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Edward Mountain MSP
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10 October, 2024

Dear Edward

I am enclosing for you a copy of our annual progress report on the Heat in Buildings Strategy, and which I have laid before Parliament earlier today.

This is the third such report on the Scottish Government's Heat in Buildings Strategy since it was published in 2021. It records significant progress in key areas during the past year, including through our delivery schemes, new build regulations and heat networks. The energy efficiency of our homes has increased and we also continue to see steady growth in the installation of clean heating technologies in homes and buildings across Scotland.

There is still a huge amount to do, however. This is why we have recently consulted on proposals for a Heat in Buildings Bill, a Social Housing Net Zero Standard and EPC reform. We are analysing responses and will use these to inform our next steps.

We are committed to working collaboratively on areas of common ground with the new UK Government and will continue to urge it to take action in reserved areas to help ensure that the transition is fair and affordable.

I look forward to hearing the Committee's views on this latest publication.

Yours sincerely,

Alasdair Allan

Heat in Buildings: Progress Report 2024

October 2024

Scottish Government
Riaghaltas na h-Alba

Heat in Buildings: Progress Report 2024

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Ministerial foreword

Tackling the climate crisis is among the greatest challenges of our generation. To meet this challenge we need to reduce the emissions we produce, including those that come from heating our homes, schools and places of work.

We have already made significant progress on our journey to net zero, and in reducing the emissions from our buildings. Across all sectors, between 1990 and 2022, there was a 50 per cent reduction in estimated net emissions. Over the same period, emissions from Buildings fell by 32 per cent. However, we know that the biggest challenges still lie ahead. Recent years have seen people across Scotland face high energy costs and a continued cost of living crisis, as well as increasing pressure on public finances.

These challenges can, and must, be overcome. We know that switching to clean heating systems not only reduces emissions from our buildings, but it also makes us less dependent on volatile and increasingly expensive fossil fuels, like oil and gas. Improving energy efficiency also plays a role in moving us towards net zero, while potentially reducing energy bills and improving the warmth and comfort of our homes.

This report provides important information on the progress we have made against our Heat in Buildings Strategy. Setting out this progress in a clear and meaningful way, including demonstrating how our delivery schemes and programmes are working to meet our goal of reaching net zero, is vital to the accountability of government.

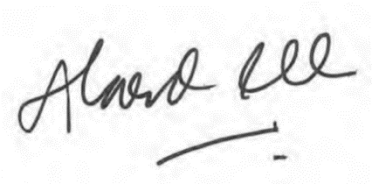
This report shows that Scotland's overall carbon emissions have fallen, as have those coming directly from our buildings. The energy efficiency of our homes has increased across all tenures and more heat pumps are being installed than ever before.

The Scottish Government provided over £210 million of funding through our delivery schemes in the last financial year (2023-24).

Our next step will be to set out the long-term direction of travel and provide certainty to both homeowners and the supply chain. We consulted recently on proposals for a Heat in Buildings Bill. We are completing our consideration of the responses to this consultation, and aim to confirm next steps shortly.

Meanwhile, our New Build Heat Standard (NBHS) came into force earlier this year and is already ensuring that new homes and buildings will have the climate-friendly heating systems that will become the norm in the years ahead. We are now reviewing the standard to ensure it fully reflects the ongoing role of wood burning stoves and bioenergy systems, which many in our rural communities rely on for warmth and comfort.

The climate crisis is likely the defining challenge of our time. Taking action to remove emissions from our buildings will play a key role in meeting this challenge, and in ensuring our homes are warm, comfortable and more affordable to heat.



Alasdair Allan MSP
Minister for Climate Action

Context and purpose

Our Heat in Buildings Strategy, published in 2021, set out the Scottish Government's programme to deliver our climate targets by reducing our dependence on gas and oil for heating our homes and other buildings. There is a requirement under the Climate Change (Scotland) Act 2009 to report annually on progress against the strategy and this report fulfils that. Last year's progress report was laid in Parliament on 27 October 2023.

The Heat in Buildings Strategy included a commitment to develop a Monitoring and Evaluation Framework. We published the initial Framework in November 2023 to fulfil that commitment, and this document reports against that Framework for the first time.

Since we published the Heat in Buildings Strategy the global and political context in which we are striving to meet net zero has changed considerably. The reality of higher energy prices and the continuing cost of living crisis demanded that our shorter-term ambitions be re-assessed to ensure they were fair and achievable. This has meant that some previous goals, for example the aim of decarbonising one million homes by 2030, are no longer considered achievable.

However, our key target of transitioning our buildings to clean heating systems – and meeting net zero by 2045 – remains. Our updated approach moves a greater proportion of the heat transition into the 2030s, allowing Scotland to benefit from the technological innovation, as well as the time needed to build workforce capacity, consumer demand and the economies of scale required.

In the wake of the Climate Change Committee's (CCC) advice that Scotland's interim emissions reduction target for 2030 is beyond what can be achieved, we have introduced the Climate Change (Emissions Reduction Targets) (Scotland) Bill to Parliament which would change the system of targets for the reduction of greenhouse gas emissions to one based on carbon budgets. If passed, Scottish Ministers will need to set carbon budgets so that every year between 2026 and 2045 is covered by a budget. Each carbon budget will cover a period of five years and will set out the amount of greenhouse gas emissions allowed during that period.

We also intend to work collaboratively with the new UK Government on areas of common ground including delivering net zero. We will continue to press the UK Government to use its reserved powers to accelerate the transition, including rebalancing gas and electricity prices which would result in clean heating systems costing less to run.

This report aligns with other Framework reporting including the Scottish Government's Climate Change Plan Monitoring Report[1]. The Framework will also support the development of a separate Fuel Poverty monitoring and evaluation

[1] Climate change monitoring report 2023 - gov.scot (www.gov.scot)

framework next year to monitor progress against the Scottish Government's Fuel Poverty Strategy[2].

We have also now published the 'Heat transition: public engagement strategic framework'[3] with a high-level monitoring and evaluation framework, which we are continuing to develop.

In line with the requirements of Section 61 of the Climate Change (Scotland) Act 2009, we have reviewed the Heat in Buildings Strategy. The review has concluded that the strategy should be varied to reflect latest developments, and this will now take place. We intend to publish the Strategy as varied in 2025.

We will also publish a Heat in Buildings Delivery Plan next year. This will set out our timescales, key priorities and milestones for delivery over the next five years and clarify the roles of stakeholders. It will also lay the foundation for a clear path to net zero in 2045.

[2] Tackling fuel poverty in Scotland: a strategic approach - gov.scot (www.gov.scot)
[3] Heat transition: public engagement strategic framework - gov.scot (www.gov.scot)

Reporting structure

Monitoring map and indicators

We have structured this report around the monitoring map (Figure 1), published in our Monitoring and Evaluation Framework. This was based on the approach used by the CCC. It is designed to show how we expect our policy and delivery activities, supported by 'enabling factors', to contribute towards the emissions reduction goal in the Heat in Buildings Strategy[4].

This report is structured with the levels shown in the monitoring map:

- **Goal**: the overarching target (in this case, to achieve net zero from buildings emissions by 2045)
- **Outcome**: what the project or activity expects to accomplish, which together bring about the heat transition. The Heat in Buildings Strategy has three outcomes
- **Enablers**: enabling factors that overcome barriers to achieving outcomes in the Heat in Buildings Strategy
- **Activities**: Policy and delivery activities that support the enablers of the Heat in Buildings Strategy

In the Framework we described indicators we planned to use to track progress against each level of the monitoring map. This document now includes a numbering system to make it easier to identify each indicator. We also described the data sources we will use to track progress against each indicator, and these are summarised in Annex A. This report presents the best available data against each of the indicators and describes most recent progress.

Baselining and latest data

Where data exist, the baseline position for indicators is 2019. This allows for comparison with a 'typical' year before the Heat in Buildings Strategy was published, prior to coronavirus (COVID-19) in 2020.

The Scottish Household Condition Survey (SHCS) is used for several indicators. The latest SHCS data set is for 2022, with disruption caused by COVID-19 meaning that 2020 data are not available and 2021 is not comparable. Therefore, 2019 provides the most recent data for comparison.

A number of indicators are based on new or emerging data sources, and for these the baseline will be the point at which data are available. Depending on the indicator and data source, most recent data range from 2022 to a date in 2024. We make clear what date this refers to for each indicator.

Data from earlier years (pre-2019) will be presented where this provides useful context.

[4] Heat in Buildings Strategy - achieving net zero emissions in Scotland's buildings - gov.scot (www.gov.scot)

Limitations

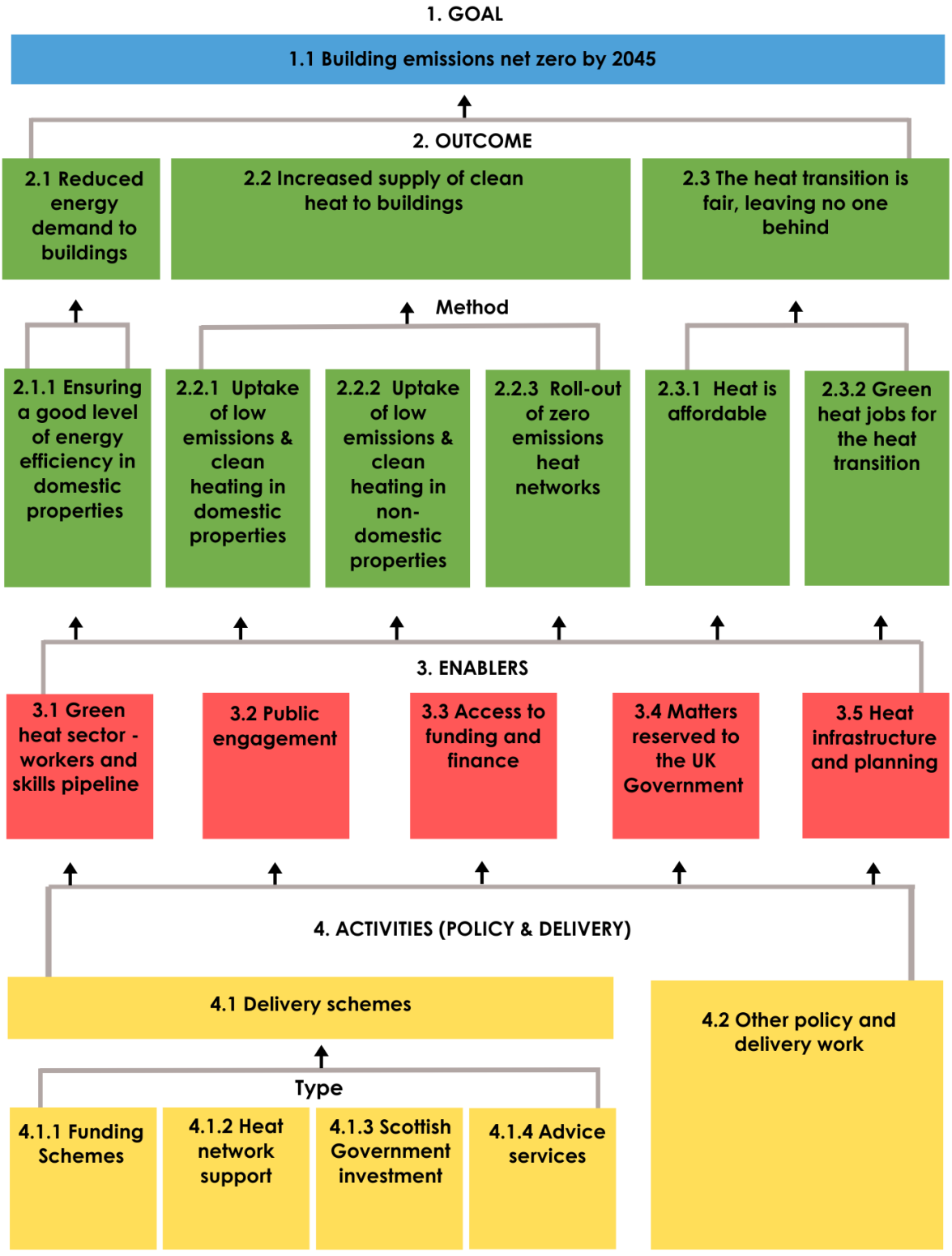
The Framework aims to illustrate the extent to which our policies and programmes are contributing to emission reductions and achieving wider outcomes. We acknowledge, however, that it is not currently possible to directly attribute policy intervention to the impact on outcomes. This is because the Framework cannot capture the effect of all the drivers, especially non-policy drivers, of the heat transition.

Finally, gaps in data make reporting on some areas challenging, particularly heat networks, non-domestic properties, and jobs. However, we provide best available data for indicators and will continue to evolve the Framework by incorporating further data in future reporting as it becomes available.

On non-domestic specifically, work is being undertaken on behalf of the Scottish Government to develop a property based metric to support Heat in Buildings monitoring. This aims to allow us to estimate the number of non-domestic properties with certain heating types.

While we have gone as far as possible to ensure that the data presented are accurate, we may need to update and amend some data post-publication as we continue the process of improvement and verification.

Figure 1: monitoring map for buildings



Indicators

1. Goals

1.1. Goal: buildings emissions net zero by 2045

1.1A Indicator: annual/actual emissions compared to the annual emissions envelope for the buildings sector (in $MtCO_2e$)

Data source: Scottish Greenhouse Gas Statistics report

Unit: $MtCO_2e$

Most recent data:

Year	2019	2020	2021	2022
Emissions ($MtCO_2e$)	9.0	8.6	8.9	7.7
Envelope ($MtCO_2e$)	N/A	8.0	7.6	7.1

Commentary:

Greenhouse Gas Statistics are published in June of each year with a 1.5 year lag. Latest statistics are for 2022 and show Buildings sector emissions to be 7.7 MtCO2e. This is a reduction of 1.2 MtCO2e compared to the previous year, and a reduction of 1.3 MtCO2e compared to the baseline year of 2019.

The 2018 Climate Change Plan update[5] set out annual envelopes for each sector, from 2020. The Buildings sector envelope was 7.1 MtCO2e for 2022. Therefore, the sector was outwith its envelope for this year.

[5] Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update - gov.scot (www.gov.scot)

2. Outcomes

2.1. Outcome: reduced energy demand to buildings

2.1.1. Method: ensuring a good level of energy efficiency in domestic properties

2.1.1A Indicator: share of domestic properties achieving a good level of energy efficiency (currently equivalent to Energy Performance Certificate (EPC) C or better):

- share of owner-occupier properties
- share of private rented sector properties
- share of social rented sector properties

Data source: Scottish Housing Condition Survey (SHCS)

Unit: per cent

Most recent data:

Year	2019	2022
Share of owner-occupier properties (%)	41	48
Share of private rented sector properties (%)	40	50
Share of social rented sector properties (%)	56	65

Commentary:

The percentage of dwellings achieving an EPC rating of at least C under SAP2012 (RdSAP v9.93) has increased across all tenure types between 2019 and 2022. The last year for which comparable data are available is 2019 (due to the COVID-19 pandemic, fieldwork for the 2020 SHCS was suspended and the methodology for the 2021 SHCS was also affected).

The percentage of owner-occupied dwellings achieving an EPC rating of at least C increased from 41% to 48% (from 2019 to 2022). The percentage of private rented sector dwellings achieving an EPC rating of at least C increased from 40% to 50% (from 2019 to 2022). The percentage of social rented sector dwellings achieving an EPC rating of at least C increased from 56% to 65% (from 2019 to 2022).

See indicator 4.2.1(A) for more details about proposed regulations to significantly improve the energy efficiency of Scotland’s homes.

2.2. Outcome: increased supply of clean heat to buildings

2.2.1. Method: uptake of low emissions heating and clean heating in domestic properties

2.2.1A Indicator: number of domestic properties currently with clean heating systems:

- heat pumps
- connected to a heat network
- other electric heating

Data source - heat pumps and electric heating: SHCS

Data source - heat networks: Heat Networks Metering and Billing Regulations (HNMBR) data

Unit: number of domestic properties

Most recent data:

- heat pumps: 36,000 (around 1.4% of all dwellings)
- connected to a heat network: 27,900 (around 1.1% of all dwellings)
- other electric heating: 241,000 (around 9.7% of all dwellings)

Year	2019	2022
Heat pumps	21,000	36,000
Heat networks	N/A	27,900
Other electric	242,000	241,000

Commentary:

The number of dwellings with a heat pump or other electric heating in 2022 is similar to 2019, the last year for which comparable data are available[6].

The number of properties connected to a heat network for 2022 is based on HNMBR notification data spanning 2014 to 2022[7]. The estimate relies on limited data with concerns about its quality, including known inconsistencies in the way that heat network operators have reported customer connections in the HNMBR data, such as listing a local authority or housing association as one customer (as opposed to listing each property within either that they are supplying). The number of domestic connections is therefore likely to be an underestimation.

Indicator 4.2.1(A) includes further details about the Scottish Government's proposed regulations to scale up the installation of clean heating in Scotland's homes.

[6] Although the number of dwellings with a heat pump has increased between 2019 and 2022, this difference was found not to be statistically significant.
[7] HNMBR data have been released in four yearly cycles as heat network operators must submit an updated notification within four years of the date of the previous notification.

2.2.1B Indicator: number of domestic properties recently installing a clean heating system:

- heat network connections (four-yearly connections data)
- heat pumps (annual installations)
- other electric heating (annual installations)

Data source - heat pumps: Microgeneration Certification Scheme (MCS)

Data source - heat networks: HNMBR data

Data source - other electric heating: no data source currently

Unit: number of properties

Most recent data:

- heat pumps (annual installations): 6,388
- heat network connections (data spanning 2018-2022[8]): 3,687
- other electric heating (annual installations): N/A

Year	2019	2020	2021	2022	2023
Heat pumps	2,448	2,993	4,667	5,146	6,388

Commentary:

Data for the last full calendar year (2023) indicate that the number of heat pumps installed per annum in Scotland has more than doubled since 2019, and increased by 24% in 2023 relative to 2022. MCS data are published on the MCS dashboard in real time and indicate the number of heat pumps installed in Scotland between August 2023 and July 2024 as 7,353. This figure is higher than the same period the previous year, with 5,526 heat pumps installed between August 2022 and July 2023.

The heat networks figure is based on the latest HNMBR data cycle (2018-2022) and includes connections to new heat networks (i.e. those which were completed within the previous four years). It does not include new connections to existing heat networks; therefore this figure may be an underestimate. The data limitations of the HNMBR data source described in the commentary at 2.2.1A are also relevant to this indicator.

We do not currently have a reliable data source for the number of other electric heating systems installed each year.

[8] Heat network operators must submit an updated notification within four years of the date of the previous notification under the HNMBR.

2.2.1C Indicator: number of domestic properties with low emission or low emission ready heating systems, such as:

- biomass boilers
- combined heat and power (CHP)
- fuel cells
- hybrid heat pumps
- hydrogen-ready boilers

Data source - biomass boilers, CHP: SHCS

Data source - fuel cells, hybrid heat pumps and hydrogen-ready boilers: no data source currently (not currently covered by SHCS but could in future if these systems become more prevalent).

Unit: number of properties

Most recent data (2022):

- biomass boilers: 12,000
- CHP: 6,000
- fuel cells: N/A
- hybrid heat pumps: N/A
- hydrogen-ready boilers: N/A

Year	2019	2022
Biomass	16,000	12,000
CHP	9,000	6,000

Commentary:

Latest data (2022) indicate that around 12,000 Scottish homes (around 0.5% of all dwellings) use biomass as their primary heating fuel. As well as biomass boilers, this includes those using a wood burning stove as their primary heating source. There are an estimated 6,000 homes using combined heat and power (CHP) (around 0.2% of all dwellings). This is similar to 2019, the last year for which comparable data are available.

The SHCS data do not currently record all low emission or low emission ready heating systems, such as fuel cells, hybrid heat pumps and hydrogen-ready boilers, but it may be possible to do so in the future.

2.2.1D Indicator: percentage of new domestic properties with clean heating system completed in the last year:

- with heat pumps
- connected to a heat network
- with other electric heating

Data source: EPC register

Unit: per cent

Most recent data[9] (2023):

- with heat pumps: 14%
- connected to a heat network: 6%
- with other electric heating: 6%

Year	2019	2020	2021	2022	2023
Heat pumps	10%	8%	12%	15%	14%
Heat networks	5%	1%	6%	7%	6%
Other electric	2%	1%	3%	2%	6%
Total	**17%**	**10%**	**21%**	**24%**	**25%**

Commentary:

In 2023, 25% of new domestic buildings are estimated to have clean heating. This is similar to 2022, when 24% are estimated to have clean heating. In 2019, 17% of new domestic buildings are estimated to have clean heating.

The NBHS currently means that no new buildings constructed under a building warrant applied for from 1 April 2024 will have heating systems such as gas and oil boilers, and will be built instead with alternatives, like heat pumps and heat networks. However, there will still be new buildings built with polluting heating systems over the next few years where they are based on a building warrant that was approved prior to this date. Therefore we would expect to see the percentage of new domestic properties with clean heating systems increase significantly over the next few years.

2.2.2. Method: uptake of low emissions heating and clean heating in non-domestic properties

2.2.2A Indicator: number of non-domestic properties currently with clean heating systems:

- heat pumps
- connected to a heat network
- other electric heating

[9] figures in the table may not sum due to rounding.

Data source - heat networks: HNMBR data

Data source - heat pumps and other electric heating: Non-Domestic Analytics (NDA)

Unit: number of properties

Most recent data:
- heat pumps (2024 data[10]): 73,530
- connected to a heat network (data spanning 2018-2022[11]): 2,450
- other electric heating (2024 data[12]): 81,300

Commentary:

Data for heat pumps and other electric heating are from NDA, a database produced by Energy Saving Trust on behalf of the Scottish Government to provide a comprehensive resource on the non-domestic building stock in Scotland. We present only the latest 2024 data from the dataset, which include notifications up to May 2024. This is because later editions include improvements to the methodology and data sources in a way that is not comparable with historic NDA data.

NDA brings together various sources of data on non-domestic buildings and uses statistical models to help fill data gaps in the underlying data sources. This is challenging due to considerable variation in the types and purposes of non-domestic properties, as well as a lack of detailed information on their characteristics and poor coverage of existing datasets. For example, less than one fifth of properties within NDA dataset have an EPC record. We are continuing to explore options to fill this data gap, including working with key stakeholders to develop and enhance data sources.

The number of properties connected to a heat network in 2022 is based on HNMBR notification data spanning from 2014-2022. As with the domestic heat network connections, due to the known inconsistencies with the way that heat network operators have reported customer connections within the HNMBR data, the number of non-domestic connections is likely to be an underestimation.

2.2.2B Indicator: number of non-domestic properties recently installing a clean heating system:

- heat pumps (annual figure)
- heat network connections (four-yearly figure)
- other electric heating (annual figure)

Data source – heat pumps and direct electric heating: no data source currently

Data source – heat networks: HNMBR data

[10] Data accurate up to May 2024.
[11] Heat network operators must submit an updated notification within four years of the date of the previous notification under the HNMBR.
[12] Data accurate up to May 2024.

Unit: number of properties

Most recent data:

- heat pumps (annual figure): N/A
- heat network connections (four-yearly figure): 177 (2018-2022)
- other electric heating (annual figure): N/A

Commentary:

As with the domestic data, the estimate of new non-domestic connections to heat networks is based on the latest HNMBR data cycle (2018-2022) and includes connections to new heat networks (i.e. those which were completed within the previous four years). This figure may be an underestimate as it does not include new connections to existing heat networks.

We are working with Energy Saving Trust to develop indicators to address data gaps related to non-domestic properties.

2.2.2C Indicator: number of non-domestic buildings currently with low emission or low emission ready heating, such as:

- biomass boilers
- CHP
- fuel cells
- hybrid heat pumps
- hydrogen-ready boilers

Data source - biomass boilers and CHP: NDA

Data source - fuel cells, hybrid heat pumps and hydrogen-ready boilers: N/A

Unit: number of properties

Most recent data (2024 data[13]):

- biomass boilers: 479
- CHP: 159
- fuel cells: N/A
- hybrid heat pumps: N/A
- hydrogen-ready boilers: N/A

Commentary:

Data presented for biomass boilers and CHP are from the NDA database. As with indicator 2.2.2A, we present only the latest 2024 data from the dataset. There are limitations to the data collected through this database and comparisons with historic NDA data are not suitable, data are cumulative and include notifications up to May 2024. As NDA groups biomass and solid fuels together, the figure reported for

[13] Data accurate up to May 2024.

biomass boilers will include some properties that use solid fuel as their main fuel type.

We are continually seeking to improve the quality and granularity of data on non-domestic buildings, including updates to NDA and working with the UK Government which is developing a National Buildings Database[14]. We are currently unable to track the less common and newer technologies (fuel cells, hybrid heat pumps and hydrogen-ready boilers); however, we expect data on this to become available as non-domestic data develop and the deployment of these technologies increases.

2.2.2D Indicator: percentage of new non-domestic properties with clean heat completed in the last year:

- with heat pumps
- connected to a heat network
- with other electric heating

Data source: non-domestic EPC register

Unit: per cent[15]

Most recent data:

- with heat pumps: 44%
- connected to a heat network: 3%
- with other electric heating: 26%

Year	2019	2020	2021	2022	2023
Heat pumps	37%	44%	35%	51%	44%
Heat networks	2%	1%	5%	3%	3%
Other electric	19%	19%	18%	14%	26%
Total	**58%**	**64%**	**58%**	**68%**	**73%**

Commentary:

In 2023, 73% of new non-domestic buildings are estimated to have been built with a clean heating. This compares to an estimated 58% new non-domestic properties being built with a clean heating system in 2019.

As with indicator 2.2.1D, because building warrants for new non-domestic properties will need to state that the property will be constructed with a clean heating system from 1 April 2024, we expect to see the percentage of new non-domestic properties with clean heating systems increase significantly over the coming years.

[14] National Building Database | (nationalbuildingsdatabase.org)

[15] The Monitoring and Evaluation Framework incorrectly listed the 'unit' for this indicator as 'number of properties'. This has been updated in this report to read 'per cent'. Data for 'other electric heating' have also been included in this report.

2.2.3. Method: rollout of zero emissions heat networks

2.2.3A Indicator: heat supplied by heat networks (statutory target to reach 2.6 Terawatt hours (TWh) by 2027, 6 TWh by 2030 and 7 TWh by 2035) to:

- domestic properties
- non-domestic properties

Data source: HNMBR data

Unit: TWh

Most recent data (data spanning 2018-2022**):**

- domestic properties: 0.46 TWh
- non-domestic properties: 0.75 TWh
- mixed (both domestic and non-domestic properties): 0.15 TWh

Commentary:

We estimate that a total of 1.36 TWh of heat was supplied via heat networks in Scotland in 2022[16]. Although it falls outside of this progress report's reporting window, we estimated that in 2018 a total of 1.15 TWh of heat was supplied via heat networks in Scotland.

This indicator relies on our best estimates on the supply of heat with the limitations of existing data currently available to us. These estimates are based on HNMBR notification data spanning from 2014-2022, aiming to provide an estimate on the whole known heat network sector in Scotland, including known networks that have not notified in the latest data cycle (2018-2022). Our estimate includes a breakdown by domestic and non-domestic properties as well as a mixed category that serves both property types. Our estimate relies on limited data with concerns about quality. This includes poor data coverage in key areas which required modelling to fill in the gaps, lack of information around decommissioning of networks, and issues surrounding enforcement of notifications. All of the above factors limit our ability to estimate the true size of the heat networks sector in Scotland or the total amount of heat supplied.

Indicator 4.2.1F provides details about the Scottish Government's work to develop a regulatory regime to meet our heat networks statutory requirements, and which we believe will help provide improved data and more accurate reporting in future.

2.2.3B indicator: share of low carbon heat in existing heat networks

Data source: HNMBR data (share of fuel source and technology)

Unit: per cent

Most recent data (2022):

- Share of low carbon heat in existing heat networks: 11%

[16] This was reported as 1.35TWh in the Heat Networks Delivery Plan: Review Report 2024 (www.gov.scot). The slight discrepancy in figures is due to a rounding error.

Commentary:

We estimate that by 2022 around 11% of existing heat networks in Scotland used low carbon heat as a fuel source. This includes heat networks which use electricity, biomass or biogas as their primary fuel.

These estimates are based on the HNMBR data and so the same data limitations described above apply. A further limitation is that this assumes heat networks use only one fuel source. The fuel type of around 5% of heat networks is also unknown, meaning the above figure may be a slight underestimation.

2.3. Outcome: the heat transition is fair, leaving no one behind

2.3.1. Method: heat is affordable

2.3.1A Indicator: percentage of homes in fuel poverty (statutory target in 2040 no more than 5% of households are fuel poor with <1% in extreme fuel poverty)

Data source: SHCS

Unit: per cent

Most recent data (2022):

- Percentage of homes in fuel poverty: 31%

Year	2019	2022
Fuel poverty	25%	31%

Commentary:

In 2022, 791,000 households (31% of all households) were estimated to be in fuel poverty. This is higher than the 2019 estimates (last available comparable data) of 613,000 households (25% of all households) and is largely driven by the increases in energy prices seen in 2022[17].

SHCS results for 2022 have been assessed to be comparable for the most part to 2019 and earlier years. However, there is evidence to suggest that social and private rented households, who have higher rates of fuel poverty, may be under-represented in the 2022 sample, and owner-occupied households, who have lower rates of fuel poverty, may be over-represented[18]. This means that national level estimates of fuel poverty may be slightly underestimated; however, we expect any effects to be minor, especially in the context of other key drivers of fuel poverty such as fuel prices.

We continue to work with the Scottish Fuel Poverty Advisory Panel to develop an outcome focussed fuel poverty monitoring and evaluation framework. This will form part of our overall reporting on fuel poverty next year, in line with the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019. We will aim to align this Framework with the reporting framework for this progress report.

[17] The 2019 fuel poverty estimate used a slightly different methodology to the 2022 estimate. While the two are comparable, these differences should be noted. See section 1.5.1 of the 2022 SHCS Methodology report for full details: Supporting documents - Scottish House Condition Survey: Methodology Notes 2022 - gov.scot (www.gov.scot)

[18] See section 1.1.5 of the Methodological and Technical notes: Scottish+House+Condition+Technical+and+Methodological+notes+.pdf (www.gov.scot)

2.3.2. Method: green heat jobs for the heat transition

2.3.2A Indicator: net change in heat and energy efficiency jobs

Data source: available data insufficient for monitoring

Unit: net change

Most recent data:

- N/A

Commentary:

The Office for National Statistics' Low Carbon and Renewable Energy Economy (LCREE) survey provides annual estimates of the number of full-time equivalents (FTEs) across sectors including renewable heat, renewable CHP, energy efficient lighting and energy efficient products. LCREE also provides data at the 'low carbon heat' grouping. However, these data are insufficient for monitoring purposes due to the wide confidence intervals around the estimates at the Scotland level, making it difficult to say whether year-on-year changes are statistically significant or not.

Bespoke research reports have estimated the size of the green heat workforce in Scotland, although most rely heavily on LCREE and, since they are one-off reports, they are unsuitable for tracking purposes.

The Built Environment and Construction Just Transition Plan, due for draft publication in 2025, will explore appropriate indicators to track progress in the sector's workforce, skills pipeline and supply chain.

We include details about the Scottish Government's work to support the scale up of the green heat supply chain at indicator 4.2.1C.

3. Enablers

3.1. Enabler: green heat sector - workers and skills pipeline

3.1A Indicator: number of people in training to achieve relevant qualifications through apprenticeships, further education and higher education – via Modern and Graduate Apprenticeships and enrolled on Further and Higher Education courses

Data source - numbers training in Modern and Graduate Apprenticeships: Skills Development Scotland (SDS)

Data source - numbers enrolled on Further and Higher Education courses: Scottish Funding Council (SFC)

Unit: number of people

Most recent data:

Table 1: Numbers in-training on relevant Modern Apprenticeships[19]

Modern Apprenticeship Frameworks[20]	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Domestic Plumbing and Heating	1,079	1,075	979	756	441	89
Heating, Ventilation, Air Conditioning and Refrigeration	334	327	268	286	287	293
Plumbing and Heating	8	0	103	502	913	1,274
Total	**1,421**	**1,402**	**1,350**	**1,544**	**1,641**	**1,656**

Table 2: Numbers enrolled on relevant Graduate Apprenticeships[21]

Graduate Apprenticeship Framework	**2019-20**	**2020-21**	**2021-22**
Construction and the Built Environment	122	96	120

Table 3: Numbers enrolled on relevant Further and Higher Education courses at Scottish Colleges[22]:

Subject classification[23]	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Further Education level of study					
Built Environment	615	580	665	540	575
Building/Construction Operations	3,400	2,955	3,430	3,550	3,805
Building Maintenance/Services	2,955	2,470	2,640	3,375	3,615

[19] Data are shown for those in-training as of 31 March of each year.
[20] Framework classifications can be found on the SDS website: sds-occupational-groupings-2023-24.pdf (skillsdevelopmentscotland.co.uk).
[21] Data are shown for those in-training as of 31 March of each year. The Graduate Apprenticeship framework for Construction and the Built Environment was established in 2018-19. Data only available up to 2021-22.
[22] Data include all modes of study (part time and full time). Early withdrawal enrolments have been removed.
[23] Subject classifications can be found in the FES guidance document: FES Guidance notes 2022-23 - Scottish Funding Council (sfc.ac.uk).

Construction and Property (Built Environment)	16,860	17,215	19,100	20,505	20,575
Total	**23,830**	**23,220**	**25,835**	**27,970**	**28,570**
Higher Education level of study					
Built Environment	125	105	125	90	80
Building/Construction Operations Enrolments	105	100	95	75	65
Building Maintenance/Services	135	100	150	125	115
Construction and Property (Built Environment)	2,610	2,320	2,530	1,935	1,785
Total	**2,975**	**2,625**	**2,900**	**2,225**	**2,045**

Table 4: Numbers enrolled on relevant courses at Scottish Universities[24]:

Subject classification[25]	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Building services engineering	115	100	90	90
Construction	70	75	65	65
Construction and built environment	190	250	310	465
Construction management	775	970	1,175	1,190
Energy engineering	435	575	655	645
Gas engineering	25	15	5	5
Building technology	50	50	45	50
Conservation of buildings	55	55	50	50
Total	**1,720**	**2,090**	**2,405**	**2,560**

Commentary:

The number of people in-training on Modern Apprenticeships analysed in this report was almost 1,700 in 2024, a figure which has grown slowly in recent years, mainly due to growth in the number of trainees on the Plumbing and Heating framework.

In addition to this, the Graduate Apprenticeship framework for Construction and the Built Environment was established in 2018-19. Enrolments have remained fairly steady for the three years for which data are published.

There were over 30,000 enrolments at Scottish Colleges in 2022-23 in courses analysed in this report, the vast majority (93%) of which were at Further Education level of study. The total number of college enrolments have grown steadily since 2019-20, mainly due to growth in enrolments on Construction and Property subjects.

In 2022-23, there were over 2,500 full person equivalent enrolments on relevant subjects at Scottish Universities. Again, the number of enrolments has grown in recent years since 2019-20, due to growth in courses relating to construction

[24] Data combines undergraduate and postgraduate levels of study, all modes of study (part time and full time) and all years of study. Data are based on full person equivalents.
[25] Subject classifications can be found on the HESA website; HESA - Experts in higher education data and analysis.

management, construction and the built environment, and energy engineering. Most enrolments in 2022-23 were at the postgraduate level (71%), compared to undergraduate (29%).

While data on apprenticeship trainees and Further and Higher Education enrolments give an indication of the scale of the skills pipeline for the sector, there are limitations because educational groupings can be quite broad. We will work with SFC and SDS to understand the alignment between existing courses and frameworks and heat skills relevant to the heat transition.

The Scottish Government will also continue to engage with the SFC, SDS and post-school learning and training providers to increase our understanding of destinations for those who complete courses that are relevant to the heat transition.

3.2. Enabler: public engagement

3.2A Indicator: public awareness and understanding of the need for the transition from fossil fuel heating to clean heat alternatives, of the changes that individuals and businesses need to make, and how to access support.

Data sources: Scottish Household Survey (SHS), Scottish Government Climate Change Public Engagement Strategy public polling[26], Scottish Climate Survey (SCS)[27]

Unit: percentage of households who report having an awareness of renewable power and renewable clean heating systems

Most recent data:

SHS LCR1[28]– estimated awareness of renewable power or renewable heating systems	**2018**	**2022**
Biomass boiler (this may involve burning wood logs, pellets or chips to provide central heating and/or hot water)	32%	30%
Air source heat pump	18%	30%
Ground source heat pump	20%	27%
Solar panels for electricity or to provide hot water	57%	57%
Micro-CHP unit	7%	7%
District Heating System	10%	11%
None of these	39%	40%
Don't know	2%	2%
Any of the systems mentioned	59%	59%

Commentary:

Using the question LCR1 from the SHS, it is estimated that in 2022 59% of households were aware of renewable power or renewable heating systems. This is the same as in 2018. However, awareness of air source heat pumps is estimated to have increased from 18% in 2018 to 30% in 2022. Awareness of ground source heat pumps is also estimated to have increased from 20% in 2018 to 27% in 2022.

We published the 'Heat transition: public engagement strategic framework'[29] in December 2023 (see indicator 4.21D for further details). This sets out how Scottish Government will work with others to deliver a programme of public awareness raising, education and participation around clean heat and energy efficiency. It also includes a high-level monitoring and evaluation framework, which will be further developed over 2024 and 2025.

[26] Climate change - public engagement: survey results 2022 - gov.scot (www.gov.scot)
[27] Forthcoming – October 2024 survey; data available early 2025.
[28] SHS LCR1 asked respondents: "I'm now going to ask some questions about renewable energy systems which can be installed to power and heat homes. Which if any of the following systems have you heard of?" In 2018, the sub sample size for this question was 3,820. In 2022, the sub sample size for this question was 3,880 (rounded to the nearest 10). Columns do not add to 100 percent because multiple responses were possible.
[29] Heat transition: public engagement strategic framework - gov.scot (www.gov.scot)

The SCS will be undertaken in 2024, and results will be available the following year. The survey will assess public awareness and understanding of, and engagement with, climate change-related issues. This will include an assessment of respondents' awareness and understanding of the heat transition, as well as their willingness/intention to install energy efficiency measures and/or a clean heating system in their home. This data will complement data on public awareness of clean heating systems collected via the SHS.

Public polling undertaken in 2022 explored public perceptions of climate change in Scotland among adults aged 18 and above and young people aged 14-17. It also provided data on public awareness of renewable heating systems. This supports data collected via the SHS. However, both the SHCS and SCS provide more robust data than that from the Climate Change Public Engagement Strategy public polling and will be the main data sources used for this indicator moving forward.

3.2B Indicator: public participation in the heat transition – number of opportunities available for people to engage in heat transition-related public engagement activities in Scotland (for example public consultations and related engagement events, and citizens' panels)

Data source: no data source currently

Unit: to be confirmed

Most recent data: N/A

Commentary:

See above commentary under indicator 3.2A on the public engagement strategic framework.

Qualitative research is underway into public participation in the heat transition. Findings are due to be published in Autumn 2024. However, no quantitative data collection is currently planned.

3.2C Indicator: public willingness and intention to undertake energy efficiency improvement measures and install clean heating systems

Data sources: Scottish Government Climate Change Public Engagement Strategy public polling, SCS

Unit: to be confirmed

Most recent data: N/A

Commentary:

See above commentary under indicator 3.2A. The SCS will be the main data source for this indicator.

3.3. Enabler: access to funding and finance

3.3A Indicator: number of privately available financing products

Data source: Green Finance Institute – UK Green Mortgage Products[30]

Unit: number of products

Most recent data:

- number of privately available financing products: 61

Commentary:

The UK green mortgage market has grown from four products in 2019 to 61 in August 2023. This demonstrates the increased interest of investors in green finance. Although the products vary, all aim to incentivise homeowners to invest in improving the energy efficiency of their properties.

The Green Finance Institute dataset is UK-wide, with 38 of the 61 products available from lenders who operate in Scotland, although some of these lenders restrict lending to mainland Scotland.

We include a summary of the Scottish Government's work to support the scale up of private finance needed for the heat transition at indicator 4.2.1F.

3.3B Indicator: level of private financing leveraged by public funding

Data source: data from the Scottish Government's heat networks, social housing and public sector delivery schemes

Unit: ratio

Most recent data:

- The level of private financing (and other non-Scottish Government funding) that public funding leverages (public funding: other funding) in 2023 is 1:1.

Year	2019		2020		2021		2022		2023	
Scheme	SG	non-SG	SG	non-SG	SG	non-SG	SG	non-SG	SG	non-SG
Low Carbon Infrastructure Transition Programme (non-Heat Network projects; £m)	6.2	6.4	3.1	3.2	4.5	9.8	0	0	0	0
Heat networks (Scotland's Heat Network Fund & Low	7.4	7.4	8.5	8.5	7.8	8.6	18.3	18.3	1.1	1.1

[30] Green Finance Institute – UK Green Mortgage Products

Carbon Infrastructure Transition Programme; £m)										
Total (£m)	**13.6**	**13.8**	**11.6**	**11.7**	**12.3**	**18.4**	**18.3**	**18.3**	**1.1**	**1.1**

Commentary:

The estimated level of other funding leveraged by public funding (Scottish Government funding: non-Scottish Government funding) in 2023 was 1:1, as compared to 1:1.01 in 2019. This ratio has remained more or less consistent, suggesting that Scottish Government funding can play a material role in bringing in additional funding to support the heat transition.

The non-Scottish Government funding may include private finance in addition to council funds and other schemes, for example ECO4.

Scotland's Heat Network Fund (SHNF) and Low Carbon Infrastructure Transition Programme (LCITP) figures are based on the year grants have been awarded. In 2024, no new heat network grants were awarded. LCITP closed to new applications in February 2022 after which no new grants were awarded under this scheme.

Only grant awards which have leveraged private finance have been included – those grants which used only public/other funding have not been included.

Please note these data include only SHNF/LCITP eligible costs and there may be additional costs incurred from private finance partners, including those related to future expansion of the systems. For example, many heat networks will build phase 1 and attract further private finance to progress further phases of construction.

We are aware that there are likely to be other Scottish Government-funded delivery schemes that help to leverage private investment and hope to include these for future reports. For example, the Social Housing Net Zero Heat Fund is a match-funded grant programme with registered social landlords making a contribution of between 40% and 50% of eligible project costs.

3.4. Enabler: matters reserved to the UK Government[31]

3.4A Indicator: UK Government policy position: gas and electricity prices

Data sources: energy price cap levels[32], annual average non-domestic energy prices[33], and a qualitative update from officials

[31] Key areas are summarised at indicator 4.2.1B.
[32] Ofgem publish historical price cap levels in their Final levelised cap rates model (available here: Energy price cap (default tariff) levels | Ofgem). The figures reported here exclude the standing charge, include VAT and are averaged over financial years.
[33] https://www.gov.uk/government/statistical-data-sets/gas-and-electricity-prices-in-the-non-domestic-sector

Unit: ratio between domestic gas and electricity prices and a qualitative update

Most recent data:

- annual average domestic energy prices: in 2023-24, domestic electricity prices were 3.97 times higher than gas.
- annual average non-domestic energy prices: in 2023, average non-domestic electricity prices were 4.25 times higher than gas.

Commentary:

The ratio of 3.97 of domestic electricity to gas prices in 2023-24 is lower than in 2019-20, when electricity prices were 4.66 times higher. In the non-domestic sector, the ratio of 4.25 is lower than in 2019, when electricity prices were 5.16 times higher.

However, this ratio still means that running costs will likely increase for homes and non-domestic properties switching to electric heating from gas, unless further mitigations are made. For example, installing a heat pump can go some way to mitigating this increase, as heat pumps can be up to three times more efficient than a gas boiler. Furthermore, when moving away from gas, homes will no longer be required to pay the gas standing charge, and when installed alongside energy efficiency measures, there is scope for energy costs to fall when a heat pump is installed. Actual running costs will of course depend on a number of factors at the property level, such as the incumbent system, the choice, design and operation of the alternative system, and the ratio of space to water heating.

They will also depend on the evolution of energy prices, which is highly uncertain due to the volatility of energy markets and UK Government decisions around rebalancing gas and electricity prices.

In the past 12 months (July 2023-July 2024), wholesale electricity prices have reduced by around 32% and are now broadly comparable to 2021 pre-energy crisis levels. Wholesale electricity prices are heavily influenced by changing gas prices due to the structure of the GB electricity market, where prices are set by the last unit of electricity needed to meet demand, which is typically provided by gas-fired power stations[34].

We continue to urge the new UK Government to progress work to rebalance gas and electricity prices. This is vital to incentivise the installation of clean heating systems in a way that alleviates fuel poverty and the cost of living crisis.

3.4B Indicator: UK Government policy position: network planning and investment

Data source: qualitative update from officials

Unit: N/A

Most recent data: see commentary below

[34] In 2021, gas set the price of electricity 97% of the time, and the average between 2015 - 2021 was 83%. Source: The role of natural gas in setting electricity prices in Europe - ScienceDirect

Commentary:

Expansion of the electricity grid will play a crucial role in delivering our energy ambitions and maximising the economic opportunities of Scotland's abundant renewable resources. Current grid capacity is holding back our ability to develop renewable sources of electricity generation and further decarbonise our economy, including heat in buildings.

The UK Government is responsible for policy relating to strategic electricity planning and network connections. These tasks are carried out by the Electricity System Operator (ESO), managing the connections process alongside Transmission Owners and Distribution Network Operators across Great Britain and regulated by Ofgem.

The new UK Government has set up a Mission Control for Clean Power by 2030 to decarbonise GB's power systems and is reforming planning for electricity infrastructure in England. We therefore anticipate acceleration of the work started by the last UK Government under the Transmission Acceleration Action Plan and the Connections Action Plan, published in November 2023. Scottish ministers will continue to highlight the critical importance of this issue.

3.4C Indicator: UK Government policy position: the future of the gas grid

Data source: qualitative update from officials

Unit: N/A

Most recent data: see commentary below

Commentary:

Ofgem's price control methodology which will apply from 2026-2031 does not expect large scale, systemic changes to gas network operation. Safety and resilience remain important given the networks' vital role. However, responding to the uncertain future of gas is the largest gas issue impacting the price control methodology.

Ofgem noted that there is still uncertainty in the pace and scale of the transition away from natural gas which will be influenced by future government decisions.

The previous UK Government set an ambition to make a strategic decision in 2026 on whether to use hydrogen for domestic heating. Ofgem will continue to work with the new UK government to understand the implications of any hydrogen heating decision and to determine the most appropriate way for the price control to fund network investment, decommissioning or other changes in spending as a result of this decision.

Ofgem note that it will not fund hydrogen heating and blending upfront due to current uncertainty and to avoid duplication with the former UK Government's Hydrogen Transport Business Model.

3.4D Indicator: the percentage of UK heat pump installations which take place within Scotland as a result of the Clean Heat Market Mechanism

Data source: no data source currently

Unit: per cent

Most recent data: see commentary below

Commentary:

While heat and energy efficiency are devolved policy areas, action is also needed in reserved areas to help ensure the transition is fair and affordable. The Scottish Government is keen to hear whether the new UK Government plans to place an obligation on energy suppliers and boiler installers to drive change in the way that the previous UK administration's Clean Heat Market Mechanism was intended to initiate.

3.5. Enabler: heat infrastructure and planning

3.5A Indicator: number of properties covered by a designated heat network zone:

- domestic
- non-domestic

Data source: no data source currently

Unit: number of properties

Most recent data: see commentary below
Commentary:

Local authorities are required to publish Local Heat and Energy Efficiency Strategies (LHEES), many of which identify significant opportunities for district heating. For example:

- Glasgow City Council's LHEES shows that there is the potential for between approximately 20% and 70% of the city's heat demand to be supplied by heat networks. The upper bound applies to almost 50,000 domestic and non-domestic properties.
- Fife Council's LHEES identifies a number of potential heat network zones including sizable zones in Rosyth Waterfront, Glenrothes (North), Dunfermline and Kirkcaldy.
- Highland Council's LHEES identifies several existing heat networks, several projects being developed or at feasibility stage (including in Inverness and Fort William), and seven potential heat network zones in Invergordon, Inverness, Fort William and Dingwall. It also notes spaces that show a high potential to be used for small-scale heat networks, such as shared ground arrays with individual heat pumps for nearby properties.

Given that our Heat in Buildings Bill consultation proposed that new obligations could be placed on building owners within Heat Network Zones, we advised local authorities earlier in 2024 that they should take care in proceeding to designate Heat Network Zones at this time. Once final decisions have been made on the introduction and content of any Heat in Buildings Bill, we will set out how we will support local authorities in designating Heat Network Zones.

Meanwhile, our Heat Networks Support Unit (HNSU) is working with local authorities to take the potential heat network zones identified through LHEES and develop them into projects through feasibility and business case support. In November 2023, the HNSU introduced its Strategic Heat Network Support to help local authorities to develop strategic plans for district heating deployment and identify ways to attract private investment, for example by exploring and identifying a suitable and long-term heat network delivery model for their area.

Legislation came into force in May 2023 requiring Scottish public bodies to produce building assessment reports which will provide vital data about non-domestic buildings for heat network zoning. Guidance was also published for local authorities

to review and decide whether to designate heat network zones (see indicator 4.2.1F Heat networks policy and delivery for additional context).

See indicator 4.2.1B for more details about how the Scottish Government has been engaging closely with local authorities on their LHEES, and indicator 2.2.3A for more information on limitations to existing heat network monitoring data.

4. Activities (policy and delivery)

4.1. Activities: delivery schemes

4.1.1. Type: funding schemes – energy efficiency, clean heat and microgeneration:

Our delivery schemes have continued to provide funding through grants and loans to homes and businesses to install energy efficiency measures and clean heating systems, including targeted support for those in or at risk of fuel poverty. For most schemes, we summarise progress for the financial year 2023-24 below.

4.1.1A Indicator: number of improvement measures supported across all delivery schemes by sector during the last year:

- domestic – owner-occupier
- domestic – private rented sector
- domestic – social rented sector
- non-domestic – small medium sized business (SME)
- non-domestic – public sector

Data source: Scottish Government delivery scheme data

Unit: number of installed measures[35]

In this year's progress report, we report on the number of energy efficiency, clean heat[36] and other renewables[37] (e.g., microgeneration) measures installed per annum that are relevant to our strategy's outcomes. This metric does not equate to the unique number of properties supported across our schemes since the same property could receive a number of measures. However, we include data on the number of properties supported by a scheme where it is available. (The exception to this is for the Social Housing Net Zero Heat Fund, where we report on the number of properties installing improvement measures.) We are currently unable to split this data out by tenure for all schemes, as intended.

We are continuing to explore ways to improve our reporting across our delivery schemes, and we may therefore update some of the delivery scheme data after this document has published as we continue the process of verification.

Most recent data: most recent data for schemes are for the financial year 2023-24, except the Area Based Schemes, where the most recent data are for 2022-23. For the Scottish Central Government Energy Efficiency Grant we report data for calendar years. We also provide historic data for all schemes where it is available.

[35] While the number of 'committed applications' can also serve as an indicator for progress and feed into future years' installed figures, this report does not include these data.
[36] Tables refer to as zero direct emissions heating (ZDEH). These systems, such as heat pumps, district heating, efficient electric storage heaters, wet electric heating and other direct electric, do not produce any greenhouse gas emissions at the point of use.
[37] These measures include solar PV, solar thermal and battery storage.

Commentary:

Home Energy Scotland (HES) Grant and Loan Scheme

The scheme provides grants and loans to all domestic owner-occupiers in Scotland to install clean heat and energy efficiency measures. Data are presented for both the HES Grant and Loan scheme and the HES Loan and Cashback scheme, with the former having replaced the latter in December 2022. We have made necessary changes to the HES Grant and Loan scheme to ensure available funds are targeted at measures which best support direct decarbonisation of heat in homes. In 2023-24, sustained rapid growth in funding for loans for solar PV necessitated a change to limit solar funding to instances where deployed alongside renewable heat. A further change from 6 June 2024 removed solar PV and battery storage from eligibility under the scheme, even when packaged with a heat pump. Eligibility of self-builders was also removed from the scheme from 1 August 2024.

Data are only presented broken down by wider categories of measure for 2023-24, and we will continue to present these wider categories of measure in future years. In the table below, 'other energy efficiency' measures include secondary glazing, waste water heat recovery systems, heating controls, cylinder thermostat and hot water tank jackets. It also includes gas boilers, for which numbers have been low and will likely be zero next year since offers are not issued anymore. "Other renewables" include heat meters, wind turbines and hydro turbines.

Delivery through the HES Grant and Loan scheme has scaled up significantly from 2019-20.

Table 2: HES Grant and Loan Scheme (formerly HES Loan and Cashback) - number of measures installed - financial years between 2019 and 2024

	2019-20	2020-21	2021-22	2022-23	2023-24
Energy efficiency	997	615	796	1,013	2,030
Other renewables/clean heat	965	783	2,115	4,983	8,989

Table 2: HES Grant and Loan Scheme - breakdown of measures installed – 2023-24

	2023-24
Energy efficiency	**2,030**
Of which, insulation	1,721
Of which, other energy efficiency	309
Other renewables/clean heat	**8,989**
Of which, ZDEH /biomass	2,306
Of which, solar PV	3,368
Of which, battery storage	3,216
Of which, other renewables	99

Warmer Homes Scotland

Warmer Homes Scotland (WHS) is the Scottish Government's national fuel poverty programme designed to help those households living in or at risk of fuel poverty through the installation of measures such as insulation and clean heating systems in their homes. Households will be offered a clean heating system in the first instance, if technically appropriate, but these systems will not be installed in households where it would push people into fuel poverty or worsen the depth of fuel poverty.

The scheme mainly supports owner occupiers, but it also covers tenants in private rented homes. It has been operating since September 2015 and has helped more than 39,000 households throughout Scotland. We launched the new phase of Warmer Homes Scotland on 2 October 2023, with a greater focus on clean heating where this is both financially and technically feasible. The higher grant limits per household allow us to deliver whole-house retrofit and install more measures in individual properties.

We provide data for the number of measures installed under both the previous and current schemes in the tables below[38]. Since 2019, we have seen a steady increase in the number of zero direct emission heating (ZDEH) installed, the majority of which have been heat pumps and new electric storage heating. In financial year 2023-24, the previous and new WHS schemes helped to install around 1,400 renewables/clean heat measures and over 9,000 energy efficiency measures in 5,000 homes.

The programme continues to install new gas boilers. This is because gas boilers can currently be cheaper to run due to high electricity costs and are able to be installed quicker.

The first months of the new scheme were focussed on servicing priority customers who had been waiting while the scheme was paused. We expect that this increased the proportion of fossil fuel heating installed to date. We are now seeing higher levels of ZDEH and we are reviewing the processes in the scheme to see where this can be increased further.

Table 3: Warmer Homes Scotland - number of measures installed under previous scheme – financial years between 2019 and 2024

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24[39]**
Energy efficiency	**7,067**	**5,622**	**10,747**	**10,417**	**5,414**
Of which, insulation	4,199	3,240	6,632	6,726	3,487
Of which, gas boiler (condensing)/LPG/Oil[40]	2,868	2,382	4,115	3,691	1,927

[38] Although WHS also provides support to households to install ancillary measures, such as smoke alarms, extra radiators and energy efficient light bulbs, they are not included in this report which focuses on measures most relevant to the Heat in Buildings Strategy.

[39] Financial year 2023-24 included a transition period between the closing of the previous scheme to new applications in April 2023 and the start of the new phase in October 2024.

[40] The Scottish Government's policy decision committed "to immediately end public subsidies for oil and LPG boilers". In line with that commitment, Scottish Government funding was no longer available for replacement oil/LPG heating systems as of 6 September 2021.

Other renewables/clean heat	**445**	**332**	**664**	**1,126**	**609**
Of which, ZDEH/biomass	423	314	572	723	375
Of which, solar PV/solar thermal/battery storage	22	18	92	403	234

Table 4: Warmer Homes Scotland - number of measures installed under current scheme – financial year 2023-24

	2023-24[41]
Energy efficiency	**3,607**
Of which, insulation	2,264
Of which, gas boiler (condensing)	1,343
Other renewables/clean heat	**785**
Of which, ZDEH/biomass	472
Of which, solar PV/battery storage	313

Area Based Schemes

Our Area Based Schemes (ABS) aim to reduce fuel poverty by enabling local authorities to design and deliver energy efficiency projects in fuel poor areas. ABS focuses primarily upon insulation measures benefitting 'hard to treat' properties, but also delivers clean heating and microgeneration measures as part of a 'whole house' approach. Local schemes meet most or all of the cost of improvements for owner occupiers and eight out of ten private landlords. This often enables improvements to mixed tenure buildings to go ahead, matching investment by social landlords and benefitting whole communities. Data for the financial year 2023-24 will be published separately as part of regular Area Based Schemes: annual final measures report.

In the last reported financial year (2022-23), ABS projects helped reduce energy bills for over 6,000 households living in or at risk of fuel poverty. The programme has also seen a steady increase in the number of clean heating systems being installed since 2019.

Table 5: Area Based Schemes - number of measures installed – financial years between 2019 and 2023

	2019-20	**2020-21**	**2021-22**	**2022-23**
Energy efficiency	**7,822**	**5,834**	**6,527**	**4,571**
Of which, insulation	7,737	5,715	4,287	4,497
Of which, gas boiler	21	30	1	0
Of which, heating controls	64	89	2,239	74
Other renewables/clean heat	**98**	**251**	**734**	**2,460**
Of which, ZDEH/biomass	98	107	151	207
Of which, solar PV	0	144	583	2,253

Private Rented Sector Landlord Loan Scheme

[41] Financial year 2023-24 included a transition period between the closing of the previous scheme to new applications in April 2023 and the start of the new phase in October 2024.

The Private Rented Sector (PRS) Landlord Loan Scheme provides private registered landlords interest free and low interest loan funding to enable them to invest in improving the energy efficiency of their properties and install clean heating systems. Since 2020, this scheme has supported landlords to install over 300 energy efficiency and 34 renewables/clean heat measures. Through installing these measures, landlords help reduce their tenants' lifetime energy bills.

The 'other energy efficiency' category includes insulated doors, double/triple/secondary glazing and gas boilers (gas boiler offers are no longer issued as part of this scheme). ZDEH installed in 2023-24 were high heat retention electric storage heaters or air source heat pumps.

The scheme was launched in April 2020 to align with the planned introduction of minimum energy efficiency standards in PRS properties. Planned regulations were ultimately postponed in the context of the COVID-19 pandemic, but the support scheme has remained.

The scheme is demand-led and open to landlords who choose to apply. However, because private landlords are commercial providers operating in a private market, we recognise that many may choose to fund or finance improvements to properties privately.

Table 6: PRS Landlord Loan Scheme - number of measures installed – financial years between 2019 and 2023

	2020-21	**2021-22**	**2022-23**
Energy efficiency	51	116	78
Other renewables/clean heat	5	13	7

Table 7: PRS Landlord Loan Scheme - number of measures installed – financial year 2023-24

	2023-24
Energy efficiency	**58**
Of which, insulation	8
Of which, other energy efficiency	50
Other renewables/clean heat	**22**
Of which, ZDEH/biomass	15
Of which, solar PV	4
Of which, battery storage	3

Social Housing Net Zero Heat Fund

The Social Housing Net Zero Heat Fund (SHNZHF) offers capital grant funding to support social housing landlords across Scotland to install clean heating systems and energy efficiency measures. The SHNZHF has also offered resource support to enable the building of a pipeline of investment ready projects in future years; however, this section focuses on the number of properties installing measures under the main capital fund.

'Other measures' in relation to energy efficiency include mechanical ventilation heat recovery, heating controls and thermostatic radiator valves, hot water cylinder jackets and air tightness measures. Biomass is not reported below since the scheme has not supported any installations.

Data are presented from 2021 because SHNZHF launched in August 2020 and the data have been ascribed to the financial year in which each project was completed. Data for the wider energy efficiency categories of measures were only collated from 2023-24. We plan to continue to report this way in future years.

In 2023-24, the scheme supported nearly 7,400 social housing properties to install energy efficiency measures and over 2,700 properties to install renewables and/or clean heat measures. These contribute to reducing the cost of energy that social housing tenants pay in these properties, consistent with our wider efforts to tackle fuel poverty, and reducing the carbon emissions of these properties.

Table 8: SHNZHF - number of properties supported to install each improvement measures - financial years between 2021 and 2024

	2021-22	2022-23	2023-24
Energy efficiency	**168**	**32**	**7,381**
Of which, insulation	168	32	1,250
Of which, windows/glazing	N/A	N/A	422
Of which, doors	N/A	N/A	77
Of which, other measures	N/A	N/A	5,632
Other renewables/clean heat	**771**	**1,299**	**2,759**
Of which, ZDEH	159	663	1,317
Of which, solar PV	463	473	1,183
Of which, battery storage	149	163	259

SME loan and cashback scheme

This scheme supports Scottish organisations to install energy efficient and renewable technologies to cut carbon emissions and reduce energy costs, thereby increasing economic competitiveness. It provides unsecured, interest free loans of up to £100,000 to SMEs, not-for-profit-organisations and charities. A cashback grant has also been available since 2018.

From 9 May 2023, necessary changes were made to the SME Loan and Cashback scheme to target available funds at measures more closely aligned to the Heat in Buildings Strategy. As such, solar PV is no longer eligible under the scheme. Since 2019, the scheme has helped to install over 1,300 energy efficiency measures and almost 500 renewables/clean heat measures. Scottish Government funding for replacement oil/LPG heating systems ceased on 6 September 2021. Gas heating systems and their components are still currently eligible for the loan component of the scheme although installed measures have declined steadily since 2019-20.

'Biomass' include biomass boilers for all years and biomass room heaters from 2022-23.

Table 9: SME Loan and Cashback scheme - number of measures installed – financial years between 2019 and 2024

	2019-20	2020-21	2021-22	2022-23	2023-24
Energy efficiency	**218**	**211**	**340**	**281**	**251**
Of which, insulation	167	183	209	272	245
Of which, gas boiler	47	26	24	7	0
Of which, heat meters	4	2	7	2	6
Other renewables/clean heat	**22**	**28**	**119**	**153**	**158**
Of which, ZDEH/biomass	14	15	99	95	66
Of which, solar PV	8	13	19	46	69
Of which, battery storage	0	0	1	7	20
Of which, solar thermal	0	0	0	5	3

Scottish Green Public Sector Estate Decarbonisation Scheme

The Scottish Green Public Sector Estate Decarbonisation scheme is the main government-led capital funding mechanism to support decarbonisation of buildings owned by the public sector. The scheme comprises four support elements for public sector bodies:

1. The Scottish Public Sector Non-Domestic Energy Efficiency (NDEE) Frameworks and Project Support Unit (PSU)
2. The Scottish Central Government Energy Efficiency Grant scheme
3. The Scottish Public Sector Energy Efficiency Loan Scheme
4. Scotland's Public Sector Heat Decarbonisation Fund

The **NDEE Frameworks and PSU**, which support public and third sector organisations retrofit their buildings, are in the process of re-procurement. Once the procurement exercise is complete, links to framework documentation and buyers guides will be made available on guidance for public sector organisations on how to access and use the framework agreement.

We present data below on the number of energy efficiency, clean heat and renewables measures installed in public sector buildings as part of these schemes.

The **Scottish Central Government Energy Efficiency Grant** scheme offers capital grant funding support for heat decarbonisation and energy efficiency projects across the public sector and is targeted at public bodies with no borrowing powers. In 2023, we supported the installation of 26 measures across 23 organisations to install renewables/clean heat measures and energy efficiency measures. Between 2021 to 2023, the scheme has supported around 350 energy efficiency measures and nearly 170 renewables/clean heat measures in public sector buildings.

Table 10: Scottish Central Government Energy Efficiency Grant Scheme - number of measures installed in public sector buildings – calendar years between 2021 and 2023

	2021	2022	2023
Energy efficiency/conservation measures	**65**	**234**	**46**
Other renewables/clean heat	**44**	**91**	**34**
Of which, ZDEH/biomass	11	32	12
Of which, solar PV/solar thermal/wind turbine	33	59	22

The **Scottish Public Sector Energy Efficiency Loan Scheme** offers zero interest loans to public sector bodies for energy efficiency works and projects that support the transition to zero carbon estates. The scheme is open to local authorities, Arms Length External Organisations (ALEOs) and universities.

Scotland's Public Sector Heat Decarbonisation Fund launched in October 2023 and is delivered by Salix on behalf of the Scottish Government. It provided grant funding for the financial year 2023-24 to public sector organisations, including local authorities, universities and ALEOs, to install heat decarbonisation and energy efficiency measures. The scheme has so far helped to install 55 energy efficiency measures and nearly 20 other renewables/clean heat measures in these organisations' buildings.

No biomass heating systems were installed in 2023-24.

Table 11: Scotland's Public Sector Heat Decarbonisation Fund - number of measures installed in public sector buildings - financial year 2023-24

	2023-24
Energy efficiency/conservation measures	**55**
Other renewables/clean heat	**18**
Of which, ZDEH	11
Of which, solar PV/solar thermal/wind turbine	7

4.1.2. Type: heat network support

4.1.2A Indicator: new pre-capital support projects in previous year

Data source: data collected directly by Scottish Government and delivery partners via the Heat Network Support Unit (HNSU)

Unit: number of projects

Most recent data:

- number of new pre-capital support projects in previous year (2023): 14

Year	2022	2023	2024
Number of projects	11	14	14

4.1.2B Indicator: new capital support projects in previous year

Data source: data collected directly by Scottish Government and delivery partners via SHNF

Unit: number of projects

Most recent data:

- number of new capital support projects in previous year (2023)**:** 3

Year	2019	2020	2021	2022	2023
Number of projects	1	3	2	4	3

Commentary (for indicators 4.1.2A and 4.1.2B):

Since 2022, the HNSU has formally supported 39 pre-capital projects in 16 local authority areas through advice, guidance and funding, with the Scottish Government committing approximately £2.2 million of financial support (see Figure 2). Our Heat Network Projects report[42] is published quarterly and provides more detail on all supported projects.

The HNSU was established in Autumn 2022 to address key challenges in the pre-capital stages of heat network development and to build capacity across the public sector to deliver successful projects. It is sponsored and managed by the Scottish Government, with partners Scottish Futures Trust and Zero Waste Scotland providing a range of support services.

The HNSU support includes expert advice, project steering and funding for the pre-capital stages of heat network development, such as detailed feasibility studies, business case building and commercialisation. Support is available for new district heating schemes or extensions to existing district heating schemes.

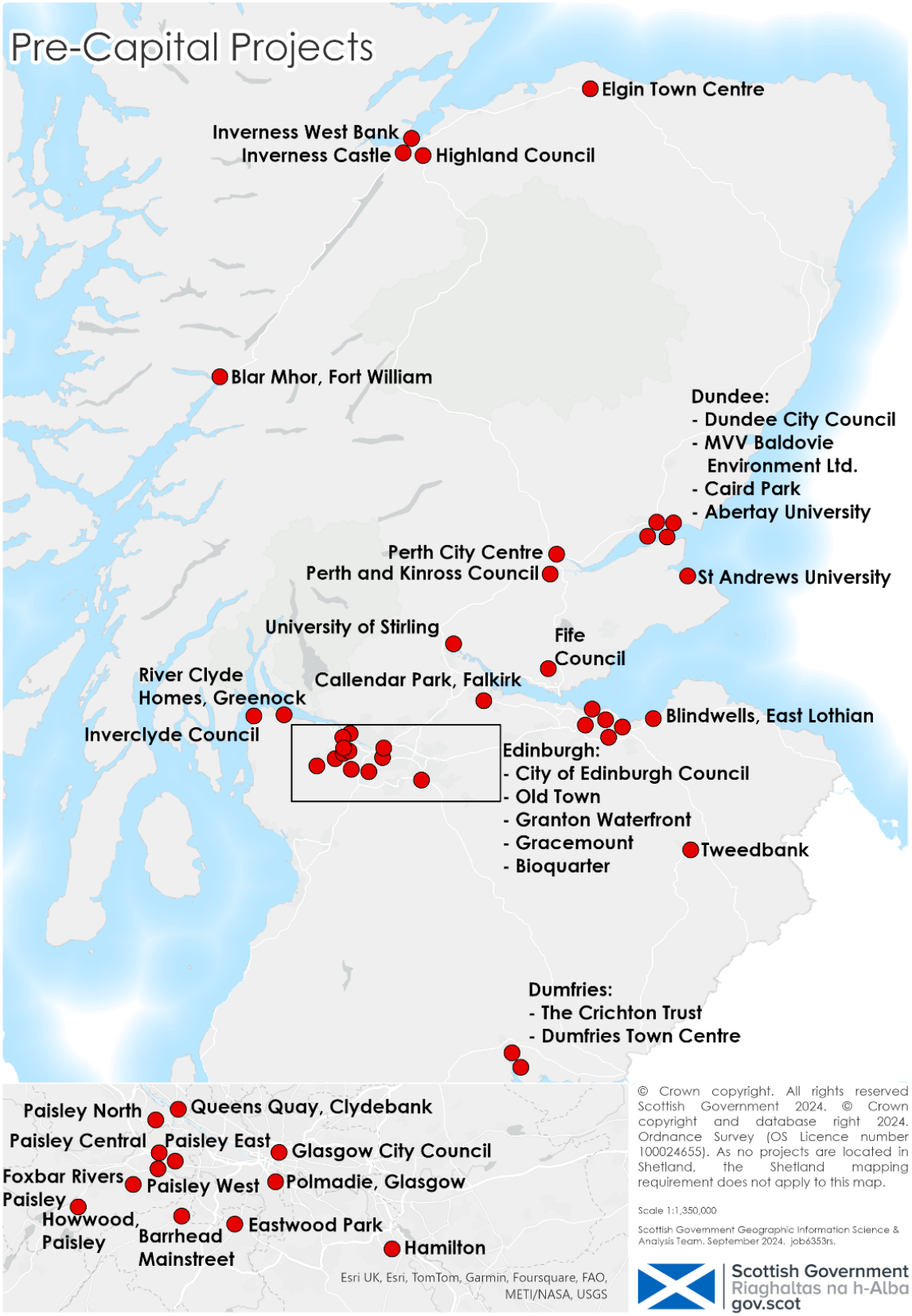
Launched in 2022, SHNF makes capital grant funding available to public and private sector organisations to support the roll out of zero emission heat networks across

[42] Heat network project reports - gov.scot (www.gov.scot)

Scotland. To date, SHNF has awarded approximately £10.1 million to four heat network projects in Scotland.

The Low Carbon Infrastructure Transition Programme (LCITP) launched in 2015 and closed to new applications in 2022. Since 2019, LCITP has awarded grant funding to nine heat network projects totalling approximately £33.1 million. Figures are provided based on the year in which the heat network project was awarded grant funding through LCITP or SHNF. As the LCITP launched in 2015, there are an additional four heat network projects which were awarded grant funding prior to 2019.

Figure 2: map of pre-capital projects supported by the HNSU since 2022



4.1.3. Type: Scottish Government investment

4.1.3A Indicator: Scottish Government funding for the previous year (actual spend) on all schemes that support installation of energy efficiency measures and clean heating systems across domestic and non-domestic properties and the development of heat networks. This will be broken down by scheme and identify both capital and revenue funding.

Data source: Scottish Government delivery schemes

Unit: £m

Most recent data:

- Scottish Government funding for financial year 2023-24 (actual spend): net £195m in Capital investment as well as net £18m of Financial Transactions

Table 9: Scottish Government delivery scheme funding - financial year 2023-24 (in £m's)

Year	**2023-24**
SHNF and LCITP legacy funding capital	£ 16.0
SHNZHF capital	£ 29.5
Area Based Schemes	£ 58.3
Warmer Homes Scotland	£ 59.7
HES Grant and Loan[43]	£ 62.3
SME Grant and Loan	£ 5.4
Public Sector Decarbonisation	£ 27.7
Departure from ERDF schemes[44]	£ 9.0
Income from Closed Schemes	£ (54.3)
Delivery Scheme Resource Spend	£ 20.5
Other Resource spend	£ 7.9
Total (Resource)[45]	**£ 28.4**
Total (Capital)[46]	**£ 195.2**
Total (Financial Transactions)	**£ 18.0**
Total Investment	**£ 241.6**

[43] HES/SME loan schemes receive regular income through the repayment of previously administered loans. This income is used to supplement the scheme budgets. Scottish Government accounts reflect the net spend.

[44] The repayment of European Rural Development Fund grant award for the withdrawal from the Low Carbon Infrastructure Transition Programme (LCITP).

[45] Total Resource spend includes all resource expenditure required across the Heat in Buildings programme to fund delivery and policy implementation. This includes Advice Services, HES/SME Grant and Loan administration costs and pre-capital support.

[46] Total investment includes the return of income relating to closed schemes and return of cash through the re-awarding of the administration contract for our HES/SME Grant and Loan schemes. This was re-invested through Heat in Building schemes.

Commentary:

These figures represent the actual expenditure incurred by Scottish Government in the previous financial year as published. For this indicator, the baseline data will be financial year 2023-2024. Data for previous financial years are not shown because they are not directly comparable. Spend on HNSU resource is not shown due to data collection restrictions.

We invested over £210 million in capital and loan funding through 2023-24 and close to £20 million of resource for funding advice services. The balance of the resource funding was allocated to Heat in Buildings policy and regulation.

Through this investment, nearly 10,000 households at risk of fuel poor were supported to make their homes warmer through the Warmer Homes Scotland programme and Area-Based Schemes.

Over 6,500 homeowners applied for funding through the HES Grant and Loans scheme to undertake energy efficiency works and/or install ZDEH, resulting in 6,100 funding offers.

Over 6,000 domestic ZDEH installations funded this year through our schemes and around 330 homes were connected to heat networks using clean heat sources in 2023-24.

4.1.4. Type: advice services

4.1.4A Indicator: number of unique households supported by Home Energy Scotland (HES) advice service

Data source: Scottish Government scheme data

Unit: number of unique households

Most recent data:

Year	2019-20	2020-21	2021-22	2022-23	2023-24
Number supported	92,681	90,468	114,392	138,347	128,791

4.1.4B Indicator: number of SMEs supported by Business Energy Scotland (BES) advice service and number of energy assessment reports completed by BES

Data source: Scottish Government advice service

Unit: number of SMEs/number of energy assessment reports

Most recent data:

Year	2020-21	2021-22	2022-23[47]	2023-24
Number SMEs supported	782	883	460 (approx.)	932 (approx.)
Number energy assessments completed	988	1,144	773	1,384

4.1.4C Indicator: advice and referral services investment

Data source: Scottish Government scheme data

Unit: £m

Most recent data:

Year	2019-20	2020-21	2021-22	2022-23	2023-24
Investment (HES) (£m)	8.329	8.134	9.379	12.316	13.548

Year	2022-23	2023-24
Investment (BES/EEBS) (£m)	2.150	3

Commentary (for indicators 4.1.4A, 4.1.4B, 4.1.4C):

In 2023-24, the HES network delivered 489,000 advice interactions, supported over 128,000 unique households and recorded over 894,000 users of their website. From the launch of the new scheme in October 2023, just under 12,000 households were referred through to our Warmer Homes Scotland fuel poverty support programme which provides funding to eligible households to help make their homes warmer and easier to heat.

Of those supported, HES advisors referred or signposted 15,904 households on to providers of crisis funding for vulnerable consumers and those who needed immediate assistance, and 2,599 householders received direct one to one Energycarer support. Energycarers provide specialist support to households with issues relating to physical or mental health, disability, family circumstances, low income and expensive heating, who are often less able to make full use of the freephone services and website.

HES continued its focus on low and zero emission heating and estimate that 3,539 heat pumps will be installed following advice.

BES provided in depth support to over 900 unique SMEs in Scotland in 2023-24 related to low carbon heat and energy efficiency and recorded over 43,000 unique visits to its website. BES also completed nearly 1,400 energy assessment reports for SMEs to help identify energy saving opportunities. In 2023-24, 452 SME Loan and

[47] This was a transition year where the Advice Service was moved to a new delivery partner.

Cashback applications were made as a result of the support and bespoke energy assessment reports provided by BES. We do not have reliable data for 2019-2020.

Data for investment in BES advice service starts from 2022 since we do not have reliable data for the previous Energy Efficiency Business Support Service (EEBS) scheme.

4.2. Activities: other policy and delivery work

4.2.1 Indicator: qualitative update on developments over the last year

Data source: Scottish Government officials

Unit: N/A

Most recent update/commentary:

This document is both a report against the Monitoring and Evaluation Framework, and our annual report on progress against the Heat in Buildings Strategy. This section therefore provides a qualitative update on progress against key policy and regulatory areas. The key areas identified in the Framework are:

A. Introducing a regulatory framework to scale up the deployment of clean heating systems and energy efficiency measures:
   - Regulating for clean heat and energy efficiency improvements in existing buildings
   - Reviewing our social housing standards to align with our net zero targets
   - Reforming EPCs to support the transition to net zero
B. Working with UK Government and local government:
   - Engaging closely with local authorities on their LHEES
   - Working with the UK Government on key heat in buildings policies
C. Providing support for skills and the supply chain to enable the growth needed in the green heat sector to meet our climate targets
D. Developing our approach to increasing public awareness and engagement with the heat transition
E. Exploring solutions to deliver the significant increase in private finance needed for the heat transition, alongside the Scottish Government's delivery and advice schemes
F. Developing a regulatory regime for heat networks to meet the statutory requirements of the Heat Networks (Scotland) Act 2021.

4.2.1A Regulatory framework:

New Build Heat Standard (NBHS):

The NBHS is one of the most important steps we have taken in the past year towards decarbonising our buildings and reaching net zero in buildings.

The NBHS as it currently stands means that no new buildings constructed under a building warrant applied for from 1 April 2024 will be built with polluting heating systems, like gas and oil boilers. New domestic and non-domestic buildings will be built with clean alternatives, such as heat pumps and heat networks.

This represents a significant, positive step towards achieving the Scottish Government's wider ambitions for net zero buildings.

Ministers confirmed to Parliament in May that there would be a review of the NBHS with the intention to adapt it to address issues of inflexibility raised by communities – particularly regarding the installation of wood burning stoves in new homes in rural areas.

The Minister for Climate Action has now written (19 September) to local authorities to temporarily relax the Standard in relation to the use of bioenergy and peat heating, pending the conclusion of that formal review.

This does not have any implications for the outcome of the review which is currently concluding – any regulatory amendments will be introduced by the end of the year.

Regulating for clean heat and energy efficiency improvements in existing buildings:

We have consulted during the past year on proposals for a Heat in Buildings Bill. This would prohibit the use of polluting heating systems, like gas boilers, in all privately owned and privately rented homes and non-domestic properties after 2045, and to require some building owners to do so earlier than 2045. The consultation received over 1,600 responses; an independent analysis has been commissioned and will be published in due course, along with details on next steps.

Socially rented homes will remain subject to a separate and equivalent performance standard (see below).

Reviewing our social housing standards to align with our net zero targets:

The Scottish Government has been working closely with the social housing sector in Scotland over the past year to co-develop proposals for a new Social Housing Net Zero Standard (SHNZS). The SHNZS is more aligned with net zero targets and designed to provide much needed clarity for the social housing sector.

A consultation on proposals for the SHNZS (which will replace the post-2020 Energy Efficiency Standard for Social Housing, or EESSH2) closed on 8 March 2024. The responses are currently under independent analysis, with results to be published in due course. The proposals are consistent with plans for the wider housing stock as set out in the consultation on a Heat in Buildings Bill, with the SHNZS proposed to require social landlords to improve fabric efficiency and install clean heating where it is technically feasible and cost-effective to do so. The social housing sector has been leading the way on energy efficiency in recent years and is well placed to build on this further while building in longer term ambition to transition to clean heating.

Reforming Energy Performance Certificates (EPCs) to support the transition to net zero:

We need to enhance EPCs so they continue to be a valuable source of information for home buyers, owners, and tenants. The Scottish Government consulted on proposals in 2023 to reform EPCs, in line with the CCC's advice[48]. These reforms would address long-standing criticisms from the CCC and others that EPC ratings are not aligned with net zero. We will shortly publish our response to this consultation and set out next steps.

Our proposed reforms will mean EPCs have clearer information about how well-insulated a home is by providing new information on the fabric energy efficiency of the home (a rating based on the annual heat (kWh) demand of the building). They

[48] Ministerial Foreword - Energy Performance Certificate (EPC) reform: consultation - gov.scot (www.gov.scot)

will also highlight clearly whether key insulation measures (such as cavity wall and loft insulation) have been installed.

The reformed EPCs will provide new information about the home's current heating system, with recommendations on clean and efficient replacements, plus the modelled cost of heating the home before and after recommended changes system are made. These reforms would ensure current and prospective building owners and tenants have as much information as possible to inform choices they make about improving the fabric efficiency and installing clean heating systems in their building. We are reviewing the operation and governance of the EPC assessor market, to ensure that consumers (home and business owners/ tenants alike) have full confidence in their EPC rating. We are also developing the infrastructure required to adopt the UK Government's Home Energy Model which is about to replace the Standard Assessment Procedure (SAP) methodology.

4.2.1B Working with UK Government and local government:

Working with the UK Government on key heat in buildings policies:

We are committed to working collaboratively on areas of common ground with the new UK Government. However, action by the UKG in reserved areas remains critical to help ensure that the transition is fair and affordable. The key areas are:

- Action to rebalance gas and electricity prices to incentivise the installation of clean heating systems in a way that alleviates fuel poverty and the cost of living crisis.
- A decision on the future of the gas grid, which will have significant implications for any decisions we may make in the future regarding regulating building owners.
- Decisions on the use of reserved powers to accelerate the supply and installation of clean heating systems.

Engaging closely with local authorities on their LHEES:

Local Heat and Energy Efficiency Strategies (LHEES) are at the heart of a place based, locally-led and tailored approach to heat and energy efficiency planning and delivery. LHEES set out the long-term plan for decarbonising heat in buildings and improving their energy efficiency across an entire local authority area. Accompanying the Strategies are Delivery Plans, which 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.

The Scottish Parliament passed legislation in April 2022 requiring all local authorities to publish a Local Heat and Energy Efficiency Strategy and Delivery Plan by the end of 2023 and update them on a five-year basis. The Scottish Government published guidance regarding what is required to fulfil this duty in October 2022. At the time of publication, 27 of the 32 local authorities have published LHEES, including 24 final LHEES and three in draft.

The published LHEES provide an evidence base for what interventions are needed to decarbonise Scotland's buildings and tackle poor energy efficiency as a driver of fuel poverty, as well as importantly, where these buildings are located.

We continue to engage closely with local authorities and are providing support through capacity building training.

4.2.1C Workers and skills:

Providing support for skills and the supply chain to enable the growth needed in the green heat sector to meet our climate targets:

We have funded the Green Heat Installer Engagement Programme[49], delivered by Energy Saving Trust, to provide assistance and support for installers in their green heat transition to becoming accredited in the installation of heat pumps and insulation.

The programme includes the Low Carbon Skills Grant, which has been available to heating and plumbing apprentices. This allows them to include heat pump training modules as part of their qualification at no additional cost to their employer. During 2023-24 the fund supported 318 apprentices to be trained in heat pump installation.

The programme includes the MCS Certification Fund which provides a grant to become MCS certified on heat pumps. The grant will pay 75%, up to a maximum of £1,000, of the certification fees. In 2023-24 it supported 24 businesses to become MCS certified. The programme has also developed a Heat Pump Installer toolkit which gives advice on how to become MCS certified and an Insulation Installer toolkit which gives advice to installers about achieving PAS 2030 certification and becoming a TrustMark registered business.

The mobile heat pump training centre[50] was launched last year to deliver certified heat pump training in rural and island areas of Scotland. Activities have included a visit to Shetland in May where eight participants successfully completed their BPEC accredited heat pump course[51].

We are also funding a Clean Heat Strategic Workforce Development Fund[52] to support SMEs, delivered by Scottish Enterprise. This offers workplace innovation support to companies that are either already active or interested in diversifying into the clean heat market in areas such as the design, development, manufacture, operation or installation of clean heat related solutions. Support includes training related to heat pump installations.

[49] https://energysavingtrust.org.uk/business/energy-efficiency/green-installer/
[50] Mobile heat pump training centre - Energy Saving Trust
[51] Renewables Qualifications and Learning Materials | Pride through Achievement | BPEC
[52] Clean Heat Strategic Workforce Development Fund | Scottish Enterprise (scottish-enterprise.com)

4.2.1D Public awareness:

Developing our approach to increasing public awareness and engagement with the heat transition:

In December 2023 we published the Heat transition: public engagement strategic framework. This outlines our approach to increase awareness and understanding of heat decarbonisation and the support available to help make the transition. We are currently developing several workstreams, including developing a high-level monitoring and evaluation framework.

The Scottish Climate Survey, to be carried out in 2024, will assess public awareness and understanding of the heat transition, as well as respondents' willingness and intention to install a clean heating system in their home.

4.2.1E Finance:

Exploring solutions to deliver the significant increase in private finance needed for the heat transition, alongside the Scottish Government's delivery and advice schemes:

Our Green Heat Finance Taskforce has been working on new ways to finance this work, and to stimulate investment in skills, innovation and the supply chain. It published the Part 1 report in November 2023 and will publish a Part 2 report later this year, following which the Scottish Government will formally respond.

The Taskforce's Part 1 report concluded that the market in green home retrofit products in the UK is currently immature but has significant potential for growth.

4.2.1F Heat networks policy and delivery:

Developing a regulatory regime for heat networks to meet the statutory requirements of the Heat Networks (Scotland) Act 2021:

In last year's annual report, we described regulations that introduced a requirement for public sector non-domestic buildings to assess their heating requirements and suitability to connect to heat networks. Around 300 building assessment reports have been produced to date.

We continue to engage with key stakeholders in the development of the heat networks regulatory system and are concentrating on licensing and consents.

Heat Network Licences will ensure that market participants are solvent, competent and fit and proper. It will also put them on a more equal footing with other utilities, for example by providing them with powers to undertake roadworks.

Heat Network Consents will provide a robust route for scrutinising individual projects, considering local context and ensuring networks are built and operated in a way which reduces emissions and contributes to a reduction in fuel poverty.

We continue to engage with UK Government to try and ensure interoperability between our regulatory regime and the regulations to protect heat consumers it is developing after the passage of the UK Energy Act 2023. We are also working closely with UK Government to deliver a Heat Network Technical Assurance Scheme[53] to ensure heat networks are built and operated in an efficient manner.

The Heat Networks (Scotland) Act sets statutory targets for the amount of heat (and cooling) to be supplied by heat networks, which signal to the developing heat networks sector that this – and future – governments of Scotland are committed to its growth and providing greater certainty for investors.

We provide regular updates[54] on our progress towards meeting the targets and show how these have been aided by the Heat Networks (Scotland) Act and other supporting policies.

We remain committed to further consulting on proposals, as far as possible within our devolved competence, to reduce demand risks for heat networks. This includes proposals specific to heat networks in the Heat in Buildings Bill consultation as well as a focus on large publicly owned non-domestic buildings.

[53] Heat Network Technical Assurance Scheme (HNTAS) - GOV.UK (www.gov.uk)
[54] Heat network project reports - gov.scot (www.gov.scot)

Annex A: summary of data sources

Department for Energy Security and Net Zero:
Annual domestic energy bills: Statistical dataset providing annual estimates of gas and electricity bills, along with statistics on household expenditure on fuel (data split by region).

Annual and quarterly non-domestic energy bills: Quarterly and annual gas and electricity prices for the non-domestic sector, including and excluding the Climate Change Levy (CCL), split into consumption size bands (data for the UK - Scotland specific data not available).

Energy Performance Certificate (EPC) data - Domestic and Non-Domestic: These datasets present data from every current domestic and non-domestic EPC assessment held by the Scottish Energy Performance Certificate Register (SEPCR), covering the period from Q4 2013. The SEPCR updates daily overnight, while the published domestic and non-domestic datasets are a snapshot of the register taken at quarterly intervals. EPCs present a range of key environmental data, intended to provide homeowners, tenants and the occupants of non-domestic buildings information on potential energy costs and carbon emissions.

Green Finance Institute – UK Green Mortgage Products: The Green Finance Institute collects data on the number of green mortgage products offered in the UK.

Heat Networks Metering and Billing Regulations Data: This dataset is compiled from notifications submitted by heat network operators (heat suppliers) to the UK Government's Office for Product Safety and Standards (OPSS) under the Heat Networks Metering and Billing Regulations. Networks can be district or communal and can serve domestic customers only, non-domestic customers only, or a mixture of the two. Data for each network include (where available):

- number and type of customer supplied
- number and type of building supplied
- capacity, generation and supply values for heating and cooling
- fuel type (e.g. biomass)
- technology used (e.g. heat pump)

Low Carbon and Renewable Energy Economy (LCREE) Survey: The Low Carbon and Renewable Energy Economy (LCREE) Survey is the primary source of official information on LCREE activity in the UK. It is a predominantly an online survey of around 25,000 UK businesses, targeted at industries expected to be undertaking activities relevant to LCREE. Information is collected from businesses which self-identify as operating within LCREE sectors in relation to employment, turnover, imports, exports and capital assets for all LCREE sectors they operate in. Businesses are considered to be active in the LCREE if they provide information on economic performance within 17 predefined LCREE sectors.

Microgeneration Certification Scheme (MCS) Installations Database: The MCS database provides near real-time information on all MCS certified, small-scale renewable installations in the UK. This is understood to cover most heat pump

installations in existing domestic properties. However, it will not cover non-certified installations and may include some installs in new builds and smaller non-domestic buildings.

Non-Domestic Analytics (NDA): NDA provides address-level information about non-domestic properties in Scotland. NDA can be used to gain an understanding of the non-domestic building stock within an area. Data includes building type and use, energy efficiency (including demand for space and water heating), and wider characteristics like floor area. NDA is produced by the Energy Saving Trust (EST) on behalf of the Scottish Government. It integrates several non-domestic datasets, including EPCs, to model Scotland's non-domestic building stock.

Scottish Funding Council: data and analysis - **Numbers enrolled on Further and Higher Education courses:** The Scottish Funding Council (SFC) collects statistics on the number of enrolments at Scottish Colleges and Universities. Data is captured by key characteristics and subject and course details. SFC is a non-departmental public body and is directly accountable to Scottish Government Ministers and the Scottish Parliament.

Scottish Government Climate Change Public Engagement Strategy public polling: The Scottish Government's five-year (2021-2026) Net Zero Nation: Public Engagement Strategy for Climate Change sets out our vision for all of Scotland to understand the challenges we face and embrace their role in our transition to a net zero and climate ready Scotland. In 2022, a representative baseline survey was conducted and included questions on: awareness of the Scottish Government net zero targets and climate policies (Understand), experiences of and attitudes to participating in policy and decision making relating to climate change (Participate), and understanding of the actions needed to tackle climate change, and instances of these actions being taken or planned at an individual, household or community level (Act). We plan to repeat this survey in 2024 and 2026.

Scottish Government delivery schemes data: These are data we collect for our delivery schemes in collaboration with delivery partners.

Scottish Greenhouse Gas Emissions Statistics: This is an Official Statistics publication which reports results from the Scottish Greenhouse Gas Inventory, covering the period from 1990. It is published annually in June with around an 18-month lag. It presents information on territorial emissions and is compiled in accordance with guidelines from the Intergovernmental Panel on Climate Change.

Scottish Housing Condition Survey (SHCS): This is the Scottish Government's annual national survey looking at the physical condition of Scotland's homes as well as the experiences of householders. The survey fieldwork runs from January to December each year, with the survey now an integrated component of the Scottish Household Survey. The SHCS annual report is based on a representative sample of around 3,000 dwellings. All survey figures are estimates and will contain some error associated with sampling variability. In general, the smaller the sample size, the greater the likelihood that the estimate could be misleading, so we will take care when using smaller subsets of the survey sample for analysis.

Scottish Household Survey: The Scottish Government's annual, cross-sectional, national survey that provides robust evidence on the composition, characteristics, attitudes and behaviour of private households and individuals as well as evidence on the physical condition of Scotland's homes.

Skills Development Scotland Statistics - Numbers training in Modern and Graduate Apprenticeships: Skills Development Scotland collects statistics on the number of Graduate (GA) and Modern Apprenticeships (MA). The MA statistics are based on those where there is a public funding contribution administered by SDS, on behalf of the Scottish Government. GA are industry-recognised, accredited degree-level qualifications, available from Diploma up to Masters degree-level qualification. They are offered in key occupational growth areas of the economy and support the education and development of individuals so that they acquire the necessary skills, knowledge and competence required to work and progress in their chosen sector.

Annex B: Scottish Government delivery schemes and advice services

Domestic support:

Area Based Schemes
Scheme to reduce fuel poverty by enabling local authorities to design and deliver energy efficiency programmes in fuel poor areas. Primary focus on insulation measures for 'hard to treat' properties but includes clean heating and microgeneration measures as part of a ‘whole house’ approach.

Home Energy Scotland: Grant and Loan scheme
Has offered grants up to £15,000 for heat pumps and energy efficiency measures. Loans have also been available to cover additional costs. An additional rural uplift of £1,500 has been applied to both clean heating, such as heat pumps and energy efficiency grants.

Warmer Homes Scotland
Our national fuel poverty programme designed to help those living in or at risk of fuel poverty through the installation of measures such as insulation and clean heating systems.

Home Energy Scotland
Free independent advice and referral scheme.

Business support:

SME Loan and Cashback
The SME Loan and Cashback scheme provides interest free loans from £1,000 up to £100,000 and cashback of up to £30,000 to small and medium sized Scotland based businesses for the installation of energy efficiency measures and clean heating.

Business Energy Scotland
Free advice and support to SMEs for energy efficiency and heat decarbonisation.

Public sector support:

Scottish Green Public Sector Estate Decarbonisation Scheme
The main government-led capital funding mechanism to support leadership for decarbonisation of buildings owned by the public sector. The scheme comprises four support elements for public sector bodies:

1. The Scottish Public Sector Non-Domestic Energy Efficiency (NDEE) Frameworks and Project Support Unit (PSU)
2. The Scottish Central Government Energy Efficiency Grant scheme
3. The Scottish Public Sector Energy Efficiency Loan Scheme
5. Scotland’s Public Sector Heat Decarbonisation Fund

Multi-sector support

Scotland's Heat Network Fund
Open to public and private sector organisations, including support for new heat networks and the decarbonisation and expansion of existing heat networks.

Heat Network Support Unit
The Heat Network Support Unit (HNSU) supports the development of heat network projects in Scotland. It does this by offering grant funding and expert advice throughout the pre-capital stages of development. We are working on building a project pipeline to meet our targets and to build capacity within the public sector to lead on, invest in and deliver heat network projects.

Social Housing Net Zero Heat Fund
Capital grant funding to support social housing landlords to install clean heating systems and energy efficiency measures.

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
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ISBN: 978-1-83601-810-0 (web only)

Published by The Scottish Government, October 2024

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1496598 (10/24)

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