Local Heat & Energy Efficiency Strategy Web Map Guide and Layer Descriptions

Map Guide

This web map provides information on Fife's domestic and non-domestic baseline related to energy efficiency and climate friendly heating. It also provides our strategic zones[1] which will be used to help prioritise actions for delivery, and our potential heat network zones.

To view the different map layers:

1. Please use the top box to the left of screen.
2. Ensure the checkbox for the layer group you want to view is selected (domestic properties/non-domestic properties/strategic zones/potential heat network zones).
3. Click the arrow next to the checkbox to open up the list of layers in each group.
4. Click the checkbox for the specific layer you want to view.
5. Please remember to deselect old layers before viewing a new layer to improve clarity.

It is recommended this map is viewed alongside the Layer Descriptions document (top right).

Layer Descriptions

This document provides descriptions, and data sources, for each layer in the accompanying web map. Key definitions are available here.

Layer descriptions are provided for:

1. Domestic property baseline
2. Non-domestic property baseline
3. Strategic zones
4. Potential heat network zones

It is recommended this document is viewed alongside the web map, as a point of reference.

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[1] Strategic zones are based on Data Zones - the key geography for the dissemination of small area statistics in Scotland. Fife has 494 data zones, with on average 376 households in each.

Definitions

Data Zone	The key geography for the dissemination of small area statistics in Scotland. Fife has 494 data zones, with on average 376 households in each.
Strategic Zones	Visualisation of potential ways to decarbonise buildings at the strategic level. These provide a mechanism to understand buildings' baseline performance; scale of potential; and prioritise initial areas of focus.
Fuel Poverty	Fuel poverty is when total household fuel costs are more than 10% of adjusted net income; and if after deducting fuel and care costs, the remaining net income does not allow for an acceptable standard of living.
Extreme Fuel Poverty	Extreme fuel poverty is when total household fuel costs are more than 20% of adjusted net income; and if after deducting fuel and care costs, the remaining net income does not allow for an acceptable standard of living.
LHEES Category 0	Properties connected to a heat network or with a heat pump.
LHEES Category 1	Those considered highly suited for heat pump retrofit (i.e. well insulated properties with a wet heating system, excluding any consideration of electricity network impacts or costs of any network upgrades).
LHEES Category 2	Those with secondary potential for heat pump retrofit (i.e. properties in need of moderate fabric upgrade and / or addition of wet distribution system to be heat pump ready).
LHEES Category 3	Those with tertiary potential for heat pump retrofit (i.e. properties in need of significant fabric upgrade to be heat pump ready.
Heat Network	Supplies heat (or cooling) to buildings, by taking excess heat from a central source. By supplying multiple buildings removes the need for individual boilers or heaters.
Potential Heat Network Zone	An area where a heat network provides a potential heat decarbonisation option. The identification of potential zone does not necessarily mean it will be designated – as per the requirements of the Heat Networks (Scotland) Act 2021
Linear Heat Density	An industry standard metric that relates heat to distance, for a heat network it is heat demand per meter of pipe.
Anchor Load	High heat demand buildings and key connections on a heat network that usually drive the economics of heat works.

Domestic

All layers for the domestic baseline are aggregated to the data zone level.

Layer Name	Description	Use	Layer Source
On-gas grid: domestic property count	The count of domestic properties connected to the gas grid (on-gas).	Help prioritise areas for new building level actions, aligned with the Heat in Buildings Strategy on-gas target.	Home Analytics 3.8
Off-gas grid: domestic property count	The count of **domestic** properties not connected to the gas grid (off-gas).	Help prioritise areas for new building level actions, aligned with the Heat in Buildings Strategy off-gas target.	Home Analytics 3.8
Mixed tenure: domestic property count	The count of properties that are classified as mixed tenure[2].	Help identify properties which may be more difficult to retrofit due to the mixture of tenures/owners, and align with the consideration of mixed-tenure, mixed-use and historic buildings.	Home Analytics 3.8
Mixed tenure and mixed use: domestic property count	The count of domestic properties within a data zone in a building containing more than one domestic property.	Help identify properties which may be more difficult to retrofit due to the mixture of tenures/owners, and align with the consideration of mixed-tenure, mixed-use and historic buildings.	Home Analytics 3.8
Listed buildings: domestic property count	The count of domestic properties which are listed[3].	Help identify properties which may be more difficult to retrofit due to their historic and protected status and align with the consideration of mixed-tenure, mixed-use and historic buildings.	Home Analytics 3.8
Conservation areas: domestic property count	The count of domestic properties within a conservation area.	Help identify properties which may be more difficult to retrofit due to their protected status and align with the consideration of mixed-tenure, mixed-use and historic buildings.	Home Analytics 3.8
Uninsulated walls: domestic property count	The count of domestic properties with uninsulated walls.	Help identify new building level actions, aligned with the Heat in Buildings Strategy energy performance certificate targets.	Home Analytics 3.8

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[2] Mixed-tenure and mixed-use buildings could include a mixture of owner occupied, private rented and social housing, and also non-domestic uses, or simply multiple ownership within the same tenure.
[3] Historic Scotland categorises listed buildings based on their level of importance; Category A is assigned to buildings of national importance, Category B for buildings of regional importance, and Category C for buildings of local importance.

Layer Name	Description	Use	Layer Source
Loft insulation: domestic property count	The count of domestic properties with loft insulation <100mm.	Help identify new building level actions, aligned with the Heat in Buildings Strategy energy performance certificate targets.	Home Analytics 3.8
Single glazing windows: domestic property count	The count of domestic properties with single glazing.	Help identify new building level actions, aligned with the Heat in Buildings Strategy energy performance certificate targets.	Home Analytics 3.8
Fuel poverty probability: domestic	The probability of a property being in fuel poverty.	Help identify new building level actions, aligned with national fuel poverty targets.	Home Analytics 3.8
Extreme fuel poverty probability: domestic	The probability of a property being in extreme fuel poverty.	Help identify new building level actions, aligned with national fuel poverty targets.	Home Analytics 3.8
Average Energy Performance Certificate (EPC) band: domestic	The average energy performance certificate band in each data zone.	Help identify new building level actions, aligned with the Heat in Buildings Strategy energy performance certificate targets.	Home Analytics 3.8
Average Standard Assessment Procedure (SAP) rating: domestic	The average energy efficiency standard assessment procedure rating in each data zone.	Help identify new building level actions, aligned with the Heat in Buildings Strategy energy performance certificate targets.	Home Analytics 3.8
On-gas grid LHEES Category 0: domestic property count	The count of domestic properties that are classified as Category 0 On-gas.	Used to identify properties which already have zero/low carbon heat source to exclude from optioneering to identify new actions to decarbonise heat.	Home Analytics 3.8
On-gas grid LHEES Category 1: domestic property count	The count of domestic properties that are classified as Category 1 On-gas.	Help prioritise new building level actions for decarbonised heating in properties.	Home Analytics 3.8
On-gas grid LHEES Category 2: domestic property count	The count of domestic properties that are classified as Category 2 On-gas.	Help prioritise new building level actions for decarbonised heating in properties, which may also require some degree of retrofit.	Home Analytics 3.8
On-gas grid LHEES Category 3: domestic property count	The count of domestic properties that are classified as Category 3 On-gas.	Help identify properties which are not suitable for heat pumps but may be suitable for heat network connection and/or likely to require significant retrofit.	Home Analytics 3.8
Off-gas grid LHEES Category 0: domestic property count	The count of domestic properties that are classified as Category 0 Off-gas.	Used to identify properties which already have zero/low carbon heat source to exclude from optioneering to identify new actions to decarbonise heat.	Home Analytics 3.8

Layer Name	Description	Use	Layer Source
Off-gas grid LHEES Category 1: domestic property count	The count of total domestic properties that are classified as Category 1 Off-gas.	Help prioritise new building level actions for decarbonised heating in properties.	Home Analytics 3.8
Off-gas grid LHEES Category 2: domestic property count	The count of domestic properties that are classified as Category 2 Off-gas.	Help prioritise new building level actions for decarbonised heating in properties, which may also require some degree of retrofit.	Home Analytics 3.8
Off-gas grid LHEES Category 3: domestic property count	The count of domestic properties that are classified as Category 3 Off-gas.	Help identify properties which are not suitable for heat pumps but may be suitable for heat network connection and/or likely to require significant retrofit.	Home Analytics 3.8
Energy efficiency average score: domestic	The Mean Total Weighted Score for energy efficiency for domestic properties. Total Weighted Scores are calculated based on the selected Indicator percentages and the Weightings applied to create a score out of 100. The process to determine the Total Weighted Score draws on multiple data fields in the Home Analytics dataset (Version 3.8), these are wall insulation (uninsulated), loft insulation (as being 0-99mm) and glazing (single) and weights them equally to calculate the score.	Help prioritise new building level actions to improve energy efficiency.	Home Analytics 3.8
Energy efficiency as driver for fuel poverty average score: domestic	The Mean Total Weighted Score for energy efficiency as a driver of fuel poverty for domestic properties. Total Weighted Scores are calculated based on the selected Indicator percentages and the Weightings applied to create a score out of 100. The process to determine the Total Weighted Score draws on multiple data fields in the Home Analytics dataset (Version 3.8), these are probability of a property being in fuel poverty, wall insulation (uninsulated), loft insulation (as being 0-99mm) and glazing (single). It weights the fuel poverty indicator at 50% and then the energy efficiency ones equally (16.66% each) to calculate the score.	Help identify new building level actions, aligned with national fuel poverty targets, which can be improved by retrofitting the property.	Home Analytics 3.8
Energy efficiency as driver for extreme fuel poverty average score: domestic	The Mean Total Weighted Score for energy efficiency as a driver of extreme fuel poverty for domestic properties. Total Weighted Scores are calculated based on the selected Indicator percentages and the Weightings applied to create a score out of 100. The process to determine the Total Weighted Score draws on multiple data fields in the Home Analytics dataset (Version 3.8), these are probability of a property being in extreme fuel poverty, wall insulation (uninsulated), loft insulation (as being 0-99mm) and glazing (single). It weights the fuel poverty indicator at 50% and then the energy efficiency ones equally (16.66% each) to calculate the score.	Help identify new building level actions, aligned with national fuel poverty targets, which can be improved by retrofitting the property.	Home Analytics 3.8

Non-Domestic

All layers for the non-domestic baseline are aggregated to the data zone level.

Layer Name	Description	Use	Layer Source
Property count: non-domestic	The count of non-domestic properties.	Provide baseline figures by data zone of density of non-domestic properties.	Non-Domestic Analytics 1.1
Floor area 0-100m2: non-domestic property count	The count of non-domestic properties with a floor area[4] between 0 to 100m^2.	Help understand where smaller non-domestic buildings are located.	Non-Domestic Analytics 1.1
Floor area 100-500m2: non-domestic property count	The count of non-domestic properties with a floor area between 100 to 500m^2.	Help understand where mid-sized non-domestic buildings are located.	Non-Domestic Analytics 1.1
Floor area 500-1000m2: non-domestic property count	The count of non-domestic properties with a floor area between 500 to 1000m^2.	Help understand where mid-sized non-domestic buildings are located.	Non-Domestic Analytics 1.1
Floor area greater than 1000m2: non-domestic property count	The count of non-domestic properties with a floor area over 1000m2.	Help understand where large non-domestic buildings are located – which are likely to be large businesses/organisations where significant wins could be made.	Non-Domestic Analytics 1.1
Heat demand: non-domestic	The total annual heat demand from non-domestic properties.	Help understand where large users of heat in the non-domestic sector are located – and therefore help prioritise buildings/areas for heat decarbonisation and potential anchor loads for heat networks.	Non-Domestic Analytics 1.1; Scotland Heat Map; public sector partners
Electricity heat demand: non-domestic	The total annual heat demand from non-domestic properties heated by electricity.	Help understand where large users of heat in the non-domestic sector are located – and therefore help prioritise buildings/areas for heat decarbonisation and potential anchor loads for heat networks.	Non-Domestic Analytics 1.1
Mains gas heat demand: non-domestic	The total annual heat demand from non-domestic properties heated by mains gas.	Help understand where large users of heat in the non-domestic sector are located – and therefore help prioritise buildings/areas for heat decarbonisation and potential anchor loads for heat networks.	Non-Domestic Analytics 1.1

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[4] Floor area refers to the total useful floor area (m^2) of all enclosed spaces measured to the internal face of the external walls.

Layer Name	Description	Use	Layer Source
Oil heat demand: non-domestic	The total annual heat demand from non-domestic properties heated by oil.	Help understand where large users of heat in the non-domestic sector are located – and therefore help prioritise buildings/areas for heat decarbonisation and potential anchor loads for heat networks.	Non-Domestic Analytics 1.1

Strategic Zones

The strategic zoning layers will be used to help inform the optioneering exercise. This will identify new, scalable, and deliverable building level actions.

Layer Name	Description	Use	Layer Source
Primary substation demand headroom/On-gas grid LHEES category 2: social housing	Compares spare grid capacity and on-gas Category 2 social housing properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which need retrofitting to be suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/On-gas grid LHEES category 2: private housing	Compares spare grid capacity and on-gas Category 2 privately-owned properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which need retrofitting to be suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/On-gas grid LHEES category 1: social housing	Compares spare grid capacity and on-gas Category 1 social housing properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which are suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data

Layer Name	Description	Use	Layer Source
Primary substation demand headroom/On-gas grid LHEES category 1: private housing	Compares spare grid capacity and on-gas Category 1 private housing properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which are suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/Off-gas grid LHEES category 2: social housing	Compares spare grid capacity and off-gas Category 2 social housing properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which need retrofitting to be suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/Off-gas grid LHEES category 2: private housing	Compares spare grid capacity and off-gas Category 2 privately-owned properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which need retrofitting to be suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/Off-gas grid LHEES category 1: social housing	Compares spare grid capacity and off-gas Category 1 social housing properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which are suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data
Primary substation demand headroom/Off-gas grid LHEES category 1: private housing	Compares spare grid capacity and off-gas Category 1 privately owned properties, aggregated to primary substation service area level.	Helps gain an initial understanding of where buildings which are suitable for a heat pump are located compared to available substation capacity. It should be noted, further engagement would be required with SP Energy Networks to further understand grid capacity at the more granular level.	Home Analytics 3.8; SPEN Open Data

Layer Name	Description	Use	Layer Source
Average energy savings/Average poor energy efficiency score: social housing	Compares the total weighted energy efficiency score and energy savings (under the PEAT Regulatory Standards scenario) for social housing, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could both improve the energy efficiency score and where the highest energy savings could be made.	Portfolio Energy Analysis Tool
Average energy savings/Average poor energy efficiency score: private housing	Compares the weighted energy efficiency score and energy savings (under the PEAT Regulatory Standards scenario) for privately-owned properties, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could both improve the energy efficiency score and where the highest energy savings could be made.	Portfolio Energy Analysis Tool
Total cost of interventions/average poor energy efficiency score: social housing	Compares the total weighted energy efficiency score and the total cost of interventions (under the PEAT Regulatory Standards scenario) for social housing, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could both improve the energy efficiency score for the lowest cost.	Portfolio Energy Analysis Tool
Total cost of interventions/average poor energy efficiency score: private housing	Compares the total weighted energy efficiency score and the total cost of interventions (under the PEAT Regulatory Standards scenario) for privately-owned domestic properties, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could both improve the energy efficiency score for the lowest cost.	Portfolio Energy Analysis Tool
Total cost of interventions/average energy savings: social housing	Compares energy savings (under the PEAT Regulatory Standards scenario) and total cost of intervention (under the PEAT Regulatory Standards scenario) for social housing, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could have the greatest impact on energy savings for the lowest cost.	Portfolio Energy Analysis Tool
Total cost of interventions/average energy savings: private housing	Compares energy savings (under the PEAT Regulatory Standards scenario) and total cost of intervention (under the PEAT Regulatory Standards scenario) for privately-owned domestic properties, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could have the greatest impact on energy savings for the lowest cost.	Portfolio Energy Analysis Tool
Total cost of interventions/average carbon savings: social housing	Compares carbon savings (under the PEAT Regulatory Standards scenario) and total cost of intervention (under the PEAT Regulatory Standards scenario) for social housing, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could have the greatest impact on carbon savings for the lowest cost.	Portfolio Energy Analysis Tool
Total cost of interventions/average carbon savings: private housing	Compares carbon savings (under the PEAT Regulatory Standards scenario) and total cost of intervention (under the PEAT Regulatory Standards scenario) for privately owned domestic housing, aggregated to a data zone level.	Help identify where buildings level actions could be delivered which could have the greatest impact on carbon savings for the lowest cost.	Portfolio Energy Analysis Tool

Potential Heat Network Zones

Layer Name	Description	Use	Layer Source
Potential heat network zones (baseline criteria)	Identified potential heat network zones using the baseline criteria: • Linear heat density benchmark = 4,000 kWh/year/m • Anchor load threshold = 500 MWh/year • Minimum number of anchor loads per cluster = 3	Provide an understanding of where potential heat network zones may be suitable, dependent on further analysis.	Scotland Heat Map; public sector partners (heat demand)
Potential heat network zones (stringent criteria)	Identified potential heat network zones using the stringent criteria: • Linear heat density benchmark = 8,000 kWh/year/m • Anchor load threshold = 500 MWh/year Minimum number of anchor loads per cluster = 5	Provide an understanding of where potential heat network zones may be suitable, dependent on further analysis.	Scotland Heat Map; public sector partners (heat demand)
Anchor loads (heat demand kWh Year)	The location of anchor loads categorised by heat demand (kWh/year). *Please note, Woodmill High School in Dunfermline is currently an anchor load within a heat network (baseline criteria). Due to the school closing this potentially will make the heat network zone smaller than is currently displayed.*	Help understand the location of anchor loads to inform where potential heat network zones may be suitable.	Scotland Heat Map; public sector partners (heat demand)
Settlement boundaries	An outline of all 2020 settlement boundaries in Fife.	Provides context to location of heat network opportunities.	National Records of Scotland

We are in the process of adding additional layers to this public facing map, such as:

• Other heat demands.
• Where potential heat supply might be available.
• Other key factors such as conservation areas, local development plan sites.