



Fife Fuel Poverty Composite Index Focus on Cowdenbeath Area

Contact: sian.rennie@fife.gov.uk

Version: 1.1

Date: 31/01/2025

This briefing sets out the findings for Cowdenbeath Area from the Fife Fuel Poverty Composite Index 2024. It identifies the neighbourhoods with highest risk of fuel poverty based on the Overall index, and for Demand and Ability to Pay sub-indices.

Fuel Poverty

Fuel poverty relates to households that must spend a higher proportion of their household income to keep their house warm at a reasonable temperature. It is affected by three factors:

- 1) household income,
- 2) an increase in household fuel costs,
- 3) a household's energy use.

About the Index

The Research Team have developed a Fife Fuel Poverty Composite Index (CI). This is to answer the question:

'Where are neighbourhoods in Fife with increased risk of experiencing fuel poverty?'

Indices provide an interpretable metric for subjects that are difficult to measure, such as social vulnerability or risk. A commonly used composite index is the Scottish Index of Multiple Deprivation (SIMD) which ranks all datazones (DZ) in Scotland from most to least deprived.

The Fife Fuel Poverty Composite Index provides a more accurate measure of fuel poverty risk to enable services to target fuel poverty need more effectively. It takes account of both demand for fuel, and ability to pay for fuel, to assess the risk of fuel poverty in a neighbourhood.

The Fuel Poverty Composite Index ranks all datazones in Fife from 1 to 494 (where 1 is highest fuel poverty risk and 494 is lowest fuel poverty risk). Please note that like the SIMD, this is a relative index and does not show by how much more or less an area is at risk of fuel poverty.

Each rank corresponds to one of ten deciles (10% bands) which are used in the outputs of the research - such as the maps in this briefing - to show relative fuel poverty risk. The 20% highest fuel poverty risk is represented by decile 1 (rank 1 – 50) and decile 2 (rank 51 - 100), while the 20% lowest risk is represented by decile 9 (rank 396 – 445) and decile 10 (rank 446 to 494).

How to use the Index

The Fife Fuel Poverty Composite Index provides a more accurate measure of fuel poverty risk to enable services to target fuel poverty need more effectively.

Examples of how this approach can be used to improve targeting of support include:

- Proactively reach people in need, with a focus on prevention rather than responding to crisis. Engaging with communities within highlighted increased risk areas to provide energy advice to help residents stay warm, save energy and provide income maximisation advice regarding available grants and support channels.
- Tailoring local support. If areas are highlighted with increased risk that are not expected by services, the index can be used to understand what specific drivers are leading to fuel poverty risk in these neighbourhoods, and incorporate them into local support and future risk methodologies.
- Comparison between the risk areas identified through the Composite Index / sub-indices and by those highlighted by energy efficiency approaches, for example non-traditional properties that are harder to heat. This may provide clarity on areas that have increased risk and require support.
- Making it easier to access fuel poverty support through a no wrong door approach. Sharing results and insight with those leading on other poverty work in Fife, to inform them of areas for fuel poverty focus to enable them to reflect on their support priorities.
- Improve accessibility to warm welcome locations in Fife for areas identified with increased risk of fuel poverty.

Methodology

Geographic Information System (GIS) was used to integrate, weight and visualise indicators to show areas of low to high fuel poverty risk.

The Composite Index is divided into two domains:

- 1) Demand for fuel
- 2) Ability to pay for fuel

Demand is further divided into i) property and ii) people sub-indices representing the heating requirements of the building and increased heating requirements from specific demographics. Variables have been attributed to sub-indices to reduce the impact of correlation, as correlation among selected variables may lead to unintentional weighting.

The ability to pay sub-index includes household characteristics that have been associated with increased risk of fuel poverty. The results from the domains were combined to create an overall index, which is the average of the sub-indices.

In the absence of household level data primarily provided by surveys, the composite index approach outlined provides a method to replace income-based approaches, and compliment other methods of identifying fuel poverty risk including energy efficiency focused approaches.

The methodology outlined is in development, as can be further refined with the inclusion of relevant and robust fuel poverty risk indicators, indicator weighting updates and changes to home energy efficiency calculation.

Note: this approach is identifying risk on an aggregate scale, at datazone geography, and although this geography represents natural neighbourhoods, it will mask local and household variation.

Composite Index

A composite fuel poverty index was developed to capture the multidimensional nature of fuel poverty, taking account of both demand for fuel and the ability to pay for fuel.

The overall index (average of the sub-indices) has been created by combining results from the Demand and Ability to Pay sub-indices.

Areas of highest fuel poverty risk (decile 1) on the overall index include:

- Ballingry East (rank 3)
- Kelty West (rank 6),
- Ballingry Central (rank 8),
- Crosshill and Lochore South (rank 13),
- Kelty South West (rank 15),
- Cowdenbeath South East (rank 19),
- Ballingry West (rank 20),
- Ballingry South (rank 21),
- Cardenden West (rank 24),
- Lochore North (rank 25),
- Cardenden East (rank 28),
- Bowhill West (rank 43),
- Hill of Beath (rank 45), and
- Lochgelly North (rank 48).

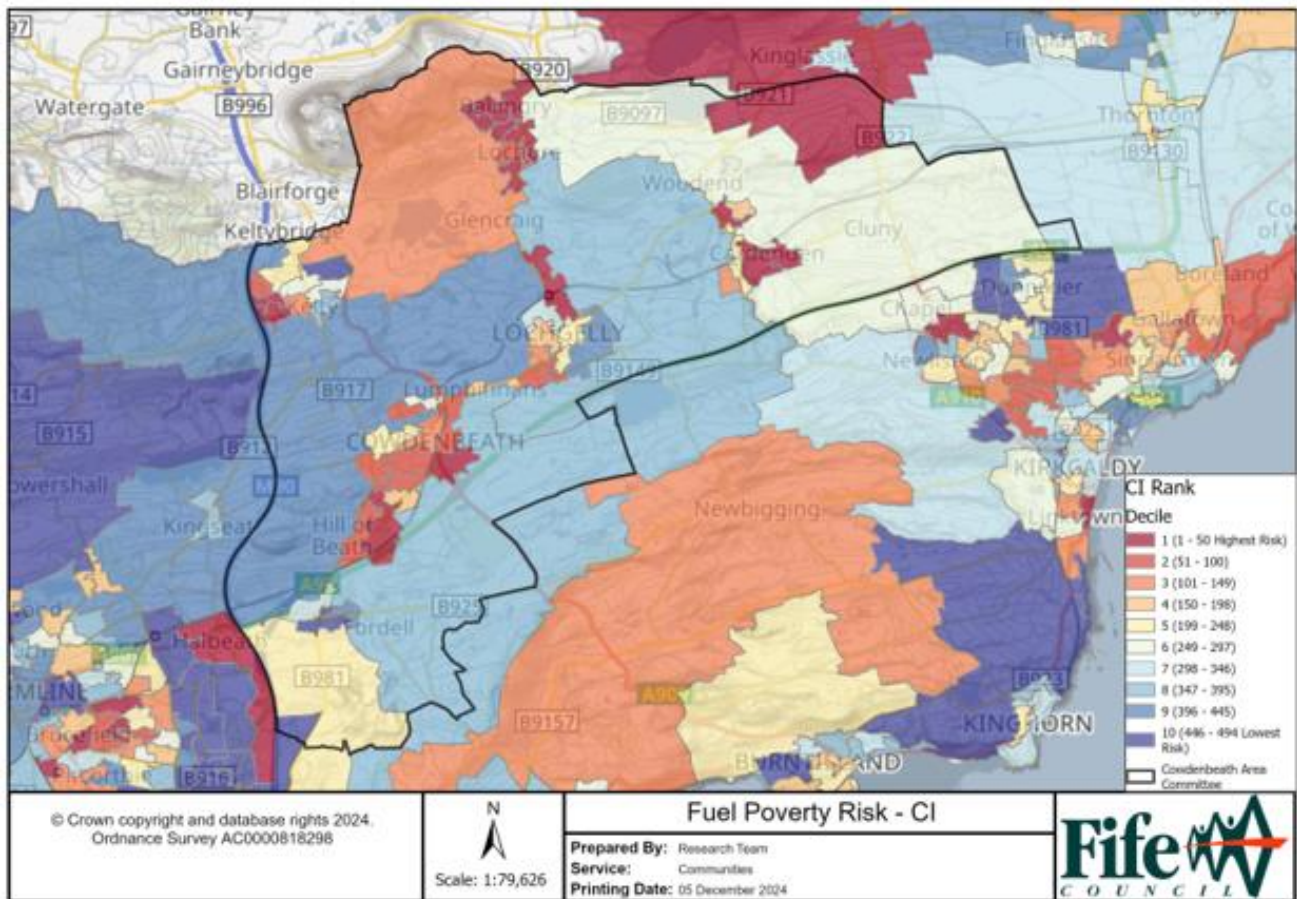


Figure 1 – Map showing deciles from highest to lowest fuel poverty risk on the Overall Composite Index (Fife Fuel Poverty Composite Index, 2024)

Ballingry East and Kelty West datazones are within the highest risk (decile 1) for both the demand and ability to pay sub-indices. Ballingry, Cowdenbeath and Cardenden present generally higher level of fuel poverty risk, with increased risk variation within datazones shown in Kelty and Lochgelly. Further datazone risk breakdown is provided in Appendix 1.

Demand

The Demand sub-index considers the risk of fuel poverty associated with demand for fuel.

Demand is derived from averaging sub-indices for

- Property, representing the heating requirements of the building, and
- People, increased heating requirements from specific demographics.

Highest demand risk (decile 1) primarily within accessible small towns in the Cowdenbeath Area.

Areas with highest fuel poverty risk (decile 1) on the Demand sub-index include:

- Ballingry East (rank 1),
- Ballingry Central (rank 3),
- Kelty West (rank 10),
- Cowdenbeath Foulford (rank 14),
- Cardenden West (rank 22),
- Crosshill and Lochore South (rank 25),
- Lochore North (rank 26), and
- Kelty South West (rank 34)

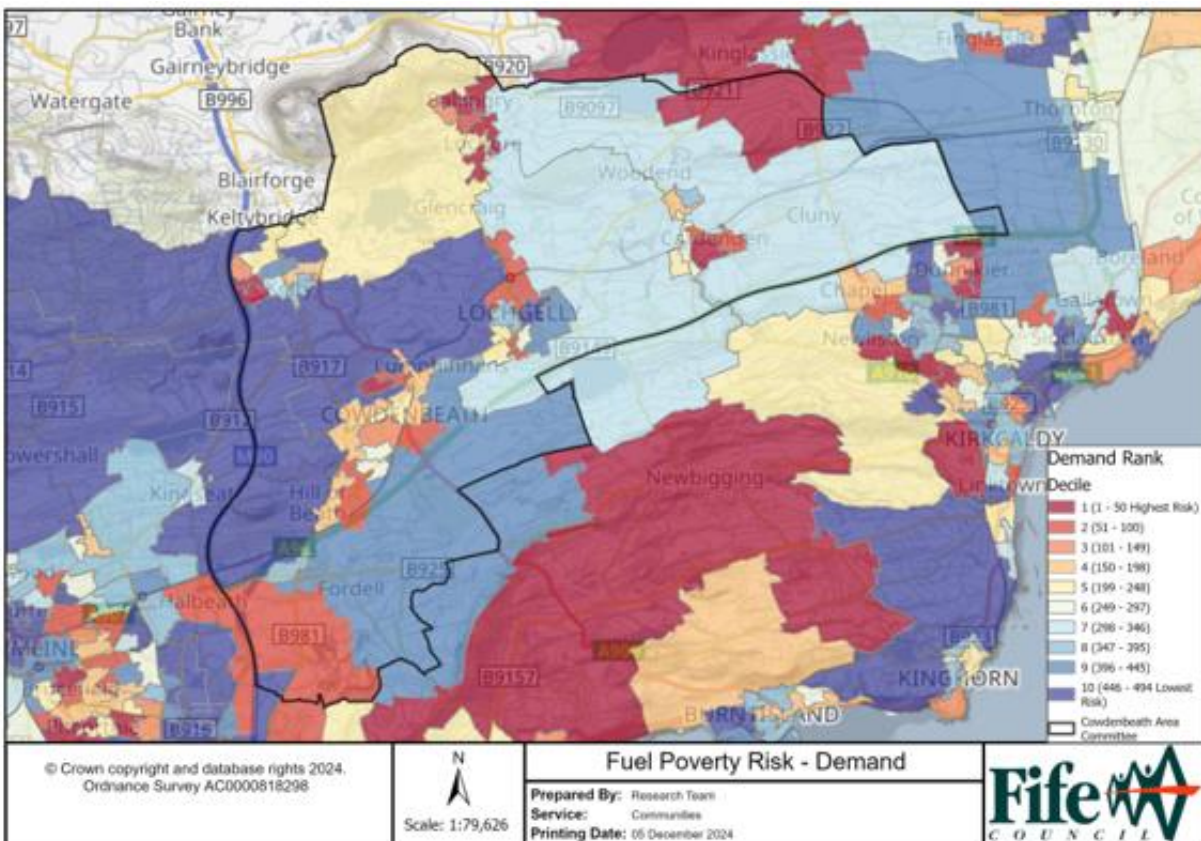


Figure 2 – Map showing deciles from highest to lowest fuel poverty risk on the Demand sub-index (Fife Fuel Poverty Composite Index, 2024)

Ballingry East, Ballingry Central, Kelty West and Cowdenbeath Foulford indicating increased building demand risk (deciles 1&2) due to increased percentage of properties with EPC below C and median fuel bill estimates. Ballingry East and Ballingry Central are ranked higher due to rurality and are the only datazones in the highest group (decile 1) for both property and people sub-indices in the Cowdenbeath area. Areas indicating above average percentage households with 4+ occupants, and the highest contributions for chronic disability include Ballingry datazones, Kelty West, Cowdenbeath South, Hill of Beath and Cardenden West.

Ability to Pay

The Ability to pay sub-index, takes account of household income and ability to pay for fuel.

Areas with highest fuel poverty risk (decile 1) on the Ability to pay sub-index include:

- Lumphinnans (rank 1),
- Kelty Central (rank 20),
- Lochgelly East (rank 21),
- Lochore Central (rank 25),
- Ballingry West (rank 28),
- Bowhill East (rank 38),
- Cowdenbeath South (rank 40),
- Ballingry East (rank 46),
- Kelty West (rank 47), and
- Cowdenbeath South East (rank 48)

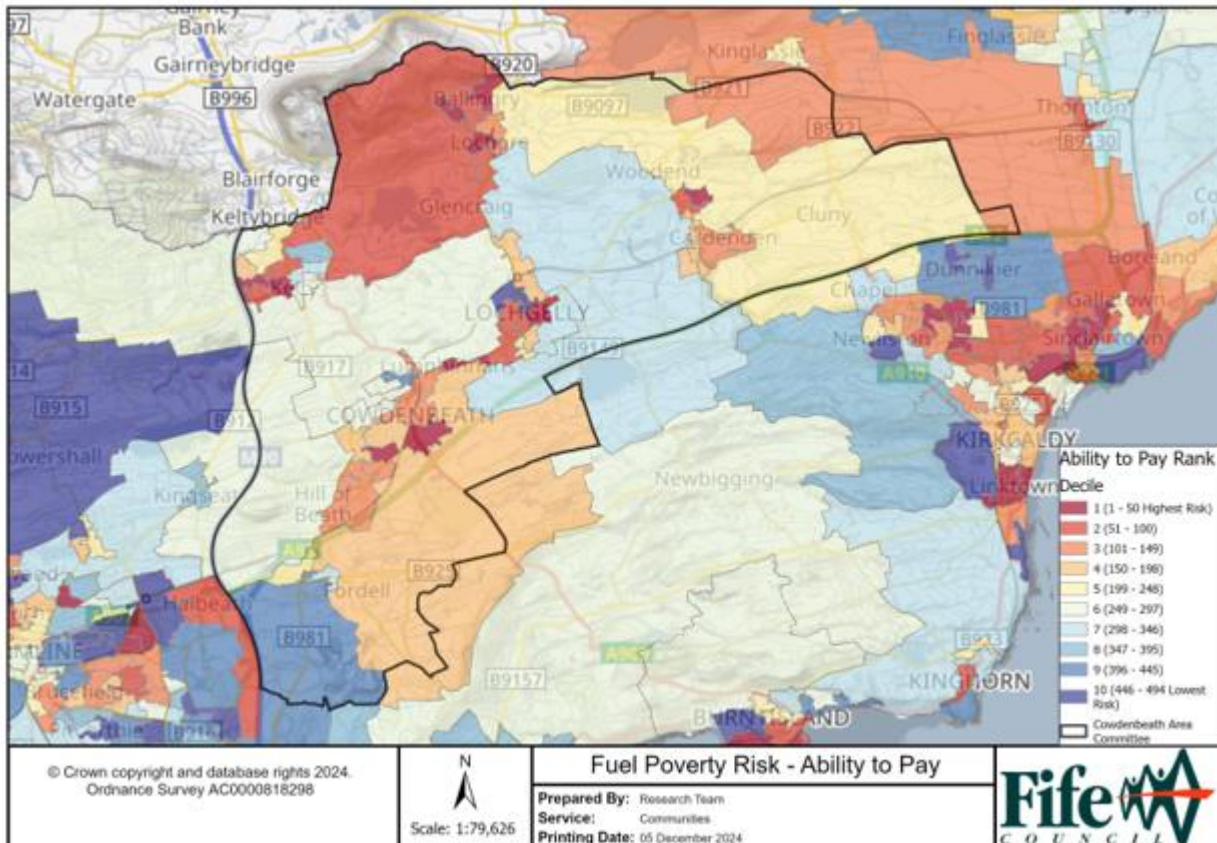


Figure 3 – Map showing deciles from highest to lowest fuel poverty risk on the Ability to Pay sub-index (Fife Fuel Poverty Composite Index, 2024)

Highest risk areas for the ability to pay sub-index a mix of accessible small towns and urban areas.

Average median income within Cowdenbeath Area is the second lowest, following the Levenmouth area. Datazones with 2 times the Fife average of percentage universal credit claimants and 2 times guarantee pension credit include Lumphinnans, Ballingry West, Ballingry Central and Lochore Central. Cowdenbeath Area has the highest average percentage of lone parents with dependent children and percentage social housing. The lowest average private rented properties within the Cowdenbeath area, with private properties weighted as a higher fuel poverty risk than social housing due to increased support channels and reduced rent. Pockets of low ability to pay risk (deciles 9&10) within Crossgates Knowe and Annfield areas, Lochgelly St Patricks and The Beeches and Cowdenbeath Glenfield.

Patterns of Fuel Poverty Risk

There are 54 datazones that make up the Cowdenbeath Area. The chart below shows how these datazones are distributed across deciles 1 to 10 for each of the Composite Index and Demand and Ability to Pay sub-indices.

In the Cowdenbeath Area, demand for fuel poverty support appears to be driven by both the ability to pay and demand for fuel.

On the overall index, 24 of the 54 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while only 6 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the demand sub-index, 17 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 9 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the ability to pay sub-index, 20 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 4 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

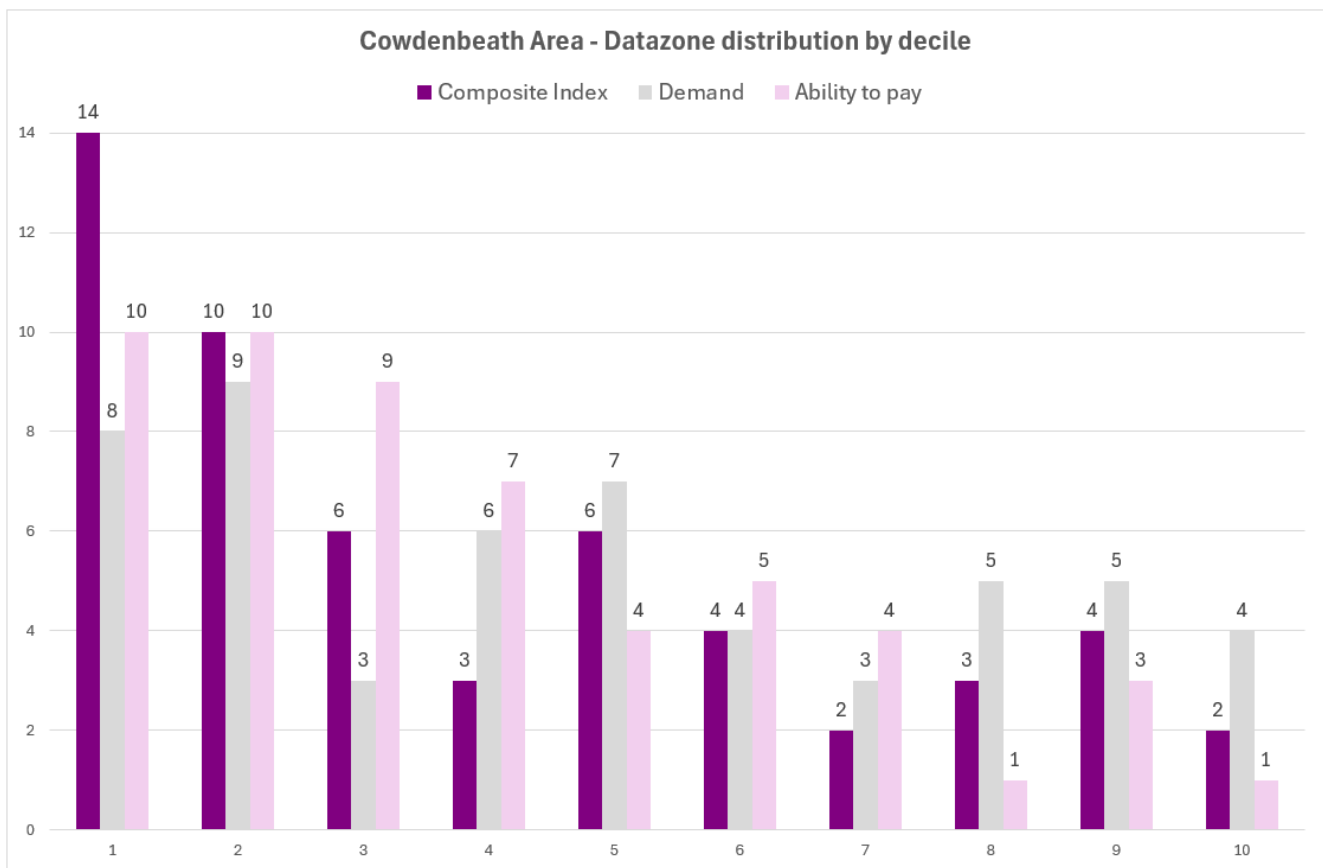


Figure 4 – Distribution of datazones by deciles 1-10 for Overall Index, and Demand and Ability to Pay sub-indices (Fife Fuel Poverty Composite Index, 2024)

Local Share

If the risk of fuel poverty was distributed equally across each of the Areas of Fife, then each Area would have 20% of its datazones in the 20% highest fuel poverty risk for Fife.

The chart below shows that Cowdenbeath and Glenrothes Areas have a higher local share of Fife's highest risk datazones on the overall index. While Levenmouth is just below what would be expected for Fife as a whole, Kirkcaldy, Dunfermline, North East Fife and South West Fife Areas have lower local share of fuel poverty risk on the overall index.

North East Fife has a higher local share of fuel poverty risk based on Demand, but this like Glenrothes Area is in line with what might have been expected. Cowdenbeath, Dunfermline, Kirkcaldy and South West Fife Areas have a lower local share of fuel poverty risk in terms of demand for fuel.

By contrast, the Kirkcaldy and Levenmouth Areas have a higher local share of the ability to pay sub-index, while Cowdenbeath Area mirrors Fife, and Glenrothes, Dunfermline, South West Fife and North East Fife Areas have a lower share of fuel poverty risk in terms of ability to pay.

In terms of local share of neighbourhoods with the highest risk of fuel poverty, Cowdenbeath Area has 24% of Fife's 20% highest risk datazones on the overall index, 16.8% of highest risk for Demand sub-index, and 20% of the Ability to Pay sub-index.

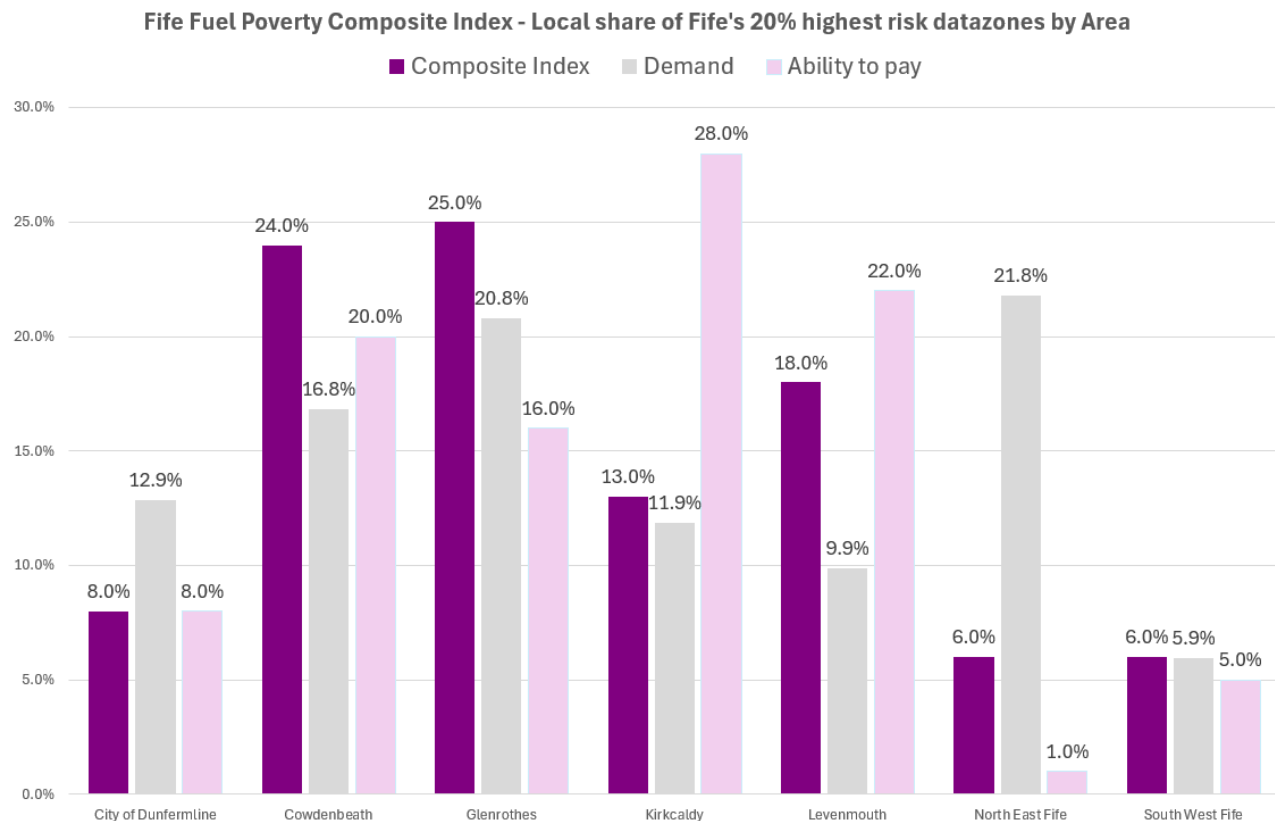


Figure 5 – Local share of Fife's 20% highest risk datazones by Area (Fife Fuel Poverty Composite Index, 2024)

Appendix 1

Table 1 – Relative ranking of datazones for fuel poverty risk in Fife for Overall Index and Demand and Ability to pay sub-indices (Fife Fuel Poverty Composite Index, 2024)

Note 1 is highest risk, 494 is lowest risk. Shaded areas show where a datazone is in 20% highest risk in Fife.

DZ code	Datazone Name	Overall	Demand	Ability to Pay
S01009432	Ballingry East	3	1	46
S01009420	Kelty West	6	10	47
S01009433	Ballingry Central	8	3	56
S01009430	Crosshill and Lochore South	13	25	79
S01009421	Kelty South West	15	34	89
S01009489	Cowdenbeath South East	19	94	48
S01009435	Ballingry West	20	119	28
S01009434	Ballingry South	21	85	64
S01009439	Cardenden West	24	22	130
S01009428	Lochore North	25	26	135
S01009438	Cardenden East	28	66	109
S01009440	Bowhill West	43	158	66
S01009411	Hill of Beath	45	87	143
S01009445	Lochgelly North	48	61	184
S01009451	Lochgelly South West	51	199	57
S01009419	Kelty Elmwood	52	102	155
S01009429	Lochore Central	54	235	25
S01009410	Beath Woodend	64	169	109
S01009491	Cowdenbeath Central	74	115	173
S01009418	Cowdenbeath North East	78	189	103
S01009414	Cowdenbeath Foulford	86	14	284
S01009492	Cowdenbeath South West	93	158	149
S01009449	Lochgelly Central and Western	94	97	211
S01009490	Cowdenbeath South	96	272	40
S01009431	Glencraig Landward	101	232	87
S01009415	Cowdenbeath North	101	218	101
S01009452	Lochgelly West and Lumphinnans Central	104	242	81
S01009426	Kelty Central	120	333	20
S01009436	Dundonald	133	211	156
S01009450	Lumphinnans	149	386	1
S01009412	Beath South West	158	276	119
S01009441	Bowhill East	168	367	38
S01009453	Lochgelly West	184	353	71
S01009437	Bowhill and Dundonald	199	266	178
S01009447	Lochgelly Central and Eastern	201	287	162
S01009422	Kelty Blairadam Park	213	241	218
S01009413	Cowdenbeath North West	220	189	279
S01009446	Lochgelly East	234	455	21

S01009405	Crossgates South Knowe and Annfield	234	53	423
S01009424	Kelty East	254	154	338
S01009427	Kelty North East	284	420	98
S01009443	Auchterderran Landward and Cluny	287	312	209
S01009416	Cowdenbeath Glenfield	292	87	442
S01009444	Lochgelly St Patricks and The Beeches	299	77	459
S01009406	Crossgates North	325	357	210
S01009456	Mossbank and Donibristle	354	414	193
S01009425	Kelty Oakfield	363	353	265
S01009442	Jamphlars and Lochgelly Landward	383	345	299
S01009407	Crossgates North East	414	399	303
S01009409	Hill of Beath and Landward	422	461	254
S01009417	Leuchatsbeath	432	457	273
S01009448	Lochgelly Albion Park and New Farm Vale	442	440	323
S01009423	Kelty Seafar	465	447	390
S01009408	Crossgates North Knowe	467	439	412

Explore the data

All outputs

Signposting to the package of research outputs relating to Fife Fuel Poverty Composite Index, including local fuel poverty briefings for each of the seven areas:

<https://know.fife.scot/research-and-knowledge/topics/poverty-and-deprivation>

Interactive mapping application

The composite index, demand and ability to pay sub-indices - including the indicators which have been used to create the index - can be explored further through an interactive mapping application:

<https://experience.arcgis.com/experience/c1d8c505cf1d438a970c943c72996a3b/>

Spreadsheet

Download a spreadsheet - with the underlying data used to construct the index - to explore both domain and indicator results from the Fuel Poverty Composite Index:

https://know.fife.scot/_data/assets/excel_doc/0037/649873/FPCI_Results_2024.xlsx

Technical note

A technical paper setting out the methodology used to develop and refine the Fife Fuel Poverty Composite Index is available from the KnowFife Hub:

[Fuel-Poverty-Composite-Index-2024-Methodology.pdf](#)