Edinburgh’s Local Heat and Energy Efficiency Strategy (LHEES)

City of Edinburgh Council
Thursday 11 July 2024

Summary

The Edinburgh Local Heat and Energy Efficiency Strategy (LHEES) is a high-level spatial plan to decarbonise heat and power from buildings across the city. The inaugural Edinburgh LHEES and associated Delivery Plan sets out a roadmap for the decarbonisation of Edinburgh’s domestic and commercial properties including in areas such as the historic Old Town.

Councillor Scott Arthur, Convenor of Edinburgh City Council's Transport and Environment Committee says:

“Decarbonising our buildings is going to be one of the hardest challenges for Edinburgh on its Net Zero journey, with so many ‘hard-to-treat’ homes and historical structures across the city. That's why we’re proud to have launched this Local Heat and Energy Efficiency Strategy with support and input from residents, businesses, and more. It sets out the art of the possible in cutting carbon, tackling fuel poverty and building a just transition. It can only be delivered if we work together though so we look forward to continuing to build this strategy with residents, and advocating for the policies and resources we need to deliver the vision it sets out."

The problem

In 2020/21, city emissions in Edinburgh totalled an estimated 2.0882 million tonnes of carbon dioxide equivalent (CO_2e). The majority comes from gas and electricity consumption in buildings, representing 70% of total emissions. In 2020, 51% of domestic properties achieved an EPC rating of C, in 2022, that portion has risen to 54%. Though progress has been made, we can and must do more.

One of the biggest challenges to progressing the decarbonisation of the city is heat decarbonisation. This refers to reducing or completely removing the carbon produced as a negative by-product of heating buildings. Though heating buildings is essential for people’s health and wellbeing, our current heating solutions means heat is also one of the major contributing factors to carbon emissions. At a Scottish level, as of 2019, 80% of households used mains gas as their primary heating fuel, while 8% used other emission-generating fuels such as oil, liquefied petroleum gas, solid mineral fuels, and biomass, 1% used communal heating systems, while 11% used electrical heating.

That is why the Local Heat and Energy Efficiency Strategies (Scotland) Order 2022 requires all Scottish local authorities to publish a LHEES, along with a Delivery Plan, by the end of 2023. Edinburgh council chose to develop its LHEES as part of its 2030 Climate Strategy, providing a specific strategy for transitioning the heating of buildings in Edinburgh to net zero.

The solution

The Edinburgh LHEES is an ambitious long-term plan to decarbonise heat in buildings, improve energy efficiency and boost residents' budgets.

The central drivers of the Edinburgh LHEES are the statutory national targets of achieving net zero emissions by 2045 (with a 75% reduction by 2030) and, so far as reasonably possible, eradicating fuel poverty by 2040. In practice, this strategy aims to tackle some of the key challenges to heat decarbonisation, including the installation and operating costs of the alternative heating solutions (which are often higher than the existing solutions); the limited availability of people with the technical skills required to install and maintain these alternative heating solutions; local and national constraints on the electricity grid; the need for extensive retrofit works to make existing properties suitable for low carbon heating solutions, and knowledge and perceptions of low carbon technology amongst the public.

The LHEES is not just a plan for the council's own building stock, but for all homes and non-domestic buildings, whether privately owned or rented. So to understand the scale of the challenge ahead the council commissioned a comprehensive assessment of the current performance of the city's building stock to provide a thematic overview in the context of heat decarbonisation and energy efficiency. It explores energy performance; fuel type; tenure; type; and age.

This assessment helped to shape the LHEES, and enabled the creation of an accompanying delivery plan outlining the steps the council will take to deliver the strategy between 2024 - 2028. This plan covers 76 actions relating to decarbonisation of heat and power and the reduction of demand through energy efficiency measures and policies. These actions cover the whole spectrum of energy and heating, including retrofit, heat networks, energy demand reduction, and include a host of partnership opportunities, as well as national and UK wide advocacy.

Actions which the Council is looking to address in the short to medium term include:

- Develop the heat network delivery framework as resources permit.
- Identify a preferred model for supporting the roll-out of future Council-led heat networks in Edinburgh.
- Assess the scope to offset the running costs of heat pumps within the delivery areas via the installation of solar panels.
- Work with Edinburgh World Heritage to take forward a pilot project looking at a whole-house retrofit approach to “hard-to-treat” historic homes.
- Ensure where possible that all new Council developments utilise zero direct emissions heating sources and are designed on a fabric-first basis.

Timeline

The Local Heat and Energy Efficiency Strategies (Scotland) Order 2022 requires that a local authority must publish a Local Heat and Energy Efficiency Strategy and Delivery Plan on or before 31 December 2023, which the City of Edinburgh Council was able to achieve, with consultation between January - November 2023. The LHEES will subsequently be published at intervals of no more than five years going forward.

The methodology for preparing the Edinburgh LHEES has largely followed the guidance issued by the Scottish Government and Zero Waste Scotland.

Stakeholders

To date, the Edinburgh LHEES has been shaped by both internal and external consultation and sought input from over 75 stakeholders from the public sector, academia, communities, businesses, third sector, housing associations and more to help foster collaboration within the city.

This included attendance at a series of “Clean Heat Forum" events organised by a community-led network that “*connects and supports community groups, and initiates practical projects that strive for a greener, fairer, healthier and more resilient Edinburgh*”. The events were used to raise awareness of the Edinburgh LHEES and share information on the emerging proposals around heat networks.

While feedback from stakeholders has been mostly positive, the limited budget has raised concerns over what can be achieved by the LHEES and Delivery Plan. In response to this, the Council has provided an additional £200,000 for the 2024/25 financial year and, so far this year, officers have secured over £180,000 of additional grant funding to support the LHEES Office begin delivery of the actions in the Delivery Plan.

Production of the Edinburgh LHEES itself has been supported by the consultancies Turner & Townsend; Ramboll; Changeworks; (all stages) and Atkins (stages one and two).

The LHEES team meets bi-weekly with other local authority officers in Scotland who are working to bring forward their respective strategies. The meetings are an opportunity to share learnings, feedback on progress and struggles, including shortages of data and errors in both datasets and tools.

Impact

Transforming Edinburgh’s building stock is a large, complex, multigenerational challenge which will require extended time and resources. The Council has been delivering projects in this area for over a decade and the publication of the Edinburgh LHEES is a milestone which will set the agenda for the coming two decades to the net zero deadline. The Edinburgh LHEES makes its contribution, but with recognised limitations.

The Edinburgh LHEES presents an opportunity for a holistic approach at the intersection of multiple policy areas. Edinburgh can capitalise on benefits wider than just net zero and fuel poverty, including economic growth, green employment and skills, just transition, and the development of a clean heat and retrofit supply chain benefitting owners across all tenures.

In Granton, where the Council has procured a concession arrangement to deliver a heat network as part of a regeneration project, the proposed heat network will achieve a carbon savings of 5,166 tonnes of CO2 over a 40-year period. Similarly, an average 3-bedroom dwelling could save as much as 1,400-kg of CO2 annually, when switching from a boiler to a heat pump. As the LHEES helps drive the decarbonisation in domestic and non-domestic properties the Carbon savings from this transition will be significant.

Lessons Learned

The Edinburgh LHEES sits within a complex and rapidly evolving landscape of policies, strategies, and regulations. A key challenge in respect of the Edinburgh LHEES is that many of the national policies, strategies, and regulations that will determine the climate for the delivery of Edinburgh LHEES are still in formulation. These include the Heat in Buildings Bill, the permitting and consenting regime for heat networks in Scotland, and the finalised Energy Efficiency Standard for Social Housing post 2020 (EESSH2).

The datasets underpinning the Edinburgh LHEES represent complex and rapidly shifting real circumstances. This can mean that sometimes the data available is out of date or incomplete. The following have been the main limitations in this regard:

- Fuel poverty and extreme fuel poverty have arisen to become acute and evolving issues at a national scale following the cost-of-living crisis, but the data is not entirely up-to-date with some of these major shifts.
- Only 16% of Scotland’s non-domestic buildings have an Energy Performance Certificate (EPC) and there is not a large amount that can be done with this partial dataset. Due to a lack of information, it has been difficult to plan decarbonisation pathways for non-domestic buildings in the way the Council would have preferred.

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From the Scottish Government, the Council receives £75,000 per year for 5 years to bring forward the Edinburgh LHEES and associated costs such as feasibility studies and consultant work. This budget is complemented by the allocation of a full-time Council officer who is supported by other officers who regularly contribute to LHEES-related projects.

In 2024/25 and 2025/26 the Edinburgh LHEES Office has received additional Council funding which will allow for efforts to decarbonise the buildings within the local authority to be increased; it also allows the team to recruit a Heat Networks Officer for a 2-year post who will help to bring forward heat network activities in the local authority.

However, a realistic and practical level of funding will be required if the Council is to match the scale of delivery required to reach net zero. With severe stress on its budget and limited funding from the government, despite existing investment, the Council has been limited against the ambition it would like to deliver on.

Next steps

Following the publication of the Edinburgh LHEES in December 2023 was a period of public consultation, stakeholder engagement and discussion with local authorities in Scotland. The feedback and suggestions as well as changes to the regulatory and granting landscape will be incorporated into the LHEES throughout 2024 with a revised version brought to committee later this year.

Following the publication and consultation period, the LHEES Team is now tasked with bringing forward actions from the associated LHEES Delivery Plan. Many actions centre around the development and exploration of heat networks as a means of achieving net zero in the way buildings are heated and powered. The LHEES Office is procuring consultants to help determine a delivery model for heat networks in Edinburgh, refine the prospective heat network zones that were presented in the LHEES and begin a heat network feasibility study for the Oldtown and Southside.

Additional work includes heat pump, solar and battery pilots on domestic dwellings, the development of a solar/EV project at a park-and-ride and the trialling of a sea-source heat pump at a museum in South Queensferry. The results of the trials, studies and pilots will provide useful learning for the Council and will be

shared with residents, stakeholders and neighbouring local authorities.

Many local authorities in Scotland that have comparable population densities and city-planning considerations as Edinburgh are taking a similar approach to the decarbonisation of heat and energy in buildings. In 2028, and every 5 years going forward, the Edinburgh LHEES and accompanying delivery plan will be updated to reflect current policy and regulation as well as share progress and set new goals.

Links, contacts, and credits

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