



Fife Fuel Poverty Composite Index

Focus on Glenrothes Area

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This briefing sets out the findings for Glenrothes 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:

- Macedonia North (rank 1),
- Collydean South (rank 2),
- Tanshall East (rank 4),
- Macedonia East (rank 5),
- Cadham (rank 6),
- Tanshall Central (rank 10),
- Macedonia West (rank 12),
- Tanshall West (rank 16),
- Kinglassie West (rank 21),
- Auchmuty East (rank 23),
- Ribleton West (rank 26),
- Cadham South (rank 30),
- Pitteuchar Central (rank 33),
- Viewfield North & Ribleton South (rank 34),
- Collydean West (rank 35),
- Woodside North (rank 44).

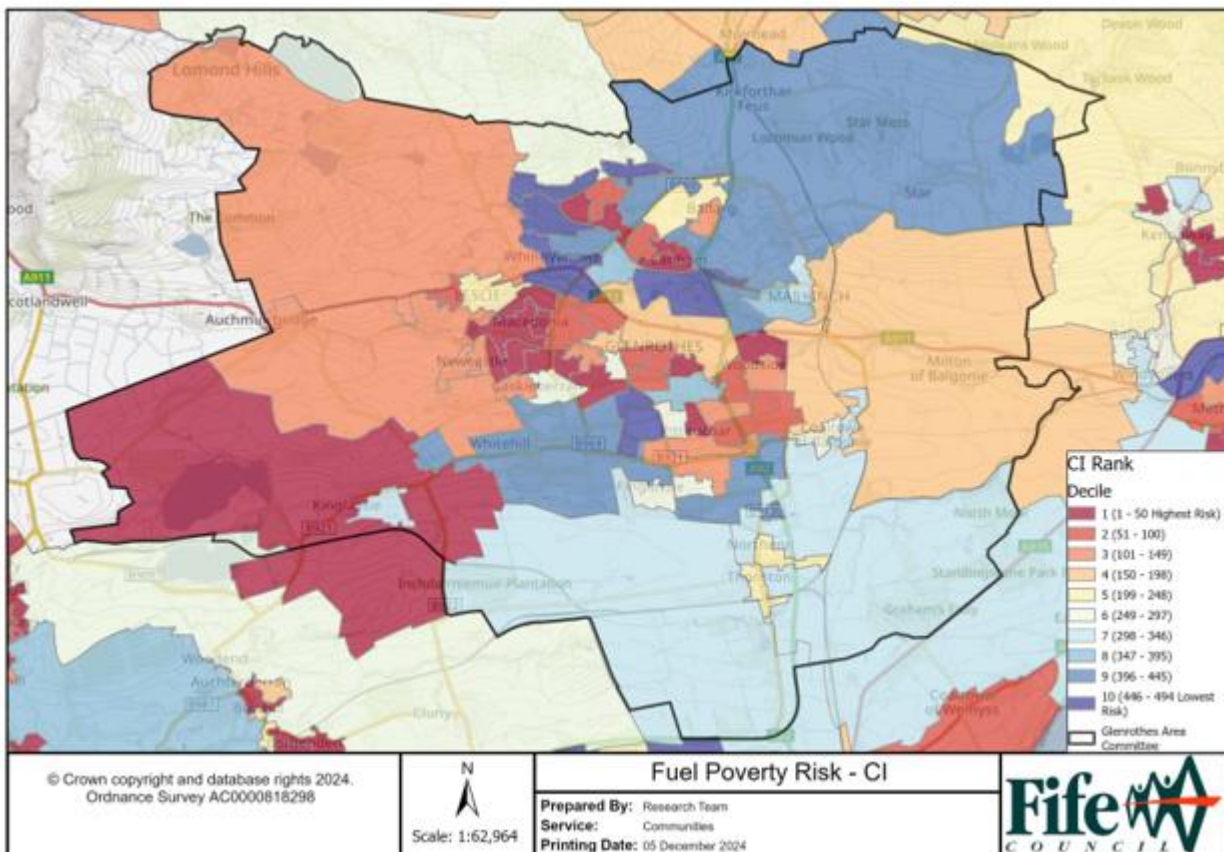


Figure 1 – Map showing deciles from highest to lowest fuel poverty risk on the Overall Composite Index (Fife Fuel Poverty Composite Index, 2024)

Glenrothes Area details the highest number of datazones within the highest composite index risk group (decile 1) at 16 datazones. Variation in risk is highlighted within the Glenrothes area, with high risk data zones in close proximity to low risk, reflecting Glenrothes' distinctive neighbourhoods.

4 datazones within the highest risk group for both Demand and ability to pay sub-indices including Macedonia North, Collydean South, Tanshall East and Macedonia East. Further datazone 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.

The Demand sub-index highlights areas on the periphery of the town and more rural areas,

- Macedonia North (rank 5),
- Collydean South (rank 12),
- Coaltown of Balgonie West (rank 18),
- Woodside North (rank 21),
- Rimbleton West (rank 29),
- South Parks North (rank 36),
- Macedonia East (rank 38),
- Cadham South (rank 40),
- Macedonia West (rank 41),
- Tanshall East (rank 45), and
- Kinglassie West (rank 49)

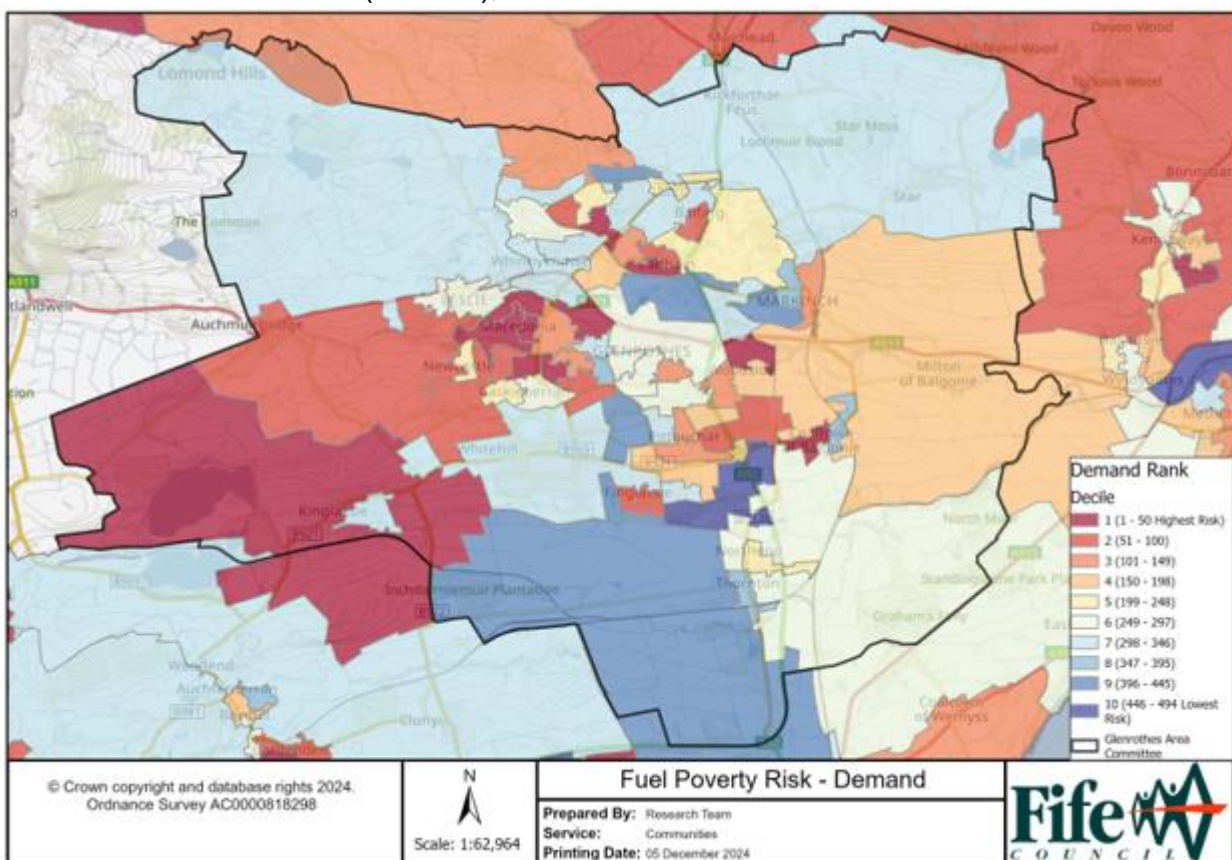


Figure 2 – Map showing deciles from highest to lowest fuel poverty risk on the Demand sub-index (Fife Fuel Poverty Composite Index, 2024)

The Macedonia area indicates the highest percentage of properties with EPC below C in Fife, following the rural Kilmany Rathillet and Logie datazone in North East Fife. Glenrothes details the third highest average estimated fuel bill, following North East Fife and South West Fife Areas. 28% of highest risk datazones (Decile 1) for the people sub-index were within the Glenrothes Area. Areas of increased 65+ population and chronic disability contributions include Balfarg, Stenton North, Pitteuchar South, Leslie Landward, Woodside North, Woodside West, South Parks West and South Parks East. Increased 4+ occupants and chronic disability contributions within Collydean North, Collydean South, Auchmuty East, Macedonia data zones, Leslie West, Rimbleton West and Tanshall Central.

Ability to Pay

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

The Ability to pay sub-index in Glenrothes highlights areas of increased risk on the outskirts, and pockets within central Glenrothes.

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

- Tanshall East (rank 4),
- Cadham (rank 5),
- Auchmuty West (rank 8),
- Auchmuty North West (rank 11),
- Macedonia East (rank 16),
- Macedonia North (rank 19),
- Auchmuty East (rank 23),
- Tanshall Central (rank 24),
- Collydean South (rank 27), and
- Leslie West (rank 32),

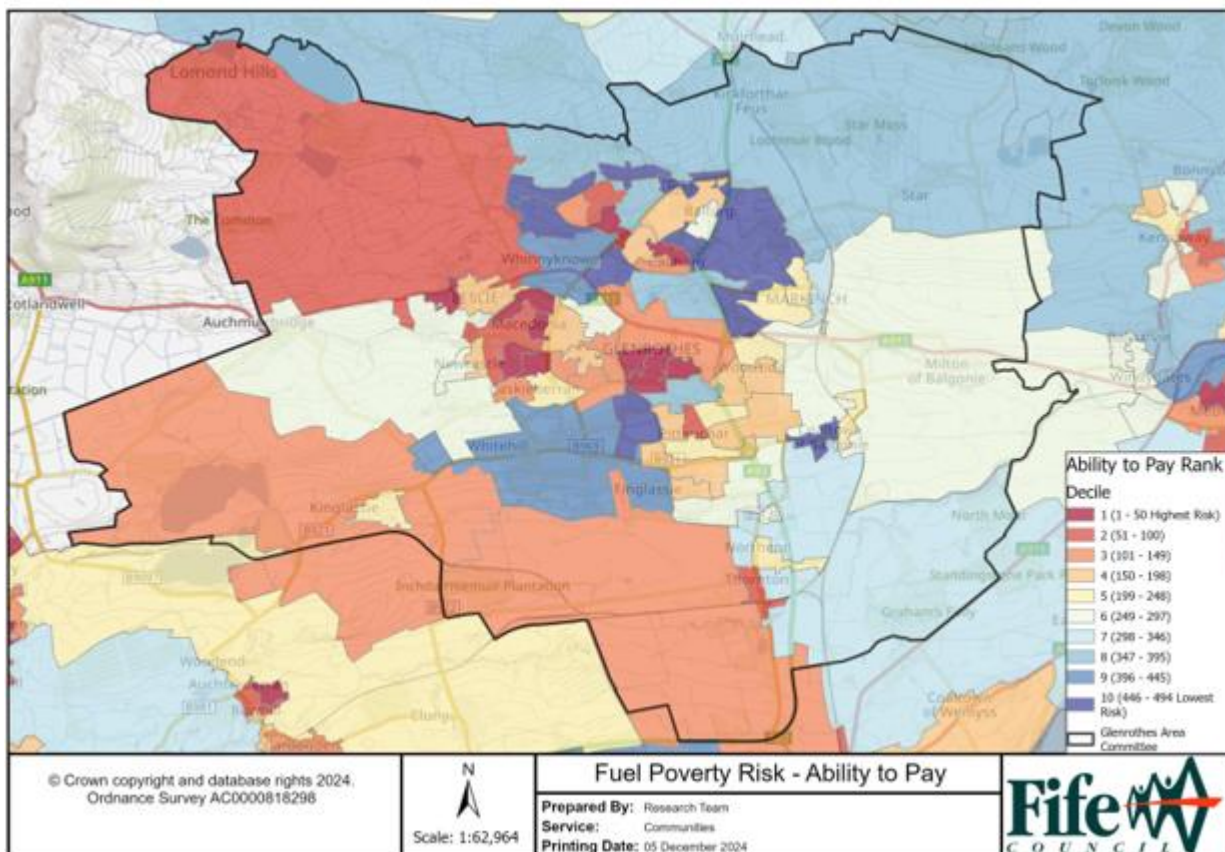


Figure 3 – Map showing deciles from highest to lowest fuel poverty risk on the Ability to Pay sub-index (Fife Fuel Poverty Composite Index, 2024)

Reduced median income and increased average universal credit claimants, percentage lone parents with dependent children, and social housing rented within the Glenrothes area, compared to the Fife average. This mirrors this area having increased deprivation, as shown by the Scottish Index of Multiple Deprivation (SIMD 2020).

Although areas such as Macedonia, Tanshall, Collydean South and Cadham indicate a heightened risk for both demand and ability to pay. Thornton South, Leslie Landward, Auchmuty North West, Auchmuty West and Leslie West show a significant contrast from lower demand risk to higher ability to pay risk. 2 times the Fife average for universal credit claimants is detailed within Auchmuty West, Tanshall East, Tanshall Central and Leslie West, with these areas also indicating lower median income.

Patterns of Fuel Poverty Risk

There are 70 datazones that make up the Glenrothes 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 Glenrothes Area, demand for fuel poverty support appears to be driven by both ability to pay and demand for fuel.

On the overall index, 25 of the 70 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 13 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the demand sub-index, 21 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 6 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the ability to pay sub-index, 16 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 12 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

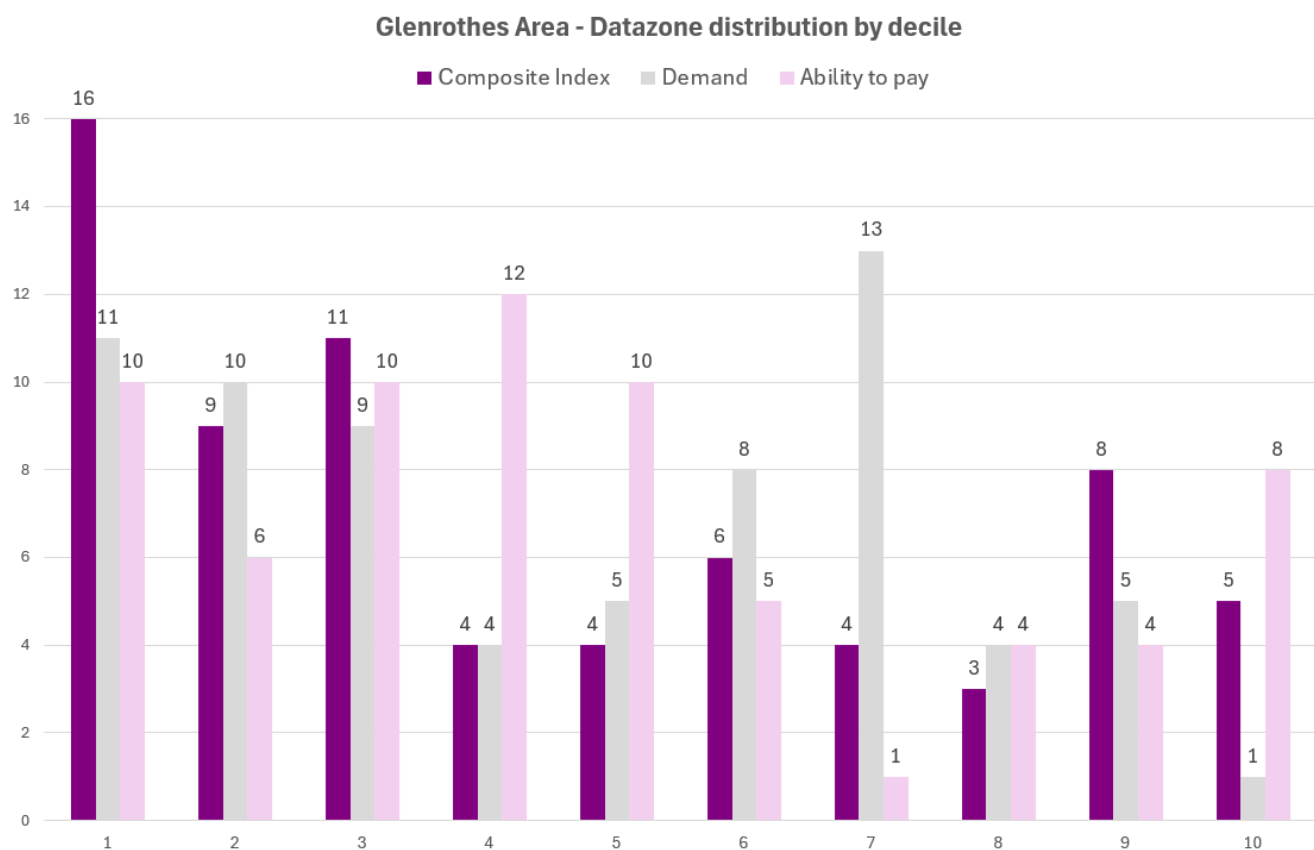


Figure 4 – Distribution of datazones by deciles 1-10 for Overall Index, and Demand and Ability to Pay sub-indices (Fife Fuel Poverty Composite Index, 2024)

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, Glenrothes Area has 25% of Fife's 20% highest risk datazones on the overall index, 20.8% of highest risk for Demand sub-index, and 16% of the Ability to Pay sub-index.

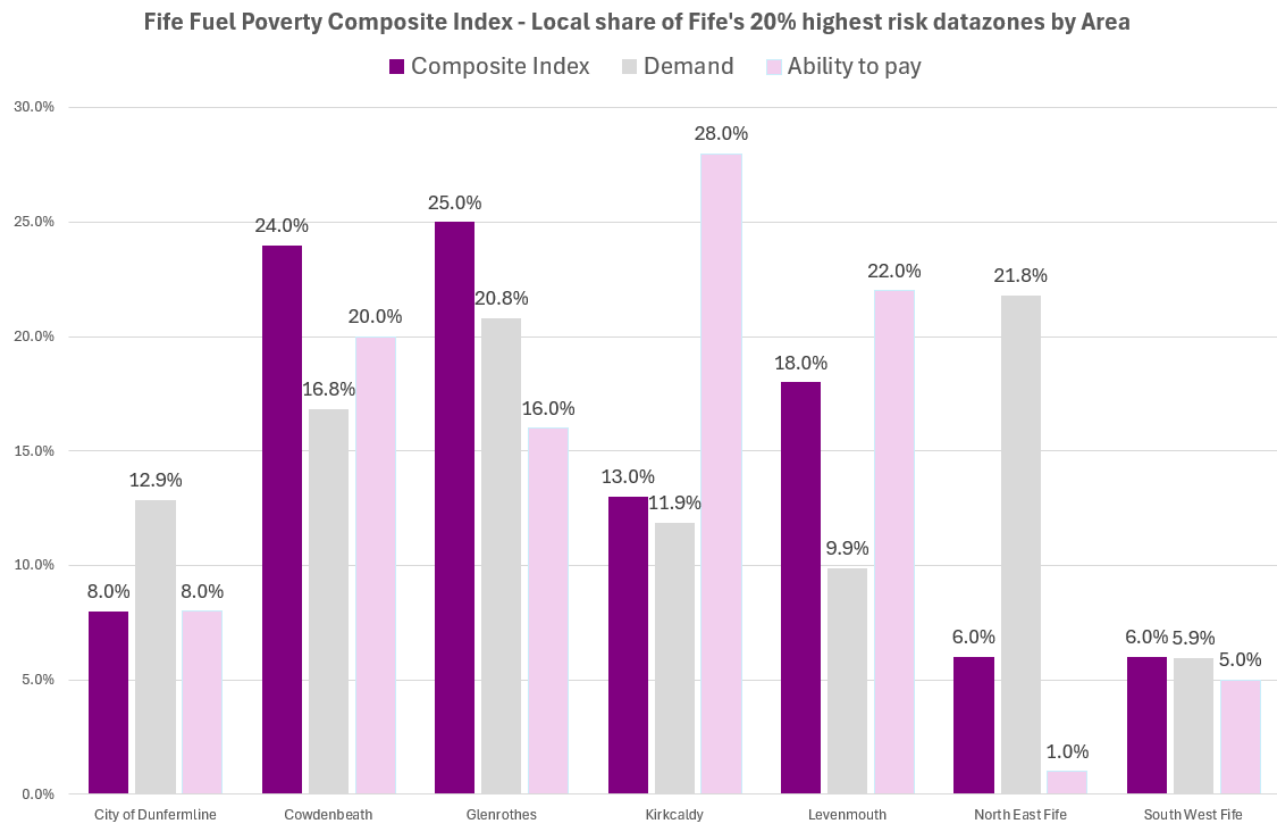


Figure 5 – Local share of Fife's 20% highest risk datazones by Area (Fife Fuel Poverty Composite Index, 2024)

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
S01009557	Macedonia North	1	5	19
S01009597	Collydean South	2	12	27
S01009561	Tanshall East	4	49	4
S01009558	Macedonia East	5	38	16
S01009600	Cadham	6	52	5
S01009560	Tanshall Central	10	58	24
S01009559	Macedonia West	12	41	51
S01009556	Tanshall West	16	61	63
S01009545	Kinglassie West	21	45	104
S01009573	Auchmuty East	23	128	23
S01009568	Rimbleton West	26	29	137
S01009601	Cadham South	30	40	141
S01009583	Pitteuchar Central	33	131	69
S01009565	Viewfield North and Rimbleton South	34	78	123
S01009596	Collydean West	35	85	117
S01009588	Woodside North	44	21	204
S01009562	South Parks West	53	107	152
S01009581	Pitteuchar South East	56	74	188
S01009571	Auchmuty North West	60	259	11
S01009599	Pitcoudie	61	122	150
S01009598	Collydean North	62	199	75
S01009572	Auchmuty West	70	276	8
S01009587	Woodside West	78	118	174
S01009553	Leslie West	83	263	32
S01009564	South Parks North	85	36	261
S01009569	Rimbleton North	106	143	182
S01009589	Woodside South	109	149	185
S01009604	Balfarg South	113	94	248
S01009552	Leslie South West and Auchmuir	119	98	253
S01009586	Pitteuchar South	124	145	212
S01009567	Caskieberran West	127	225	135
S01009550	Newcastle West	130	78	287
S01009551	Newcastle East	136	212	158
S01009575	Stenton North	137	196	176
S01009582	Pitteuchar North East	142	166	213
S01009554	Leslie Landward	142	305	74
S01009574	Auchmuty Dovecot and Town Centre	163	270	131
S01009609	Markinch East	188	111	319
S01009614	Milton of Balgonie	192	156	277
S01009563	South Parks East	192	299	134

S01009548	Thornton South	217	369	93
S01009605	Balfarg	220	303	165
S01009549	Thornton North	228	230	244
S01009555	Leslie East	241	282	198
S01009613	Coaltown of Balgonie West	252	18	469
S01009570	Rimbleton East	256	348	145
S01009585	Pitteuchar West	261	325	172
S01009577	Finglassie South	262	87	411
S01009566	Caskieberran East	274	273	239
S01009578	Stenton Central	293	338	192
S01009547	Strathore	322	431	129
S01009608	Markinch North	330	371	202
S01009546	Kinglassie East	335	343	242
S01009612	Coaltown of Balgonie East	345	395	201
S01009590	Foresters Lodge	383	157	487
S01009610	Markinch West	390	407	245
S01009584	Warout	392	267	392
S01009606	Tofthill and Balbirnie Park	417	239	466
S01009611	Star and Kirkforthar	417	328	377
S01009603	Pitcairn	422	321	394
S01009576	Finglassie North and Southfield	429	299	425
S01009579	Lochty View	434	459	274
S01009591	Balgeddie South	436	344	396
S01009607	Prestonhall	439	306	448
S01009595	Beechwood	445	416	355
S01009592	Whinnyknowe and Leslie Mains	446	342	434
S01009593	Balgeddie North	447	295	483
S01009594	Formonthills	459	346	472
S01009580	Pitteuchar Woods	472	422	461
S01009602	Coul	478	400	492

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](#)