commitment of significant resources. We aim to encourage and support businesses, owner/occupiers and wider partners throughout Inverclyde to join the journey to reduce emissions in line with wider net zero targets. This Strategy is being published at a time of great change, with the Heat in Buildings Strategy published in 2021, the Heat in Buildings Bill published in 2023, and the new Social Housing Net Zero standard out for consultation. Alongside this, funding mechanisms for retrofit, and energy tariffs for both gas and electricity are all currently under review.

This Strategy is published in a challenging financial landscape, which is expected to continue, already resulting in 30% of Inverclyde's households considered to be fuel poor. In light of this, the Delivery Plan for 2024 – 2028 has been prepared in conjunction with this Strategy. This proposes delivery areas of three different types; firstly, addressing areas with wide fuel poverty; secondly, encouraging widespread roll-out of heat pumps; and lastly, a combination of heat pumps in fuel poor areas.

2 Executive Summary

This document is the Local Heat and Energy Efficiency Delivery Plan (LHEEDP or 'Delivery Plan') for Inverclyde which accompanies the Local Heat and Energy Efficiency Strategy (LHEES). Developed in line with guidance from the Scottish Government, it will help implement the LHEES vision set out by Inverclyde over the next five years (2023-2028).

The Council has two key themes to guide the development of the Delivery Plan;

1. Maximising the potential for heat networks, beginning with a central heat network on the Waterfront in Greenock Town Centre, expanding that to the remainder of the heat networks zones identified in this LHEES and linking it to existing heat networks. Additionally, Inverclyde will aspire to connect to a potential heat highway across the central belt if appropriate.
2. Focusing on areas with social housing households that have high levels of fuel poverty in order to reduce inequality.

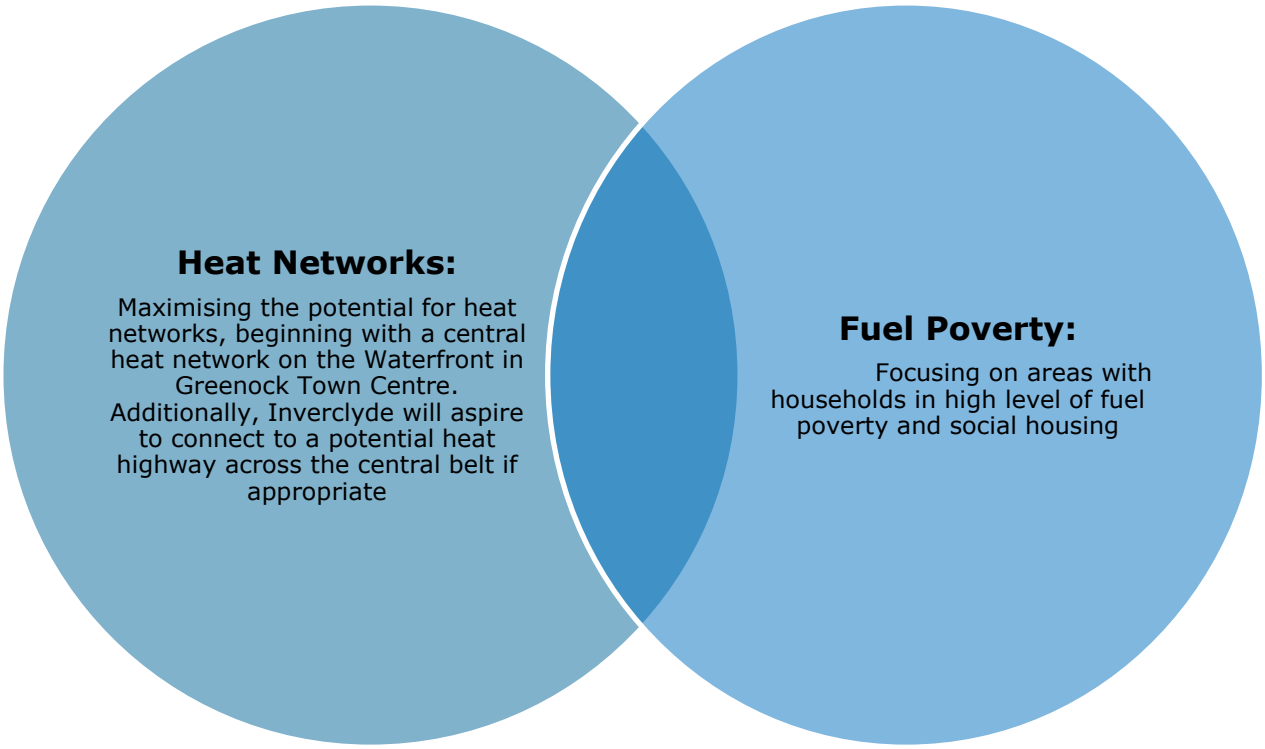


Figure 1 - Diagram illustrating the LHEES priorities

The LHEES and Delivery Plan fall within the remit of Inverclyde Council's Climate Change Working Group, who will align efforts and prioritise actions as part of a cohesive LHEES programme. The LHEES programme includes initiatives and actions beyond the current capacity of the working group, in anticipation of potential further resource being made available by the Scottish Government to deliver LHEES.

Given that the LHEES affects everyone within Inverclyde, it is imperative to continue engagement with stakeholders such as Registered Social Landlords (RSLs), NHS, etc. Therefore, the group will work with external and internal stakeholders most appropriate to the LHEES programme, as the aim for Inverclyde's LHEES is to have a collaborative approach across all relevant stakeholders, ensuring a cohesive approach.

Following the LHEES methodology, the Council has identified 11 provisional heat network zone opportunities and five delivery area opportunities using heat demand data, local constraints, and fuel poverty data.

The map below highlights these 11 provisional Heat Network Zone Opportunities alongside the five Delivery Area Opportunities. These Delivery Areas target either heat pump ready properties, fuel poverty, or a combination of both.

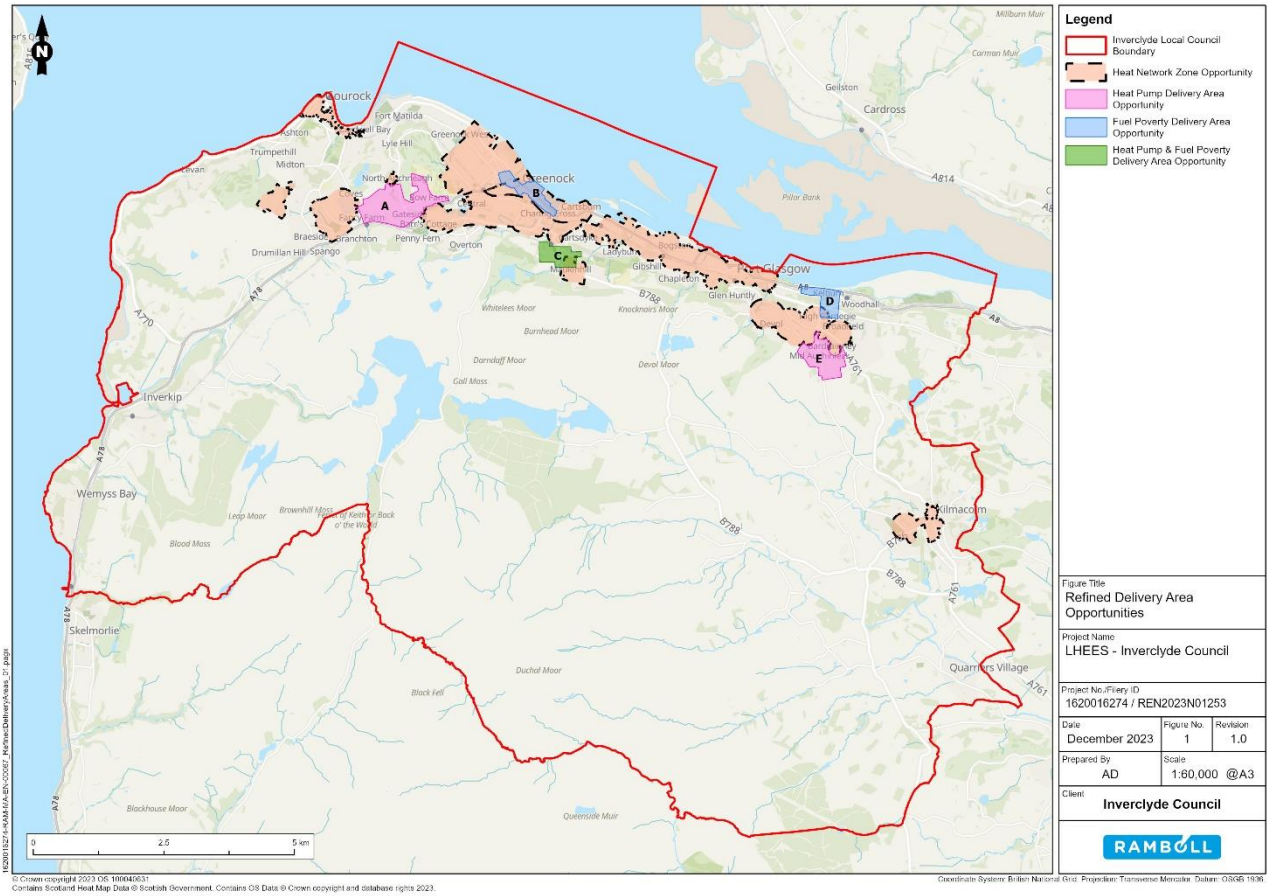


Figure 2 - Inverclyde provisional Heat Network Zones & Priority Delivery Areas

3 Introduction to the Delivery Plan

This document is the Local Heat and Energy Efficiency Delivery Plan (LHEEDP or 'Delivery Plan') for Inverclyde and accompanies the Local Heat and Energy Efficiency Strategy (LHEES). This Delivery Plan will help to implement the LHEES vision set out by Inverclyde over the next five years (2023-2028). It has been developed in line with guidance from the Scottish Government and provides details on how the LHEES will be delivered. This Delivery Plan draws from, both, a data-led process which involved an analysis of regional needs and local building performance as well as a strategy-led process which informed the analysis with LHEES priorities identified via stakeholder engagement or national and local policies.

The Delivery Plan is intended to guide energy efficiency improvements and decarbonisation of heat in buildings while prioritising the key themes: developing a proficient heat network programme to provide the Inverclyde area with cleaner heat and addressing poor energy efficiency as a driver for fuel poverty. Inverclyde will consistently consult with key stakeholders through the implementation of this delivery plan including RSLs and other relevant stakeholders to ensure alignment of efforts.

4 Approach to Delivery Plan

4.1 LHEES Priorities

The purpose of this Delivery Plan is to detail the specific opportunities and delivery mechanisms for Inverclyde to develop their heat network portfolio with new developments and install building level measures. This covers short and medium goals within a 5-year timeframe and longer-term aspirational actions; thus the plan focuses on opportunities and approaches for this first phase of the LHEES, with the next Delivery Plan scheduled to be published no later than December 2028.

4.2 Inverclyde's Priorities

There are two key themes the Council has considered to guide the development of this Delivery Plan. These are intended to maximise the effectiveness of LHEES delivery as they are the two main priorities identified via the LHEES Strategy:

1. Maximising the potential for heat networks, beginning with a central heat network on the Waterfront in Greenock Town Centre, expanding that to the remainder of the heat networks zones identified in this LHEES and linking it to existing heat networks. Additionally, Inverclyde will aspire to connect to a potential heat highway across the central belt if appropriate.
2. Focusing on areas with social housing households that have high levels of fuel poverty.

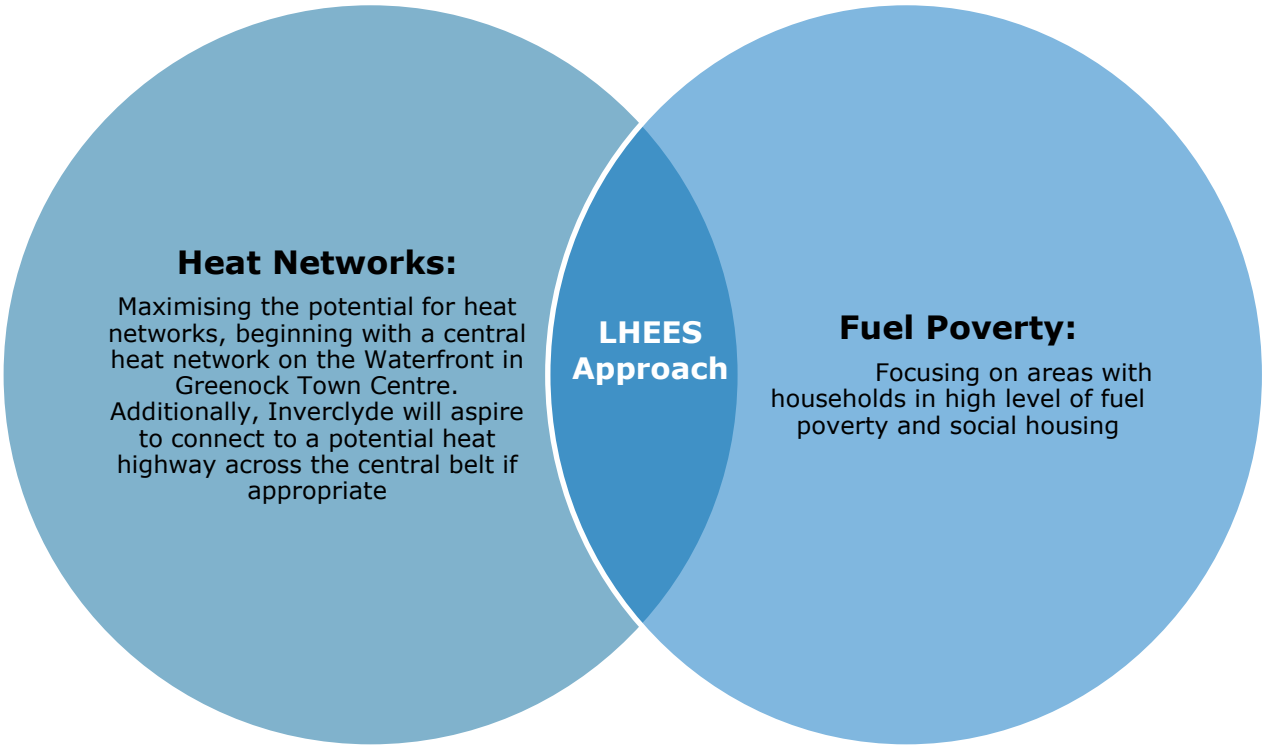


Figure 3 - Diagram illustrating the LHEES priorities

As shown in Figure 3 the core priorities for Inverclyde's LHEES are centred around heat networks and fuel poverty. These goals are mutual to decarbonising heat and eradicating poor energy efficiency as a driver for fuel poverty. Heat networks bring the opportunity for consumers to access heat at a lower cost than individual heating systems and can also offer protection from volatile energy price spikes. In addition, they also minimise the burden of maintenance from residents. Inverclyde's LHEES shows that many areas with high levels of fuel poverty are also those which fall into a potential heat network zone opportunity. Thus, heat networks are a major avenue for Inverclyde to address fuel poverty, alongside improving building fabric.

This Delivery Plan is based on a programmatic approach to implementing the LHEES. This will allow the limited council resources to be planned and deployed most efficiently across these dual priorities. The LHEES programme outlines the initiatives of an internal LHEES delivery team, a heat network programme, and a focus on areas with high levels of fuel poverty and social housing, especially where these coincide.

4.3 An LHEES Programme

Inverclyde Council currently has a Climate Change Working Group consisting of staff with a main or partial role in energy, environment, and climate change. The LHEES and Delivery Plan fall within the remit of this group. With its limited membership and resources, it will be important for the working group to align efforts and prioritise actions as part of a cohesive LHEES programme. This will be an effective method in which all contributors can find common goals, collaborate, track progress, share action and progress updates, and resolve issues together as a cross-departmental team working across several policy areas. This LHEES programme will enable the working group to implement the delivery plan insofar as resource is available.

However, the LHEES Programme also includes initiatives and actions beyond the current capacity of the working group. This is in the anticipation of potential further resource being made available by the Scottish Government to deliver LHEES, recognising that as a far more resource intensive and complicated challenge than the development of the Strategy and Delivery Plan documents.

The aim for Inverclyde's LHEES is to have a collaborative approach across all relevant stakeholders, internal and external where they can feed into the implementation process and ensure it is a cohesive approach. Therefore, the group will also work with external stakeholders most appropriate to the LHEES programme.

The relevant initiatives of the LHEES Programme (sections 4.3.1 to 4.3.7) detailed below are a means of leveraging the most out of the resource available to unlock progress in heat network zones and retrofit delivery areas:

- The relevant council teams will need to align their efforts such as tasks, order of operation, roles, and timelines.
- External stakeholders will need to be identified and engaged to develop clearly-defined actions and joint objectives.
- Priorities for each area will need to be agreed and communicated with all stakeholders.
- Building level-pathways, heat network feasibilities and other infrastructure upgrades will need to be assessed and planned. This will include pathways for Council assets present in the area to lead by example with relevant actions (energy efficiency measures, zero carbon heat sources or connection to a heat network).
- The supply chain will need to be engaged to understand availability, shortfall and realistic delivery timings with the aim for work to be carried out by a local workforce, or have the local supply chain trained during delivery.
- Property owners will need clear and consistent communication leading toward an action. This may include incentives such as participation in an aggregated procurement exercise for a lower-cost and high-quality assured retrofit, or the availability of funding and finance schemes (e.g. those identified by the Green Heat Finance Taskforce) making retrofit financially more appealing.
- A host of other factors will need to be considered and planned to enable the most productive programme of activity.

These are some initial considerations, but the Council will build on these through existing learning and experience from Area-Based Schemes as well as further pilots, tests and ongoing programme of improvement. Ultimately, the Council will aim to specialise in project execution to the point it is able to scale its work in line with the level of change required to meet the LHEES strategy targets.

4.3.1 Governance and Leadership

Inverclyde will establish a subgroup of officers from the Climate Change Group that will form the LHEES Delivery Team. The responsibilities of this group will be to meet regularly to discuss progress of Inverclyde's LHEES and to implement actions.

LHEES Delivery team Governance:

- The Council will establish a clear cross-departmental operating model with roles and responsibilities of staff in the LHEES Delivery Team as well as collaborators.
- The Council will identify LHEES Champions across various teams who will enable smooth dissemination of information, joint decision-making, and collaboration across programmes.

- Overall responsibility of LHEES will be allocated to the LHEES Delivery Team, ultimately falling within the remit of the Environment & Regeneration Directorate and reporting to the Council's Environment and Regeneration Committee.
- The LHEES delivery team will also manage the datasets and amend maps or plans as appropriate.

It is noted that during subsequent delivery of works, all local and national policies shall be adhered to including health & safety and environmental compliance.

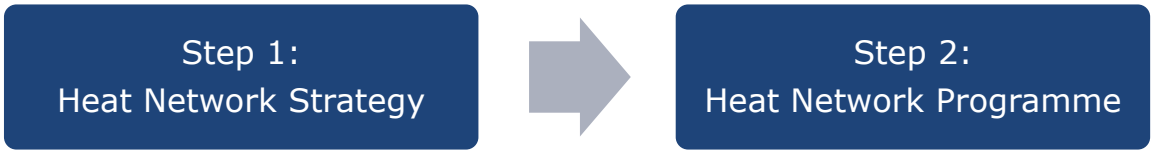
4.3.2 Heat Network Programme

Inverclyde aspires to demonstrate national leadership as a local authority area without a major city or hubs but with a major heat network presence. The council has taken initiative to seek out opportunities through feasibility studies to utilise the River Clyde as a potential heat source for heat network expansion throughout a northern coastal 'heat belt'. The goal of this development is to contribute to the decarbonisation of the council area. In due course, this could also contribute to a 'heat highway' stretching across the central belt and create future opportunities for interconnectivity across the council areas.

The council has developed a feasibility for a waterfront heat network using the River Clyde. The feasibility study identified multiple heat sources and multiple technologies alongside potential locations for energy centres. The council also looked into additional heat sources in the event that the original malfunctions or the heat demand peaks and additional energy is required. All heat networks will utilise zero direct emission sources as an unnegotiable policy decision, following Inverclyde's commitment to decarbonising its heat supply. The waterfront heat network will potentially be the basis of a more expansive network beginning from Greenock Town Centre and with an aspiration of achieving the goal of a 'heat belt' across the northern coast of Inverclyde.

River Clyde Homes (RCH), the largest social landlord in Inverclyde, operates a number of locations with a heat network or some form of communal heating. As such RCH are a key stakeholder in ensuring existing and future heat networks are integrated into the heat belt where technically and financially feasible.

The council will endeavour to develop a heat network programme to progress work on this priority. This will consolidate and expand on the work completed to date at a more strategic and planned level.



The **first step** will involve the development of a Heat Network Strategy. The council will seek funding and advice from the Scottish Government's Heat Network Support Unit to develop an overall vision and approach for the systematic rollout of the heat belt. A Heat Network Strategy will provide the council and stakeholders with a clear and investible path to deliver heat networks at pace and scale. It will include the following objectives:

- A detailed options appraisal of the delivery vehicles, including an assessment of the council's own role with respect to various types of delivery models. This will include stakeholder engagement to understand the role of other organisations (especially other public bodies and social housing) and the private sector, leading to recommendation for a final decision.

- An assessment of the council's statutory obligations and a statutory compliance framework which uses the regulations in the Heat Network (Scotland) Act as well as proposals in the Heat Network Delivery Plan to guide the council toward obligation. This will also highlight the opportunities and powers at the disposal of the council (e.g. via the licencing and permitting regime).

- The council will upskill its internal teams and appropriate stakeholders via detailed workshops on the economic, environmental, social, commercial, technical, and other aspects of heat networks. This will, firstly, help the council make informed decisions about the strategy and, secondly, prepare staff for the leading role which they will be required to take in the rollout of the heat belt (regardless of the delivery vehicle). This upskilling will begin with a gap analysis and maturity assessment (acknowledging the council's participation the Heat Network Mentoring Scheme), which will then be utilised to select options for bridging the gap.

- A business case which covers the following dimensions of the 5-case model (e.g. strategic case, management case etc.). This business case will provide the specific operating model for the delivery vehicle which is decided by the options appraisal. It will also include the level of investment, routes to market, governance structures and a host of other short-, medium- and long-term considerations to enable the rollout of the heat belt at the greatest possible pace and scale.

- A customer charter which defines how heat networks must operate, including a set of best practice principles that any customer in Inverclyde connected to a heat network should be able to expect (including heat tariffs, connection and disconnection rules and other aspects).

- The LHEES has made significant headway in helping to define provisional heat network zone opportunities. However, a more in-depth analysis will be carried out to understand heat demand via real-world data on energy use in the zones (e.g. via engagement with stakeholders), real-world data on waste heat, the current stage of the cycle of heating systems for key potential customers, future demand profile modelling using future energy scenarios, grid constraints and timelines (e.g. engagement with SPEN), topographical and technical constraints, renewable and energy storage opportunities, and other aspects which impact the feasibility of the interconnectivity of the heat belt.

- Where particular zone opportunities arise as attractive opportunities, the strategy will establish precedence, information and the council's approach and timeline for these to be designated as provisional heat network zones in line with the requirements of the Heat Network (Scotland) Act.

Through these elements, the Heat Network Strategy will provide a clear and actionable route for the council and its stakeholders. It will also shape the Heat Network Programme.

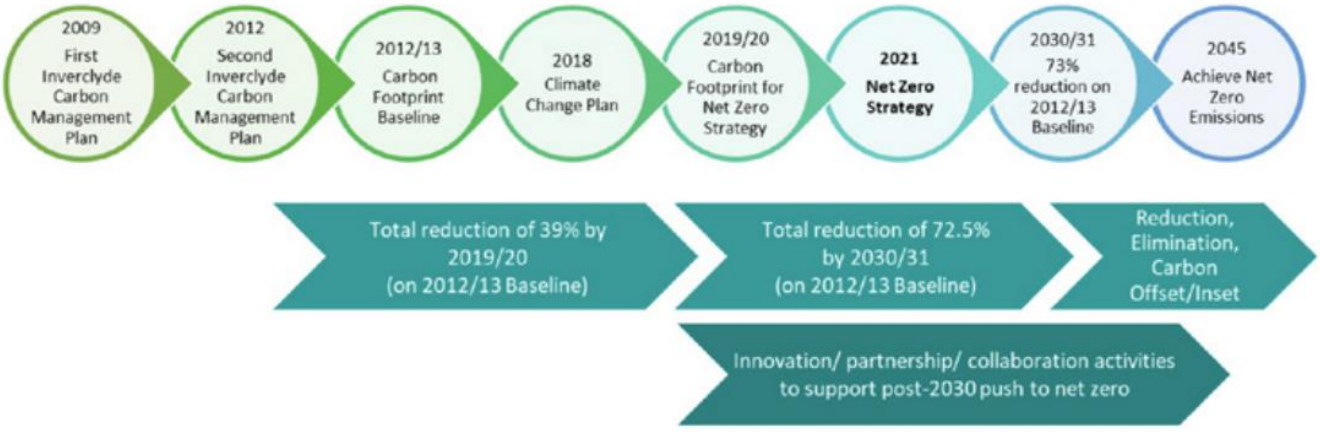
Step 2 will involve the development and launch of a Heat Network Programme as a major initiative within the overall LHEES Programme. The nature and scope of the Heat Network Programme will become clearer once the strategy has been developed. However, there are certain elements which are likely to form part of this programme.

- The Heat Network Programme will house the responsibilities, skills and resources to execute the heat belt vision as well as handle all aspects of heat networks and communal heating systems across Inverclyde where there is a role for the council.

- It will engage with stakeholders and hold key relationships with appropriate internal and external stakeholders. The programme will work synergistically with the overall LHEES programme to align priorities and remain focused on the LHEES priorities.
- It will be responsible for leading feasibility studies for individual heat networks, supporting business cases, and any pre-capital and commercial works to prepare the heat network for investment.
- Depending on the delivery vehicle model defined by the strategy, the programme will enable and facilitate the council's role with respect to this.
- Fulfil the council's statutory responsibilities and any regulatory functions with respect to the Heat Networks (Scotland) Act, including management of Building Assessment Reports (BARs), formal designation of provisional heat network zones, administering consents and permits if/where this authority has been sought by the council from the Scottish Government.

4.3.3 Council non-domestic retrofit leadership

Inverclyde Council wish to lead by example when it comes to retrofitting, decarbonising via heat pumps or connection to a heat network, and making Inverclyde's buildings future proof. It is the council's view that, while the LHEES is an area-wide approach with action needed by all respective property operators, the LHEES will benefit if the council not only plays its part but does so in a way which inspires, helps and encourages others. The council's Net Zero Strategy is at the centre of the drive to making the council's estate net zero. This strategy follows an ambitious timeline to net zero and therefore is already an ideal opportunity to align to this delivery plan.



- The council will align this Delivery Plan with its Net Zero Strategy and related Net Zero Action Plan to leverage decarbonisation opportunities to deliver wider benefits.
- The council will use its non-domestic retrofit projects identified by the Net Zero Action Plan as pathfinders to learn and inform future projects for its estate as well as to transfer this to others in the area. An example of good practice is the deep retrofit of one of the oldest buildings in Inverclyde, the King George VI building, situated in Port Glasgow and dating back to the 1700s. The council recognises the importance of maintaining the building stock whilst making it air and watertight before retrofitting it, actions being implemented on this building. There may also be a potential role for the council to improve the feasibility of delivery area and heat network projects where it could use its own stock in the area as a lever to catalyse activity or unlock an opportunity. This could include commitment to

connect council buildings to encourage investment into a heat network or retrofitting in a delivery area to inspire, encourage and engage others to join.

- A retrofit intervention must be identified, surveyed, designed, procured and then verified and monitored in line with best practice standards and procedures. It is this process that will be emulated in the delivery of LHEES across other organisations, including public bodies, private organisations and social housing. Understanding and recognising how to develop and deliver a retrofit programme will be critical for all property operators. If the council is able to secure additional resource, it will use this to support organisations through this process via advice, signposting, collaboration on procurement, and aligning initiatives across delivery areas and provisional heat network zones to enable a wider business opportunity.

4.3.4 Social housing leadership

All social housing in Inverclyde is provided by registered social landlords (RSLs) which are independent of the council (the council transferred its domestic stock to providers in 2007). The largest social housing provider is River Clyde Homes followed by Cloch Housing Association, and both have been consulted as part of developing this LHEES. This was a crucial factor for the development of delivery area retrofit plans and provisional heat network zones, as approximately 25% of the domestic stock is social housing. Due to these considerations, it is important to reflect collaboration with and leadership of social housing in the LHEES Programme.

Significant progress has been made to plan large scale transformation of Inverclyde's housing stock with the recent updates to Inverclyde's Local Housing Strategy (LHS) along with this LHEES. Social housing retrofit has been identified as a major way in which this momentum can be preserved and grown into implementation. The development of this LHEES involved engagement with RSLs, who have been encouraged to take a leading role in the retrofit of stocks and participation in heat network schemes. Delivery areas for property-level interventions have been identified with consideration to these stakeholders' goals along with the LHEES priority to focus on fuel poverty and social housing (which largely coincide). As such, implementation will also see RSLs lead activity, with the council's support, to encourage and promote retrofit in the identified areas.

This arrangement will promote a collaborative approach placing the fuel poor residents of Inverclyde at the centre to ensure their needs are met through LHEES actions. This collaboration will eventually become imperative for RSLs as the upcoming Social Housing Net Zero Standard (currently under consultation) will require minimum energy efficiency thresholds and heat decarbonisation or connection to a heat network. These requirements will make their participation in delivery area activity all the more critical. The council will drive this collaboration by:

- Using strategic government funding across various streams to ensure retrofit can be carried out on a larger scale in the future than current levels. Area-based schemes will align to LHEES delivery areas, and RSLs will be requested to support the focus areas which have been selected.
- Aligning retrofit projects to further a collaborative approach and ensure the retrofit projects are prioritised according to fuel poverty, building stock condition, funding opportunities and other factors.
- Understanding and sharing an archetype approach across the sector. This means that a number of property types will be identified by RSLs (with support from the council if there is resource to do so) along with their most effective retrofit and heat solutions and costs. This information will then be shared with others across the region. This collaborative thinking and knowledge sharing will be a major way in which LHEES can drive benefits for the residents of Inverclyde.

- Utilising organisations and individuals with social housing experience and how best to navigate constraints that may arise will prove this LHEES to be more effective. Issues that bodies external to the council may be well versed in include blending funding streams, mixed tenure and tenants blocking retrofit works from being completed.
- Exploring the scope for joint procurement activities to reduce costs and open access to a larger number of property owners. This will also build confidence in the supply chain, promote quality and improved monitoring and verification, and reduce the procurement and administrative burden.

4.3.5 Awareness Raising and Stakeholder Engagement

As part of the LHEES Methodology, the council identified stakeholders relevant to delivery areas and heat network opportunities. The stakeholders are based on the relevance and influence they have on the delivery and/or the impact of delivery on them. Multiple engagements across stages of the development of this LHEES were conducted to ensure Inverclyde had an area-wide approach taking into consideration effects this LHEES would have. This was to ensure the interests of businesses, residents and the council's interests were all considered alongside the sustainability aspects that this LHEES will bring. The success of the LHEES programme will depend on ongoing engagement with key permanent stakeholders.

- RSLs such as River Clyde Homes and Cloch Housing Association
- Public bodies such as the NHS
- Scottish Power Energy Networks (SPEN) as a critical partner to investigate grid capacity/constraints, and upgrades required. The council will engage closely with the local 'strategic optimiser' to advise on heat network, communal heating, large-scale heat pump, renewable and energy/heat storage deployment.
- Scottish Government LHEES team and the HNSU as key advisors, enablers and funders of the LHEES activity.

These stakeholders will be key in enabling the LHEES, and without their involvement it is unlikely targets will be realised. Therefore, the council's stakeholder engagement initiative will:

- Establish clear working relationships with key external stakeholders, including setting up relevant data sharing agreements, forums, decision-making processes and responsibilities. Many of these relations exist but some may not be well-defined or be a productive relationship in relation to LHEES.
- An engagement plan including timeframes, content and objectives, all linked to the relevant location and stakeholders (based on the delivery area and/or heat network zone location). This will allow the LHEES Programme to align priorities of all stakeholders, synergise efforts and promote investment. Additionally, it will ensure all stakeholders impacted are informed and updated with current and upcoming plans and progress.

The council will also retain and engage with a wider set of stakeholder groups, including charitable bodies, homeowners, private landlords, non-domestic building owners (real estate companies, supermarkets, and other large estate owners). However, this engagement will be contingent on the specific delivery area or heat network opportunity.

Awareness raising is also an important aspect of the LHEES, as without knowing or understanding about these local priorities homeowners and businesses are unlikely to be inspired. The awareness raising must highlight, both, the benefits (of comfort, net zero and bill savings) as well as upcoming regulations which will mandate action (as per the Heat in Buildings Bill). The council has

a portfolio of engagement with communities and community groups to promote collaborative thinking and transparency. Members of the Climate Change working group are involved in Climate Beacons, a legacy initiative from COP26 delivered through libraries, community garden centres and art centres in Inverclyde. This is centred around education, awareness, and participation on climate change topics. This existing asset will be utilised for community engagement around LHEES, to promote a collaborative approach, communicate and educate about retrofit delivery areas and heat network zones.

The ambition of Inverclyde is to enable all relevant stakeholders to be involved in the delivery of LHEES and promote the achievement of its targets. The stakeholder engagement and awareness raising activity will be imperative to implementing a fully inclusive and mutually beneficial LHEES for the area. Throughout the implementation of Inverclyde's LHEES, the council will ensure the dual priorities of heat networks, and social housing and fuel poverty retrofit are at the core of the agenda.

4.3.6 Town and Village Centre Regeneration

Inverclyde will align its ongoing work on regenerating towns and villages through the implementation of this LHEES. These regeneration priorities, as referenced in the Net Zero Action Plan, have been considered as part of prioritising heat network zone and delivery area opportunities. Works to develop heat networks will be linked to regeneration efforts, providing crosscutting benefits to promote wellbeing of town and village residents. The LHEES implementation will be considered alongside the regenerative actions to develop and enhance these locations, including road services, economic development, and strategic investments.

4.3.7 Funding

The council's primary activity around provision of funding is leading and administering the Energy Efficient Scotland: Area Based Schemes (EES:ABS) projects. Inverclyde's Net Zero Action Plan details that the council will work with partners including the Scottish Government to focus specific funding, measures and resources to address climate change at a local level. However, this initiative will go further by bringing about collaborative thinking as to how to prioritise areas of this delivery plan whilst delivering a wide spectrum of building level measures, energy efficiency upgrades and heat network and energy infrastructure development. This initiative will be crucial in the delivery of this LHEES as the council will need to work with the plethora of stakeholders to channel funding strategically to maximise retrofit across the delivery areas and heat belt.

The council has a focus on fuel poverty and social housing, and launching a heat network programme which creates the conditions for high levels of interconnectivity across the area. The council will work with stakeholders and partners to maximise the use of funding schemes for these priorities. It will include leveraging and supporting others to gain the following funds:

- **Scotland's Heat Network Support Unit (HNSU)[1]:** The Heat Network Support Unit (HNSU) can be accessed whereby they can offer advisory and funding services that address key challenges in the pre-capital stages of heat network development and building capacity across the public sector to deliver successful projects. £300million from the Scottish Government has been made available through **Scotland's Heat Network Fund**[2] for the development and installation of heat networks across Scotland. The Government's ambitions with the introduction of this fund include accelerating zero direct emissions heat network opportunities, ensure poor energy efficiency is not a driver for fuel poverty and to create high value, local, sustainable jobs.

[1] Heat Network Support Unit, Scottish Government (link)
[2] Scotland's Heat Network Fund, Scottish Government (link)

- **Home Energy Scotland**[3]: Funded by the Scottish Government, this advice and funding service provides owner-occupiers and private landlords with support to improve the energy efficiency of their properties. It includes grant and loan support as well as advice services to help owners fund energy efficiency, zero emission heating and renewable energy installations.

- **Warmer Homes Scotland**[4]: This Scottish Government programme offers funding and support to households struggling to stay warm and manage energy bills by carrying out property assessments and installing a range of energy saving improvement which can include insulation, heating and renewable measures. Eligibility for this programme includes private homeowners and tenant of a private-sector landlord.

- **Area-based Schemes (ABS)**[5]: Funded by the Scottish Government and delivered by local authorities, ABS are place-based energy efficiency schemes targeted mainly at improving fabric efficiency of homes in areas with high levels of fuel poverty. ABS funding can also be complemented with funding from UK Government's Energy Company Obligation (ECO) scheme. Inverclyde Council delivers the ABS scheme across the local area in close partnership with registered social landlords.

- **Scottish Public Sector Energy Efficiency Loan Scheme**[6]: Salix Finance is offering zero-interest loans to eligible public bodies to facilitate energy efficiency improvement projects that result in financial and carbon savings whilst contributing towards Inverclyde's net-zero aspirations. Salix has invested over £75million in Scottish energy efficiency projects to date.

- **Scotland's Public Sector Heat Decarbonisation Fund:** The Scottish Government has made £20 million grant funding available within this financial year under Scotland's Public Sector Heat Decarbonisation Fund for projects to decarbonise their heating systems by replacing them with zero direct emissions systems, and for retrofit energy efficiency measures to support the overall decarbonisation of heat in buildings.

- **Business Energy Scotland**[7]: This Scottish Government programme offers advice and funding for SMEs through advisors to help save energy, money and create greener businesses. Businesses can choose from various options including lighting assessments, solar PV assessments and energy efficiency assessments which includes renewable heat technologies, insulation and window glazing. This programme has identified over £200million in savings to date for businesses.

The Council understands the importance of these funds for delivering LHEES alongside strong stakeholder engagement and collective efforts from these parties. The Council's LHEES vision set out in the LHEES strategy will come to fruition through the management of these funds coinciding with consistent engagement on progress.

The LHEES delivery team will communicate the available funding streams to the appropriate bodies and ensure they are made aware of the availability and criteria. This will be delivered through strong communication channels to ensure the LHEES actions are delivered sector and area wide where possible. This will be communicated to relevant council bodies and RSLs.

[3] Home Energy Scotland, Scottish Government (link)
[4] Warmer Homes Scotland, Scottish Government (link)
[5] Area-Based Schemes, Scottish Government (link)
[6] Salix, Scottish Government (link)

[7] Business Energy Scotland (link)

5 Prospective Heat Network Zones & Delivery Areas

This section is based on two types of areas:

1. Heat network zone opportunities, which define areas where heat networks present the best potential for heat decarbonisation at scale. Not all properties may be suitable for connection, but it is likely that many will be able to connect, making it an attractive opportunity to invest into building one.

2. Delivery area opportunities, which define areas where there is a potential for a large proportion of properties to be retrofitted and which meet the LHEES priorities (e.g. areas with large numbers of properties where poor energy efficiency is a driver for fuel poverty). There are three main types of delivery areas. The council has included multiple types of areas to ensure there is a spectrum of delivery methods to reach the LHEES goals and that there is not a sole area targeted. Rather, an area-wide approach is being taken to reach the priority residents across multiple areas initially.

    - Areas with **energy efficiency upgrades** as a focus. These are areas with properties with poor energy efficiency as a driver for fuel poverty but the heat decarbonisation is not a priority. This is because many properties may need a fabric upgrade before they are ready to be considered for heat decarbonisation. It may also be because some of these properties already use zero direct emission heating (e.g. electric heating) or are present in a heat network zone which is preferable over heat pump installation.

    - **Heat pump ready homes**. These are areas where properties typically have a reasonable or good level of energy efficiency, making them suitable for an individual or communal heat pump installation (with little or no energy efficiency improvements). Heat pumps are a priority in this area because they do not have sufficient heat demand density to make a heat network viable.

    - **Heat pump ready homes alongside energy efficiency upgrades**. These are areas which have a good mix of both of the above types of properties.

Based on the LHEES methodology, the Council has identified eleven provisional heat network zone opportunities and five delivery area opportunities using heat demand data, local constraints, and fuel poverty data. These were formed after analysing Inverclyde area as a whole and then further analysis and engagement was undertaken to ensure the five delivery areas and eleven provisional heat network zones have the greatest potential to contribute to the LHEES priorities, national and local targets, and best align with existing schemes. These areas have been selected as the priority for this Delivery Plan (2024-2028) and thus will be the immediate focus for the LHEES Programme, which will leverage its initiatives to promote activity in each area/zone.

5.1 Overview of the Heat Network Opportunities

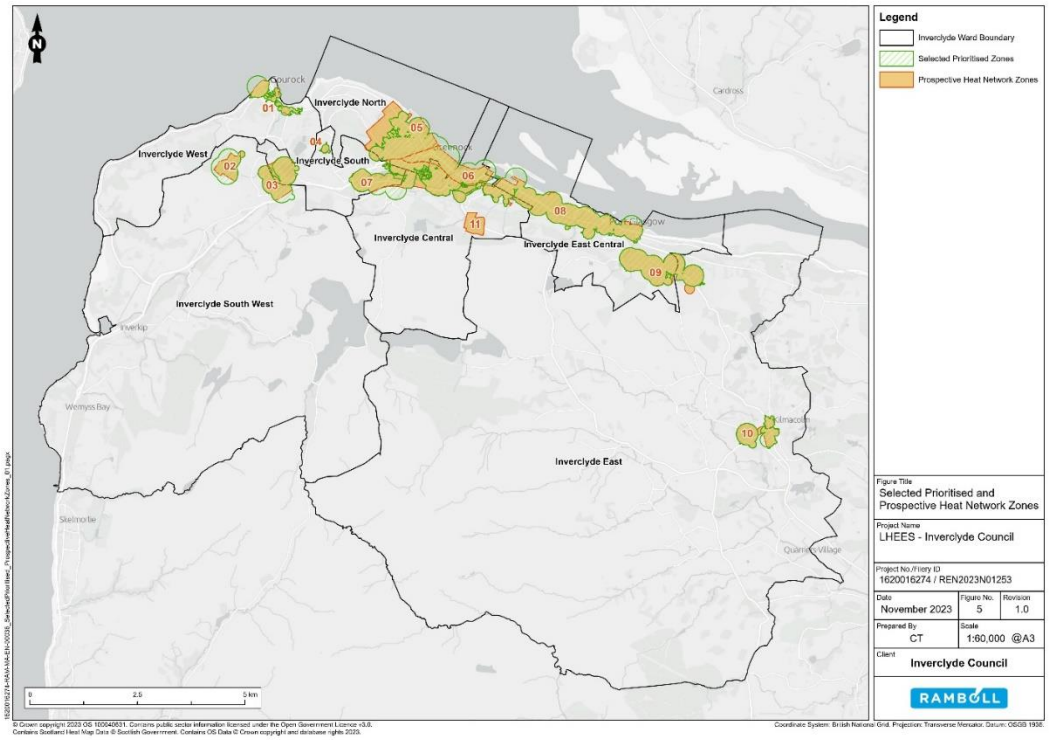


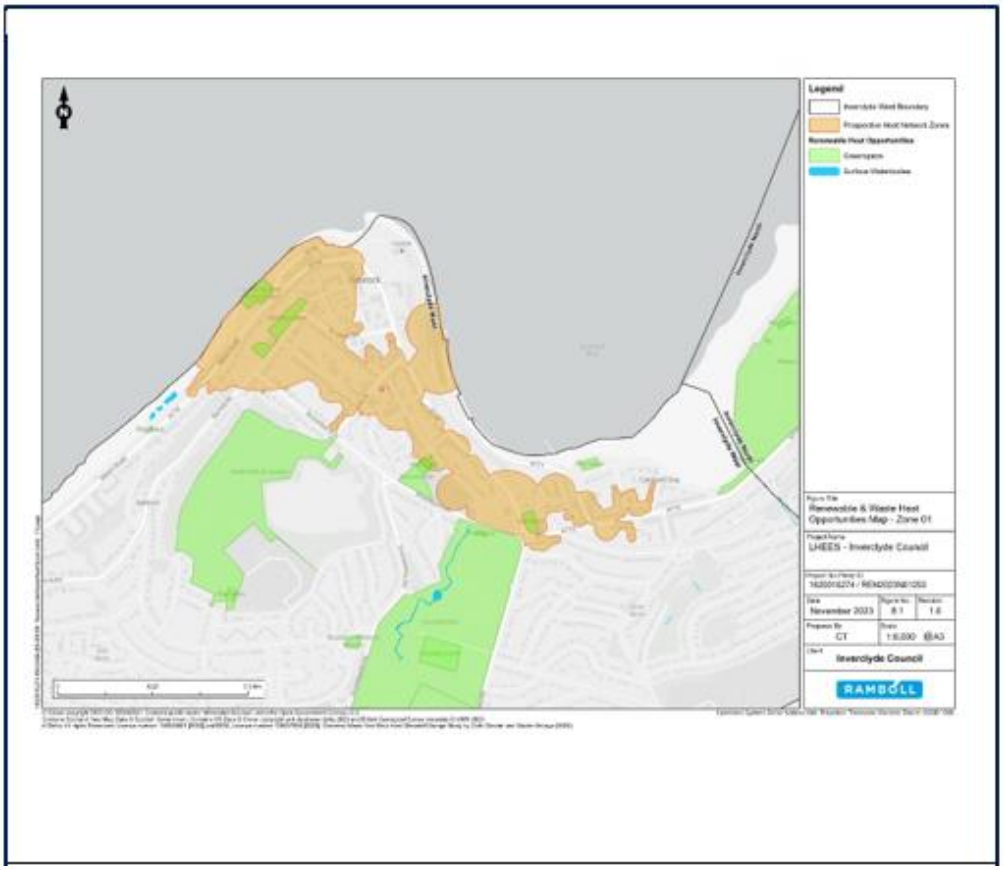
Figure 4 - Local Authority Wide Map including prospective heat network zones and selected prioritised heat network zones. This forms a 'heat belt' across the northern coastline with some additional priority areas separated from the belt due to a lack of heat demand density.

The heat network opportunities shown in Figure 4 were a result of following the LHEES Methodology, along with local priorities as well as technical and physical constraints such as roads and railway tracks. A stakeholder workshop took place with key stakeholders such as RSLs, the Scottish Government, and Scottish Power Energy Networks where local and national goals were noted to ensure that the heat network opportunities were aligned with these. Inverclyde has identified heat network led approach to this LHEES due to ample opportunities and work to date.

5.2 Individual Heat Network Opportunities

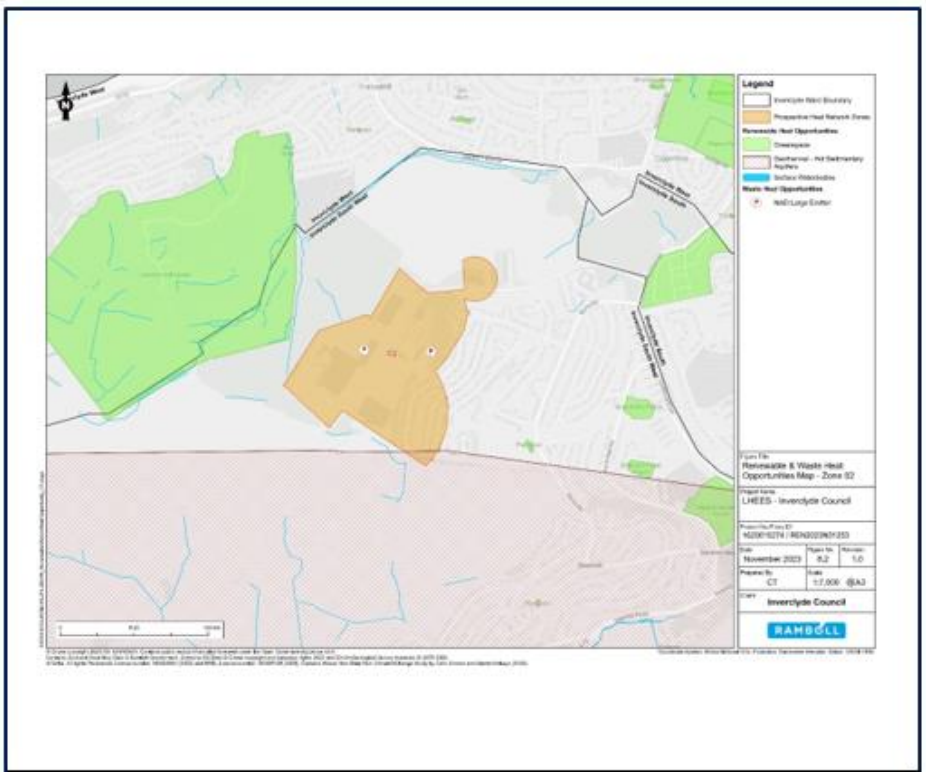
The individual heat networks zone opportunities are presented in this section. The analysis presented here is based on metrics such as linear heat density, anchor load threshold criteria, gridded heat density and local knowledge. The Council will take a technology agnostic approach to heat sources for the network, although heat sources are identified in each zone, further detailed feasibilities and business cases will guide the developments towards the best possible solutions.

5.2.1 Zone 1



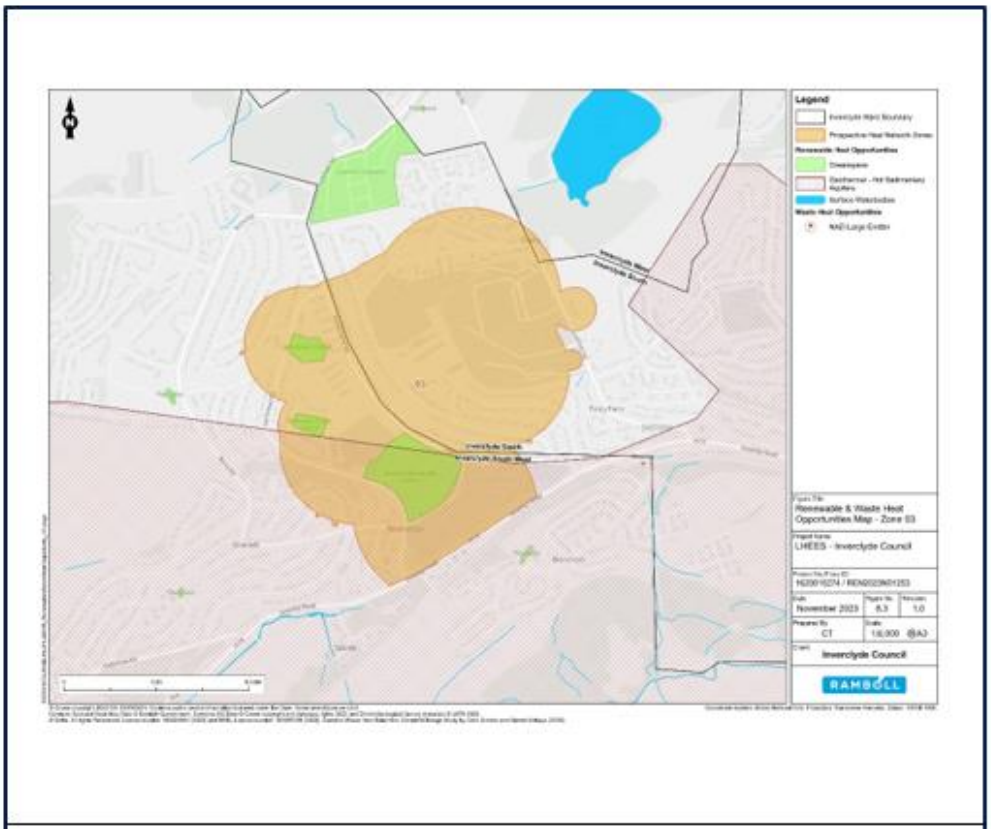
Zone Ward	Inverclyde West
Zone Area	26.6
Estimated Zone Heat Demand	21,783MWh/y
Potential Heat Sources	Green Spaces Surface Water
Fuel Poverty (percentage of households)	27.8%
Extreme Fuel Poverty (percentage of households)	14.1%
Proportion of Domestic Buildings	82%

5.2.2 Zone 2



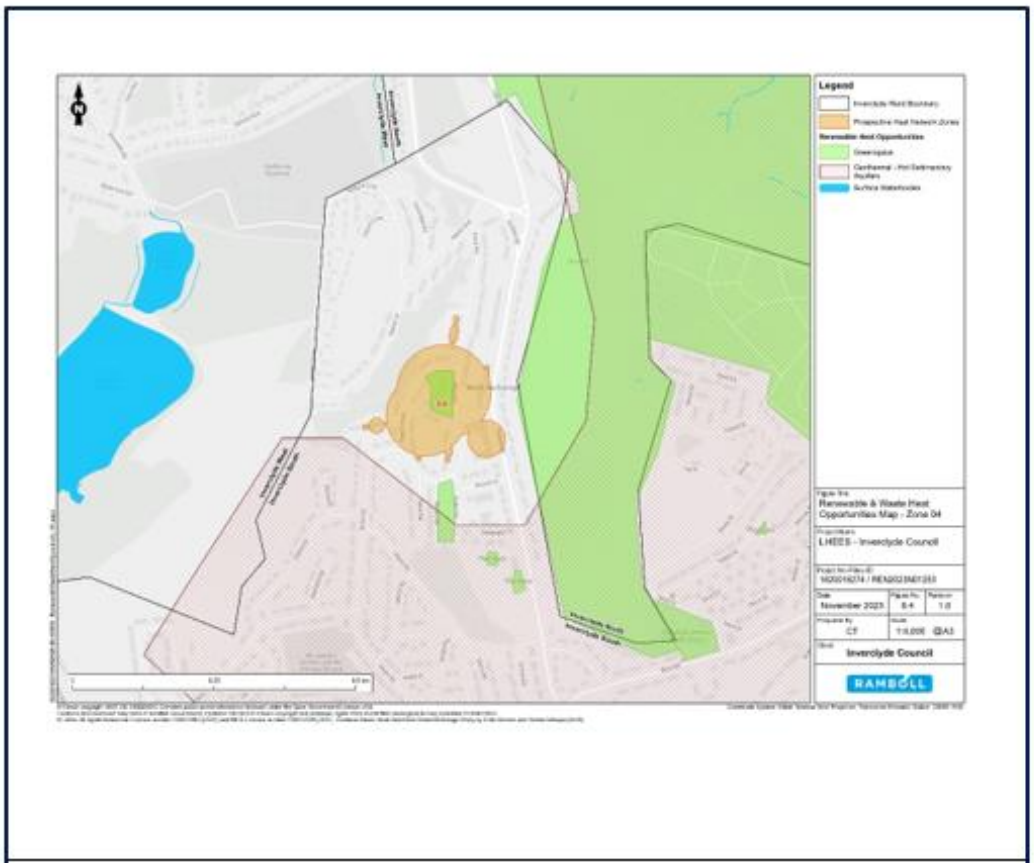
Zone Ward	Inverclyde South West
Zone Area	23.9
Estimated Zone Heat Demand	11,669MWh/y
Potential Heat Sources	Cooling Tower (Larkfield Industrial Estate) NAEI Large Emitter Geothermal
Fuel Poverty (percentage of households)	31.6%
Extreme Fuel Poverty (percentage of households)	18.1%
Proportion of Domestic Buildings	79%

5.2.3 Zone 3



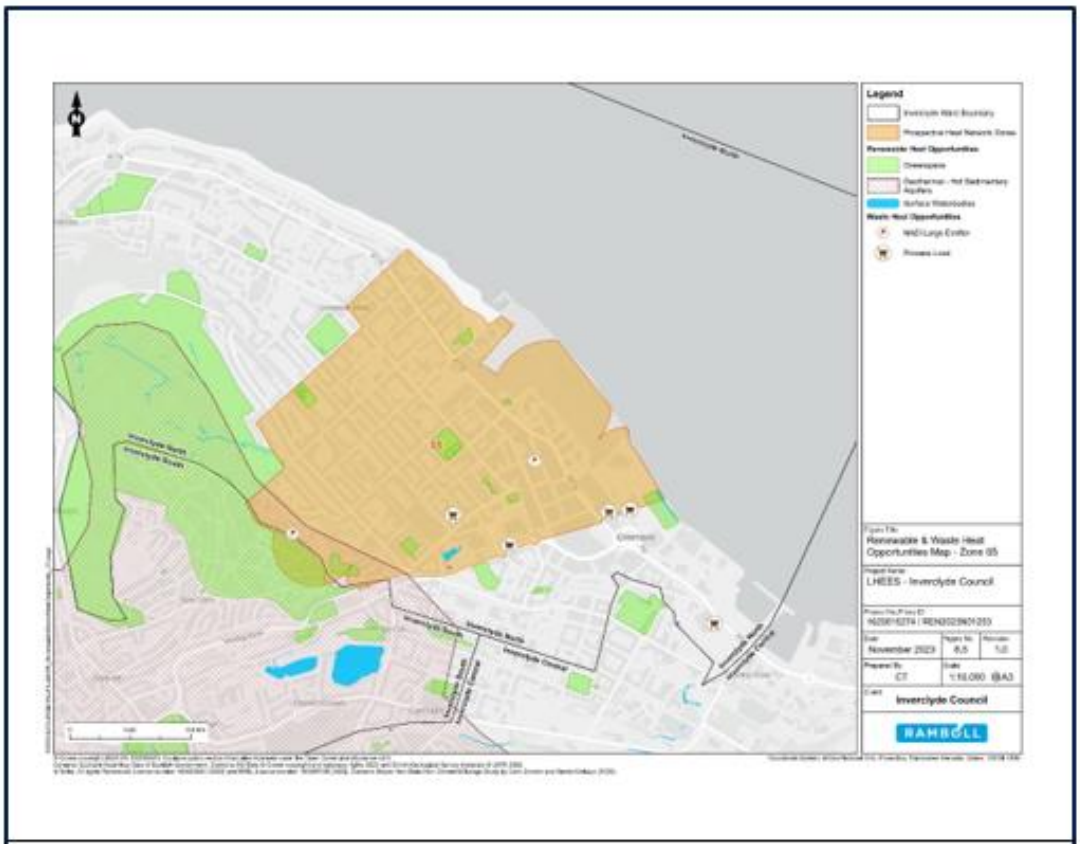
Zone Ward	Inverclyde South/ Inverclyde South West
Zone Area	61.1
Estimated Zone Heat Demand	25,979 MWh/y
Potential Heat Sources	Green Spaces Geothermal
Fuel Poverty (percentage of households)	30.1%
Extreme Fuel Poverty (percentage of households)	19.1%
Proportion of Domestic Buildings	95%

5.2.4 Zone 4



Zone Ward	Inverclyde South/ Inverclyde South-West
Zone Area	3.2
Estimated Zone Heat Demand	2,126 MWh/y
Potential Heat Sources	Green Space
Fuel Poverty (percentage of households)	32.5%
Extreme Fuel Poverty (percentage of households)	20.3%
Proportion of Domestic Buildings	93%

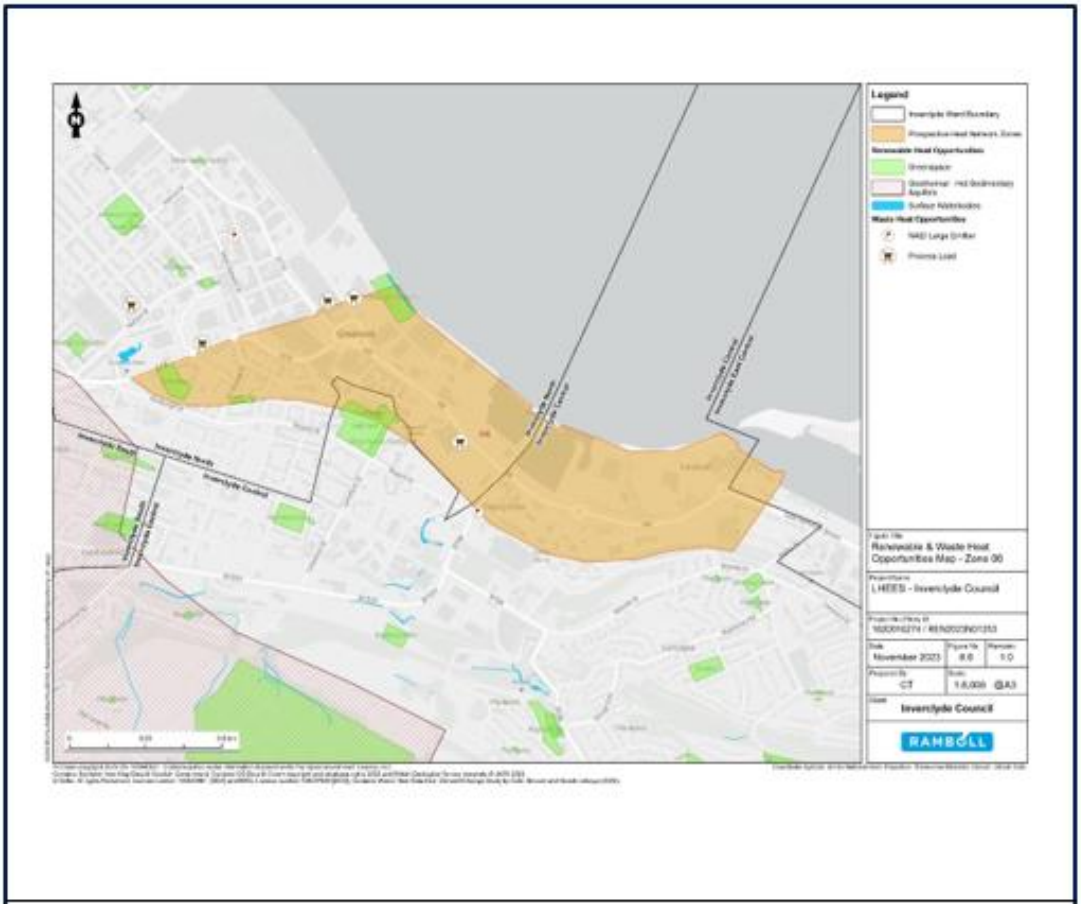
5.2.5 Zone 5



Zone Ward	
Zone Area	23.9
Estimated Zone Heat Demand	103,519 MWh/y
Potential Heat Sources	Green Spaces Process Loads (3No. Supermarkets, 1No Bakery) Surface Waterbodies NAEI Large Emitter Geothermal

Fuel Poverty (percentage of households)	28.1%
Extreme Fuel Poverty (percentage of households)	13.1%
Proportion of Domestic Buildings	80%

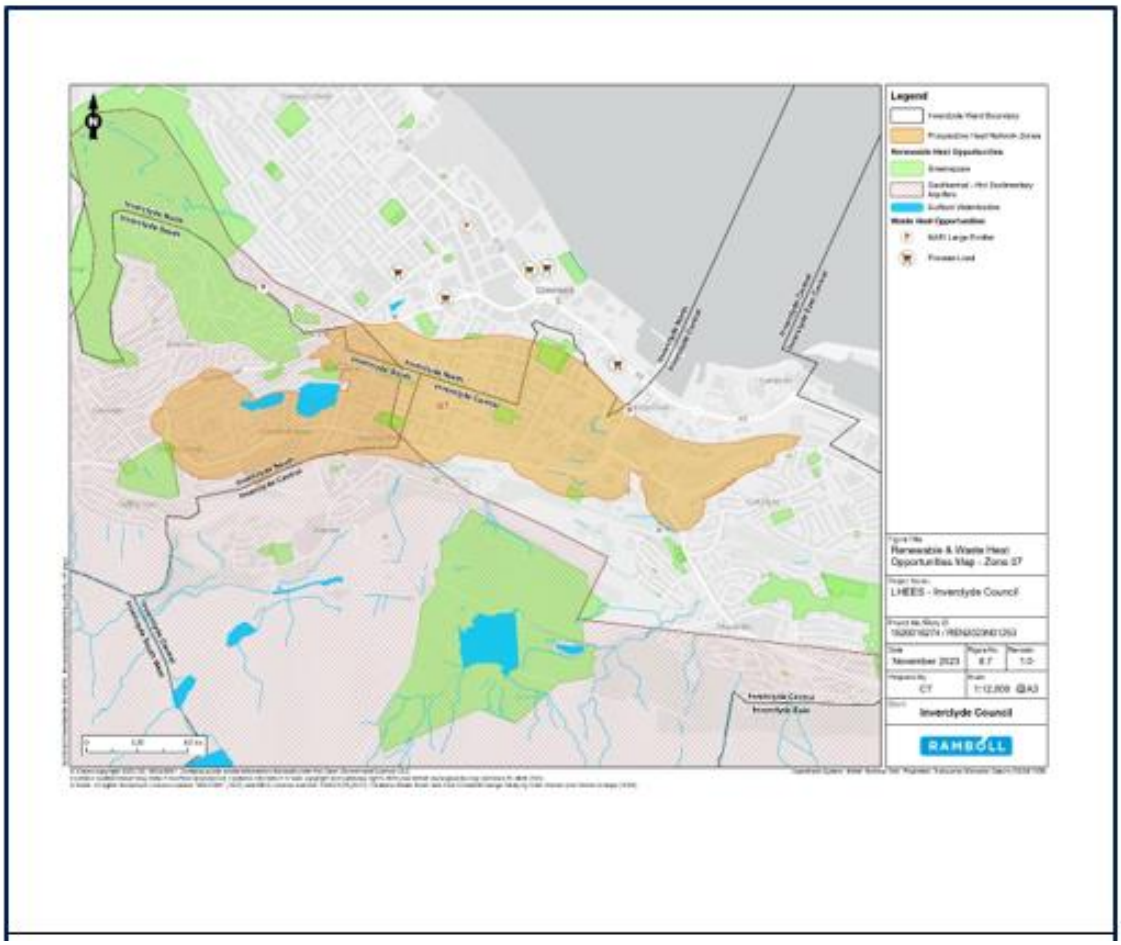
5.2.6 Zone 6



Zone Ward	Inverclyde North/ Inverclyde Central
Zone Area	69.7
Estimated Heat Zone Demand	37,256 MWh/y
Potential Heat Sources	Green Spaces Surface Waterbodies Process Load (1No. Supermarket)
Fuel Poverty (percentage of households)	35.6%

Extreme Fuel Poverty (percentage of households)	28.8%
Proportion of Domestic Buildings	70%

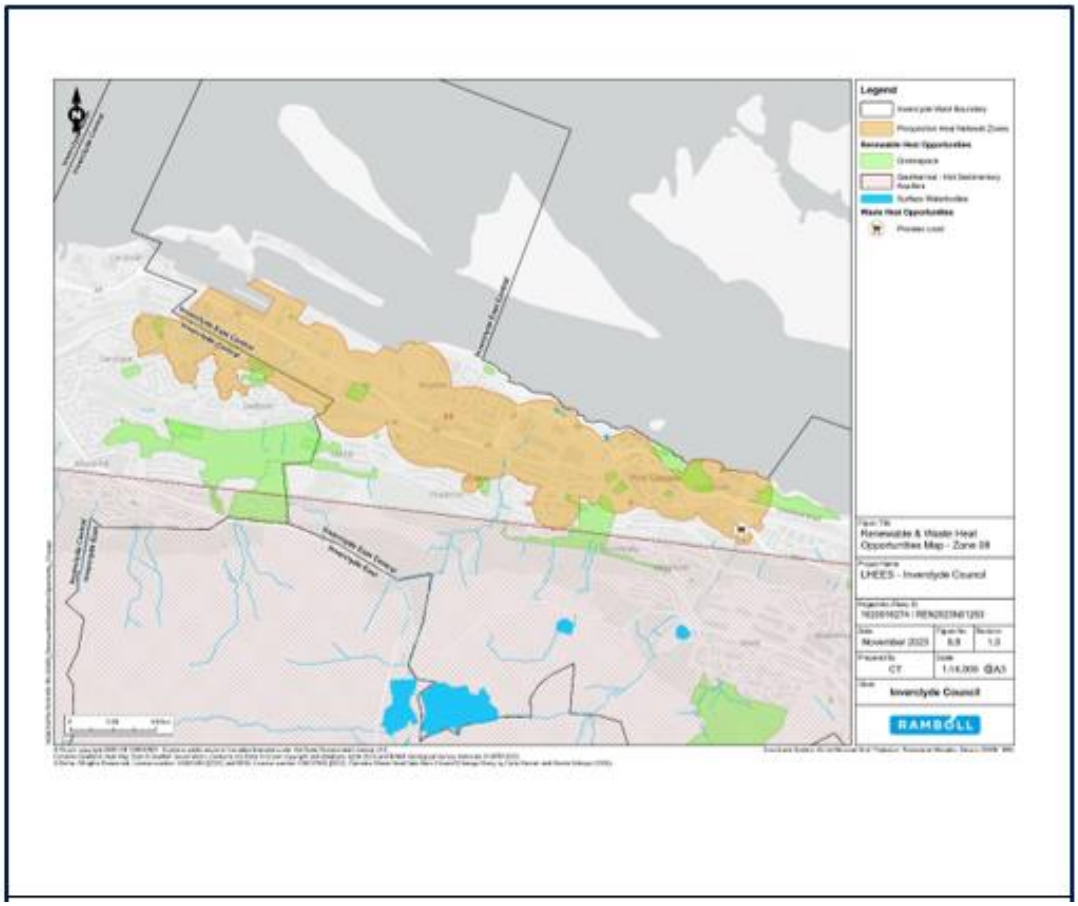
5.2.7 Zone 7



Zone Name	Inverclyde North/ Inverclyde Central/ Inverclyde South
Zone Area	146.1
Estimated Zone Heat Demand	68,852 MWh/y
Potential Heat Sources	Green Spaces NAEI Large Emitter Surface Waterbodies Geothermal

Fuel Poverty (percentage of households)	35.1%
Extreme Fuel Poverty (percentage of households)	26.7%
Proportion of Domestic Buildings	87%

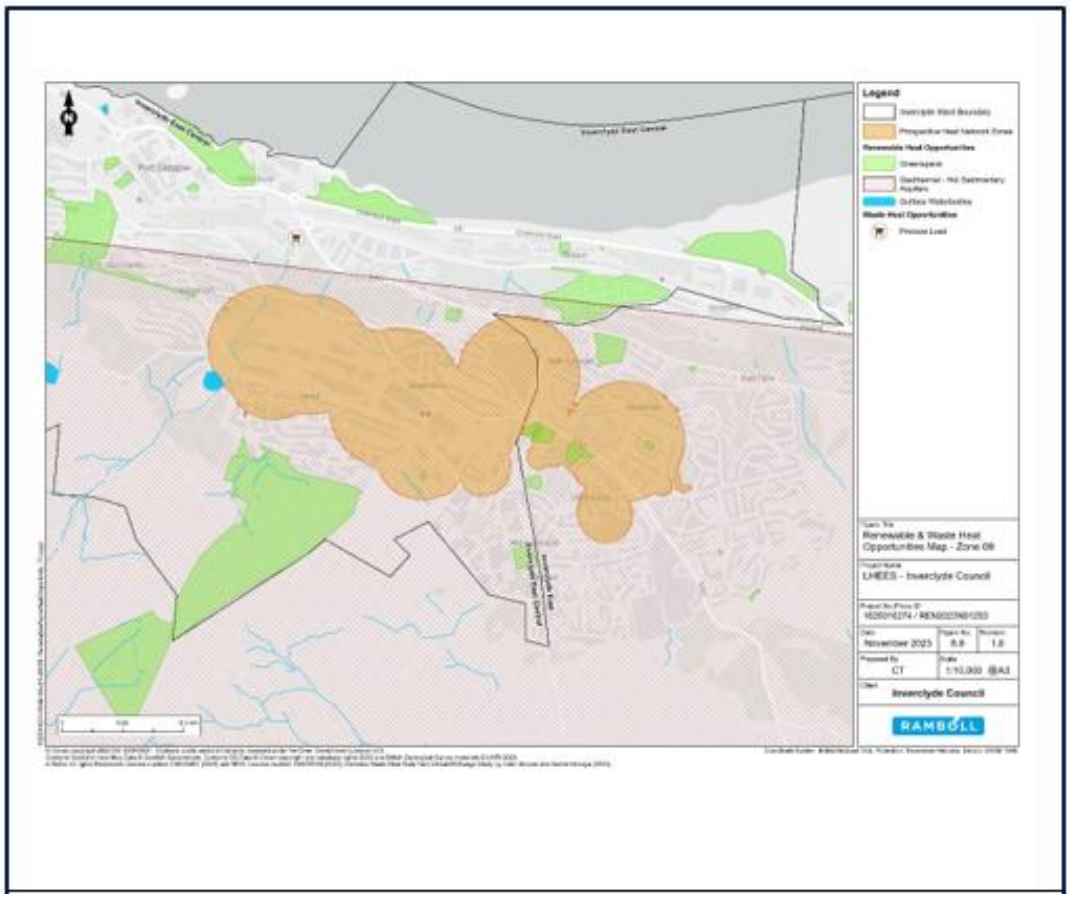
5.2.8 Zone 8



Zone Ward	Inverclyde East Central/ Inverclyde Central
Zone Area	173.6
Estimated Zone Heat Demand	68,895 MWh/y
Potential Heat Sources	Green Spaces Surface Waterbodies Process Load (1No. Supermarket)

	Geothermal
Fuel Poverty (percentage of households)	32.4%
Extreme Fuel Poverty (percentage of households)	23.4%
Proportion of Domestic Buildings	82%

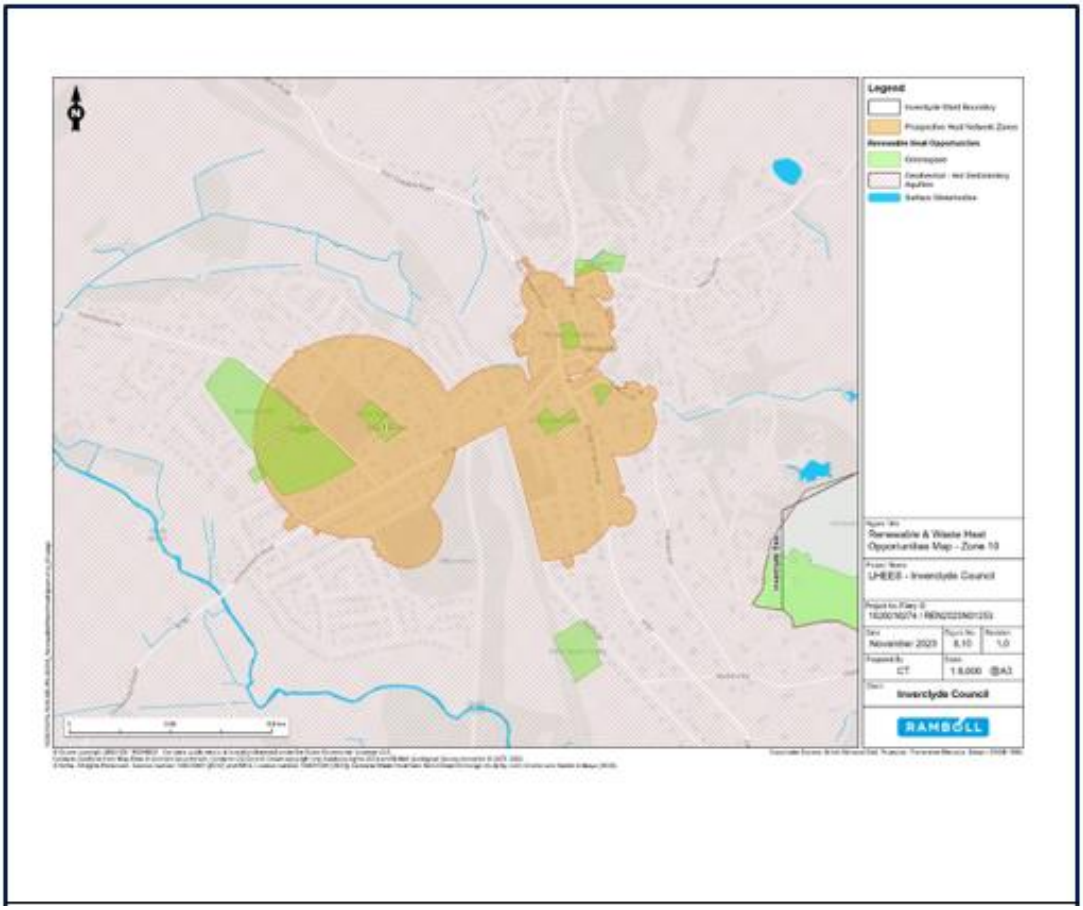
5.2.9 Zone 9



Zone Ward	Inverclyde East Central/ Inverclyde East
Zone Area	108.2
Estimated Zone Heat Demand	50,167 MWh/y
Potential Heat Sources	Green Spaces Geothermal Surface Waterbodies
Fuel Poverty (percentage of households)	31.4%

Extreme Fuel Poverty (percentage of households)	19%
Proportion of Domestic Buildings	93%

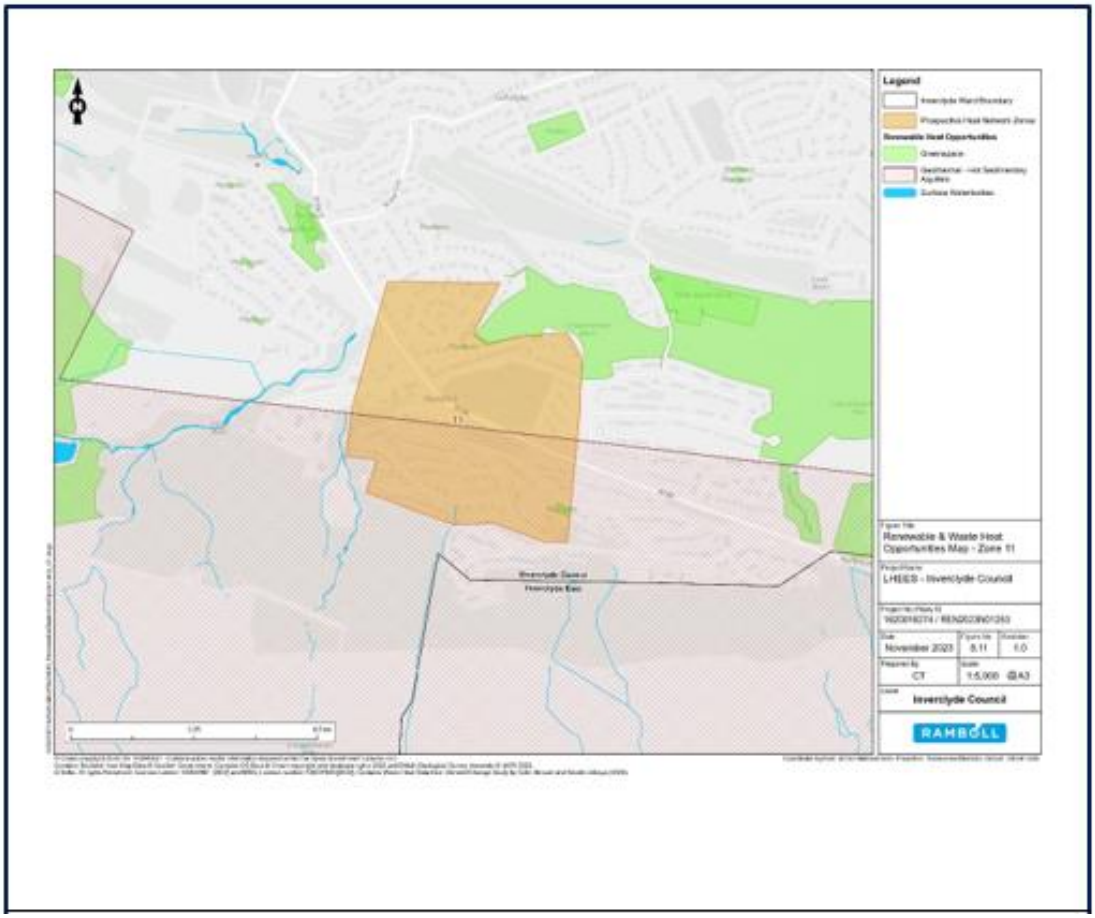
5.2.10 Zone 10



Zone Ward	Inverclyde East
Zone Area	41.1
Estimated Zone Heat Demand	18,374 MWh/y
Potential Heat Sources	Green Spaces Geothermal Surface Waterbodies
Fuel Poverty (percentage of households)	21.1%

Extreme Fuel Poverty (percentage of households)	1.2%
Proportion of Domestic Buildings	83%

5.2.11 Zone 11



Zone Ward	Inverclyde East
Zone Area	18.7
Estimated Zone Heat Demand	5,566 MWh/y
Potential Heat Sources	Green Spaces Geothermal Surface Waterbodies
Fuel Poverty (percentage of households)	37%

Extreme Fuel Poverty (percentage of households)	25.5%
Proportion of Domestic Buildings	97%

5.3 Overview of the Delivery Area Opportunities

Using the LHEES methodology, the Council has identified a significant amount of potential delivery area opportunities. This used domestic stock analysis to identify areas where poor energy efficiency is a driver for fuel poverty. To achieve this, the data for probability of fuel poverty (Figure 5) was used as the basis of identifying hotspots. This was then blended with data which provided information on levels of energy efficiency. The result of the analysis was the identification of hotspots where there is a high indication of fuel poverty and high levels of poor energy efficiency (Figure 6).

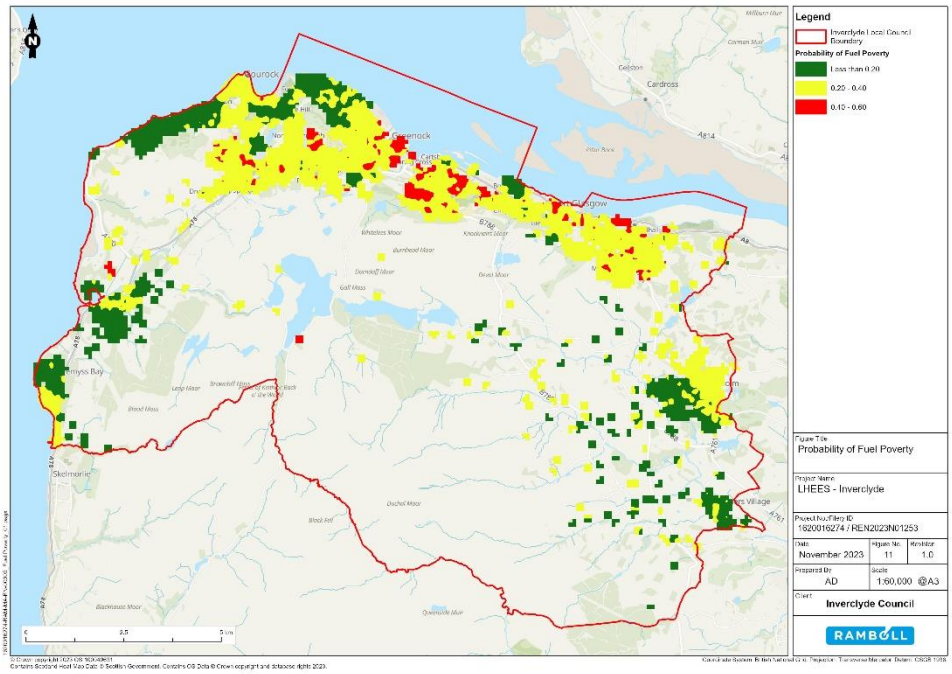


Figure 5 - Poor Building Energy Efficiency: Probability of Fuel Poverty Raster

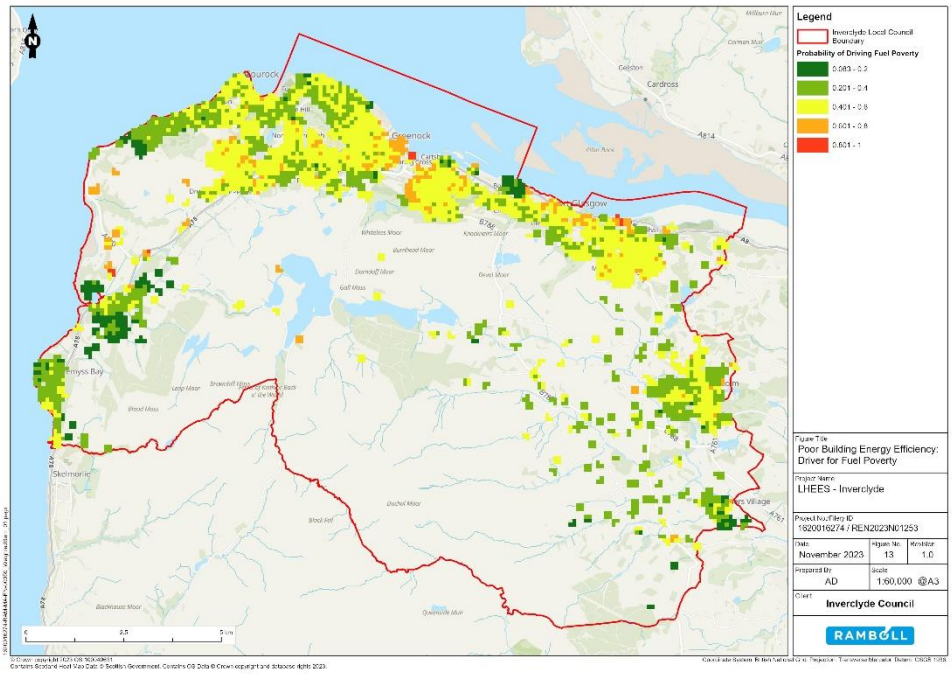


Figure 6 - Poor Building Energy Efficiency: Weighted Sum of Home Efficiency Factors Raster

In addition to this analysis, the council also assessed areas with a high concentration of heat pump ready properties which could be decarbonised with relative ease. These are properties with a reasonable or good level of energy efficiency and can have an individual or communal heat pump installed (sometimes with low-disruption and low-cost installations such as loft insulation or glazing). The council focused the analysis on on-gas properties as those are the most prevalent types of homes in Inverclyde. The requirements of these properties are:

- Not Category 0
- Property not listed
- Property not in conservation area
- Insulated walls
- Double/triple glazed windows
- Loft insulation > 99mm

The council reduced and combined these opportunities to five priority delivery area opportunities where they coincide with existing work Inverclyde and stakeholders are conducting or align with local and national targets for energy efficiency, fuel poverty and heat decarbonisation. These give priority delivery areas are the focus for this five-year period (2024 – 2028), with the remaining delivery areas addressed in future to capture Inverclyde as a whole.

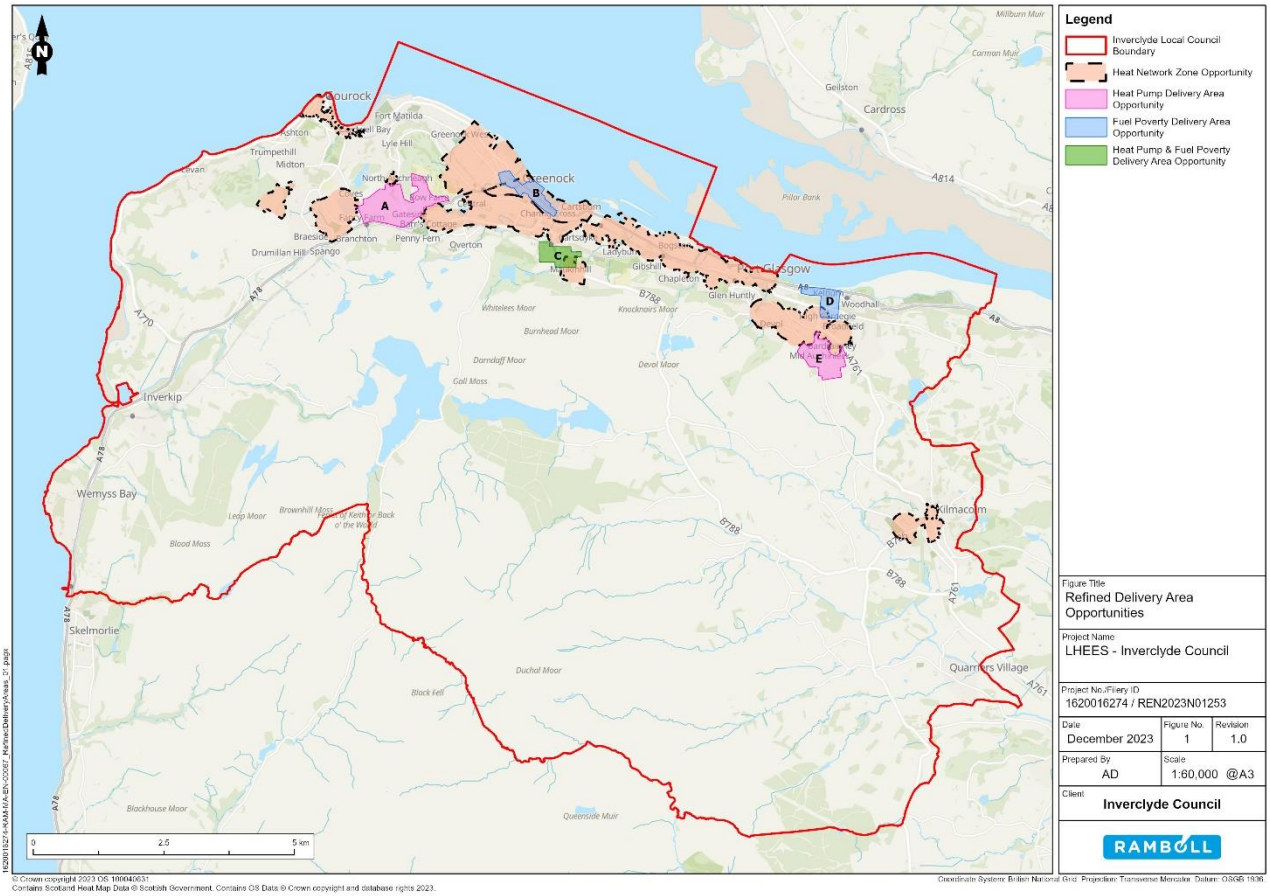


Figure 7 Map showing five priority delivery area opportunities alongside provisional heat network zone opportunities

Once these areas were identified, the council analysed the individual property-level energy efficiency and decarbonisation pathways. This approach set a target SAP score of 69 (equivalent to EPC C) for each property. This target was chosen in line with the Scottish Government's Heat in Buildings strategy for residential properties, where it states that wherever technically and legally feasible, properties require a minimum EPC rating of C by 2033. The measures made available for the PEAT tool included all insulation, glazing, and draught proofing measures.

Table 1 displays PEAT outputs for EPC before and after measures have been applied. There is a significant increase to EPC C across all delivery areas. The PEAT tool was applied using the same measures across all opportunity delivery areas to address Fuel Poverty for areas B, C, and D and to improve EPC for those properties in areas A, C, and E prior to ASHP and PV measures.

EPC	SAP	Area A		Area B		Area C		Area D		Area E	
		Before	After	Before	After	Before	After	Before	After	Before	After
B	81-91	8%	8%	1%	1%	0%	0%	0%	0%	10%	10%
C	69-80	49%	79%	46%	81%	72%	96%	41%	66%	42%	68%
D	55-68	35%	12%	36%	12%	26%	4%	35%	25%	35%	18%
E	39-54	6%	1%	10%	6%	2%	0%	14%	9%	9%	4%
F	21-38	2%	0%	6%	0%	1%	0%	9%	0%	3%	1%
G	1-20	0%	0%	1%	0%	0%	0%	1%	0%	1%	0%

Table 1 - PEAT Output: EPC Comparison for Refined Delivery Areas

Table 2 displays a range of savings associated with the implementation of energy efficiency measures. There is a relatively equal balance between all delivery areas, with Area C standing out as having the lowest values for all three saving types. Area C is an area of combined delivery opportunities.

Delivery Area Opportunity	Energy Saving (kWh)	Energy Bill Saving	$KgCO_2e$ Saving
Area A	3,390	£455	715
Area B	3,363	£564	593
Area C	2,802	£336	492
Area D	3,538	£545	615
Area E	3,326	£432	600

Table 2 - PEAT Output: Energy and Carbon Savings per Property per Delivery Area Opportunity

Table 3 displays properties by number of applied PEAT measures and their average cost per property. The variation between number of properties is not directly representative of needs in the area due to varying number of properties per area.

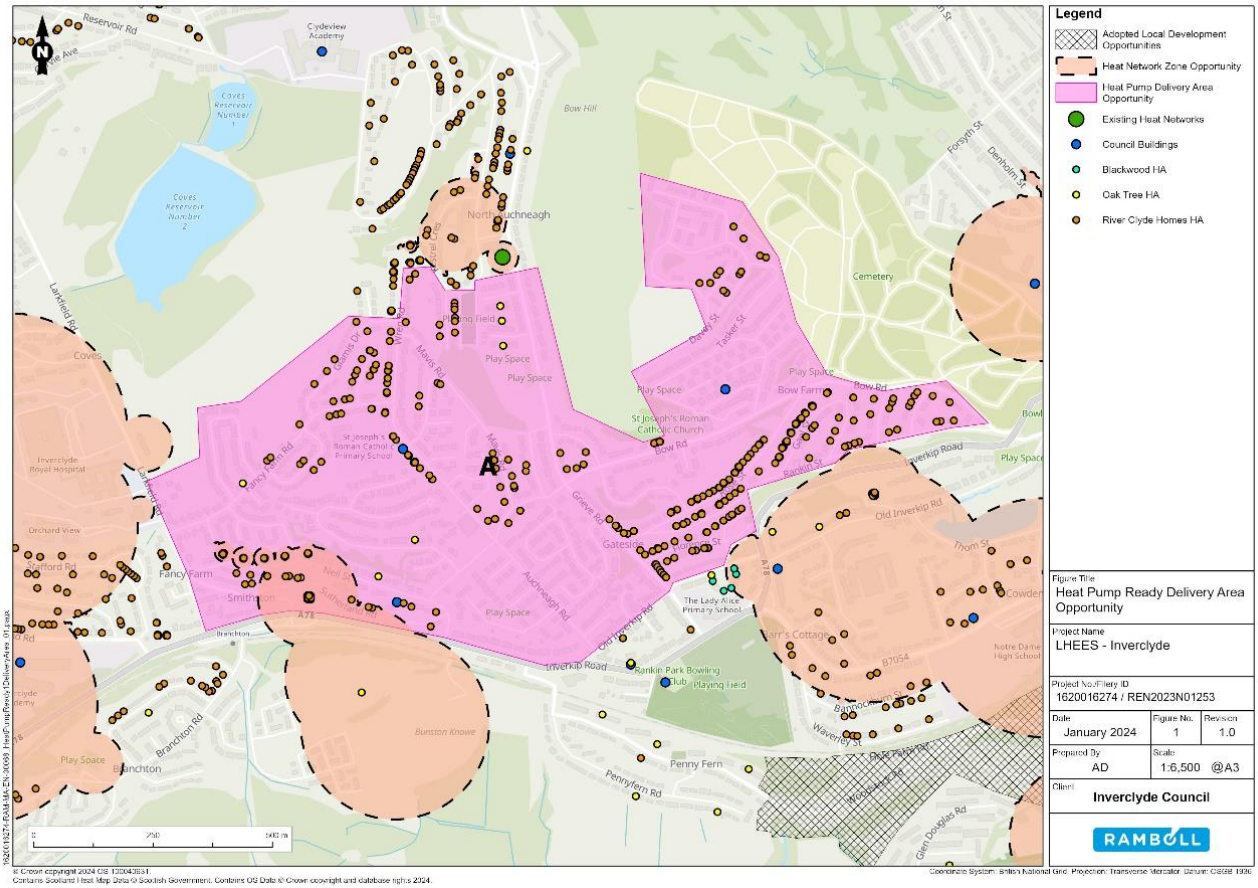
Measures	Area A		Area B		Area C		Area D		Area E	
	Property Count	Avg Cost	Property Count	Avg Cost	Property Count	Avg Cost	Property Count	Avg Cost	Property Count	Avg Cost
1	36	£915	1	£766	5	£532	9	£1,106	40	£1,290
2	284	£6,527	83	£3,339	38	£4,848	80	£9,220	145	£9,143
3	303	£13,829	56	£10,834	75	£15,420	77	£13,392	312	£16,478
4	249	£17,278	35	£14,022	22	£17,358	11	£17,836	149	£18,522
5	97	£22,666	12	£15,411	4	£21,263	N/A	N/A	10	£19,130

Table 3 - PEAT Output: Number of Measures per Opportunity Delivery Area with Average Cost per Property

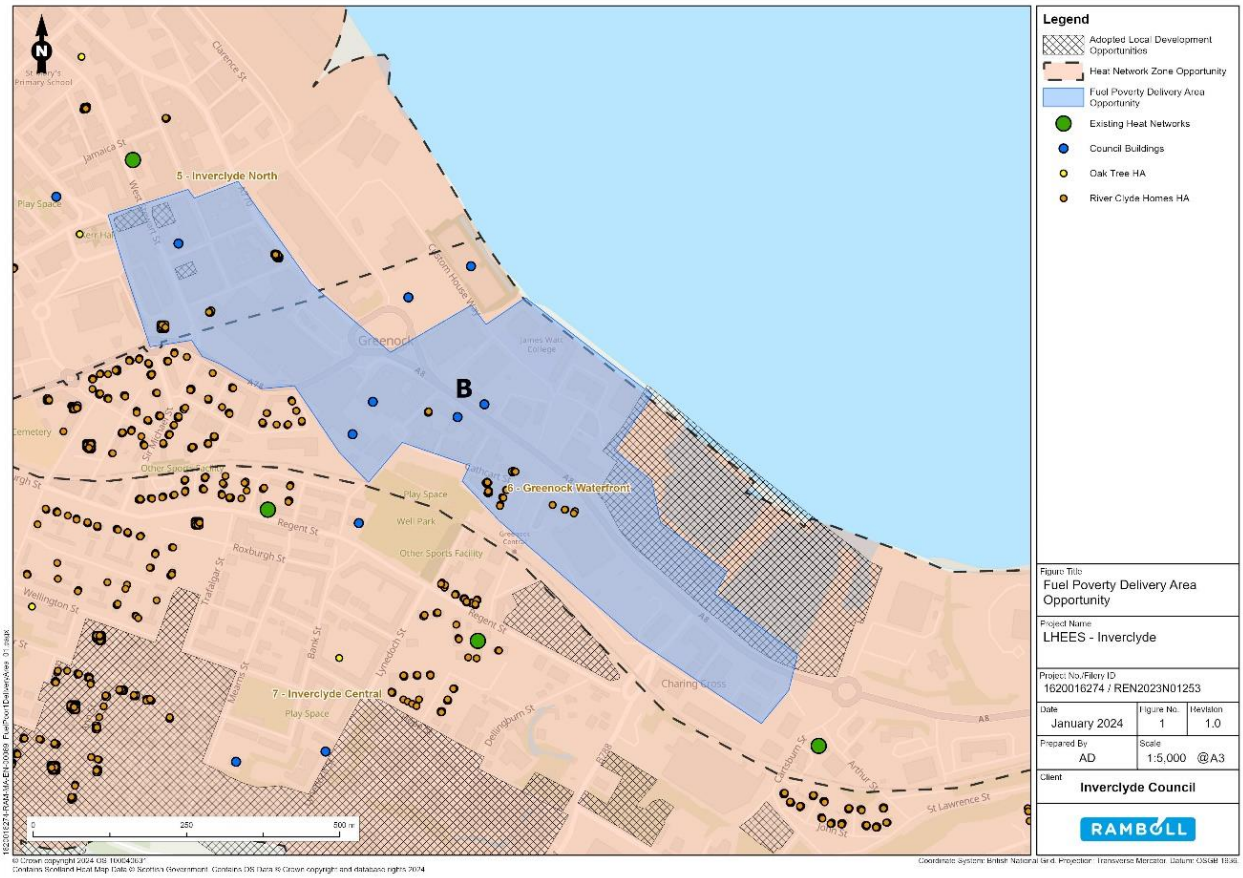
5.4 Individual Delivery Areas Opportunities

The individual delivery areas are presented in this section. The analysis is based on outputs of the PEAT-OR tool which draws from EPC data along with modelled data where there are gaps.

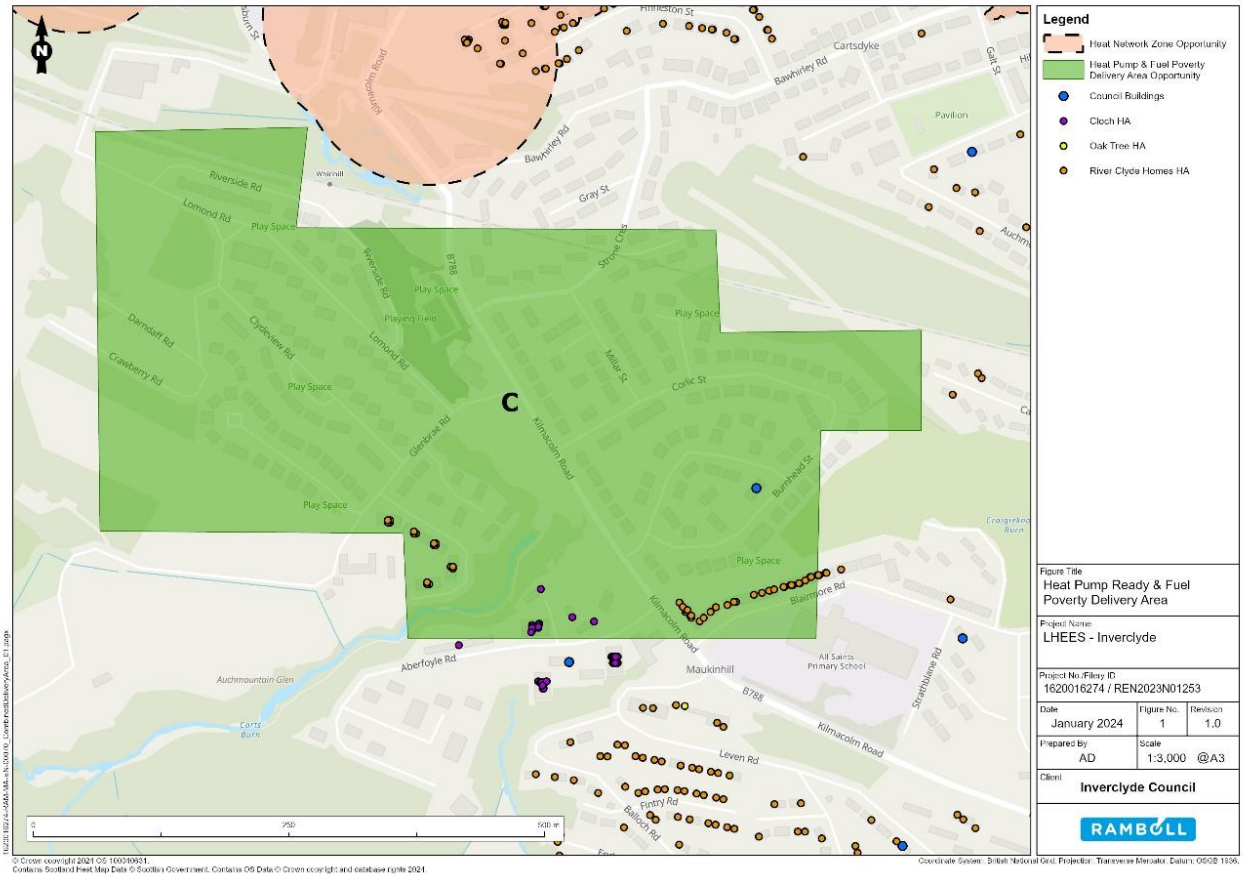
5.4.1 Heat Pump Ready Delivery Areas Opportunity A



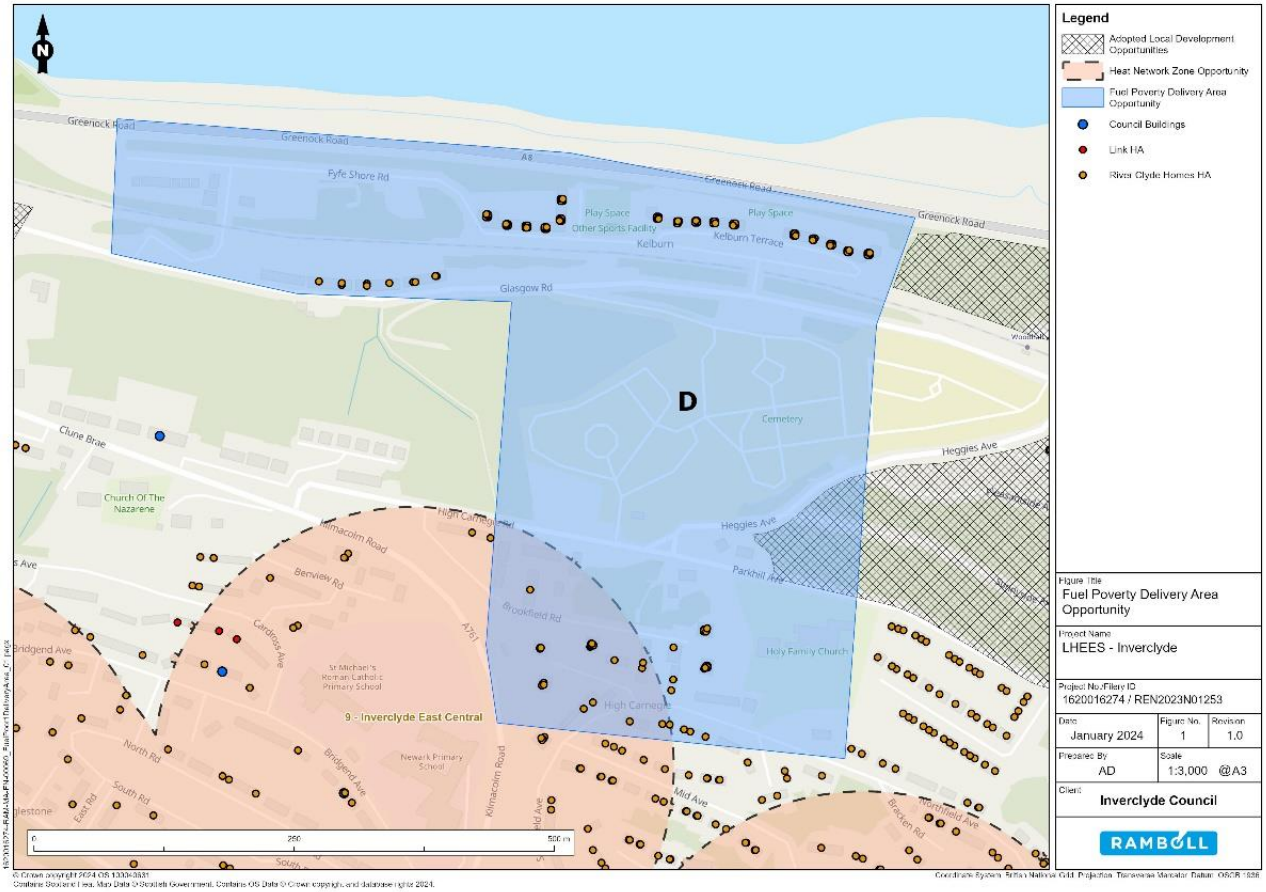
5.4.2 Fuel Poverty Delivery Area Opportunity B



5.4.3 Heat Pump Ready and Fuel Poverty Delivery Area Opportunity C



5.4.4 Fuel Poverty Delivery Area Opportunity D



5.4.5 Heat Pump Ready Delivery Areas Opportunity E