



Fife Fuel Poverty Composite Index

Focus on City of Dunfermline Area

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This briefing sets out the findings for City of Dunfermline 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:

- Halbeath (rank 14),
- Woodmill West (rank 27),
- Pitbauchlie West (rank 36),
- Abbeyview West (rank 38), and
- Brucefield North (rank 50).

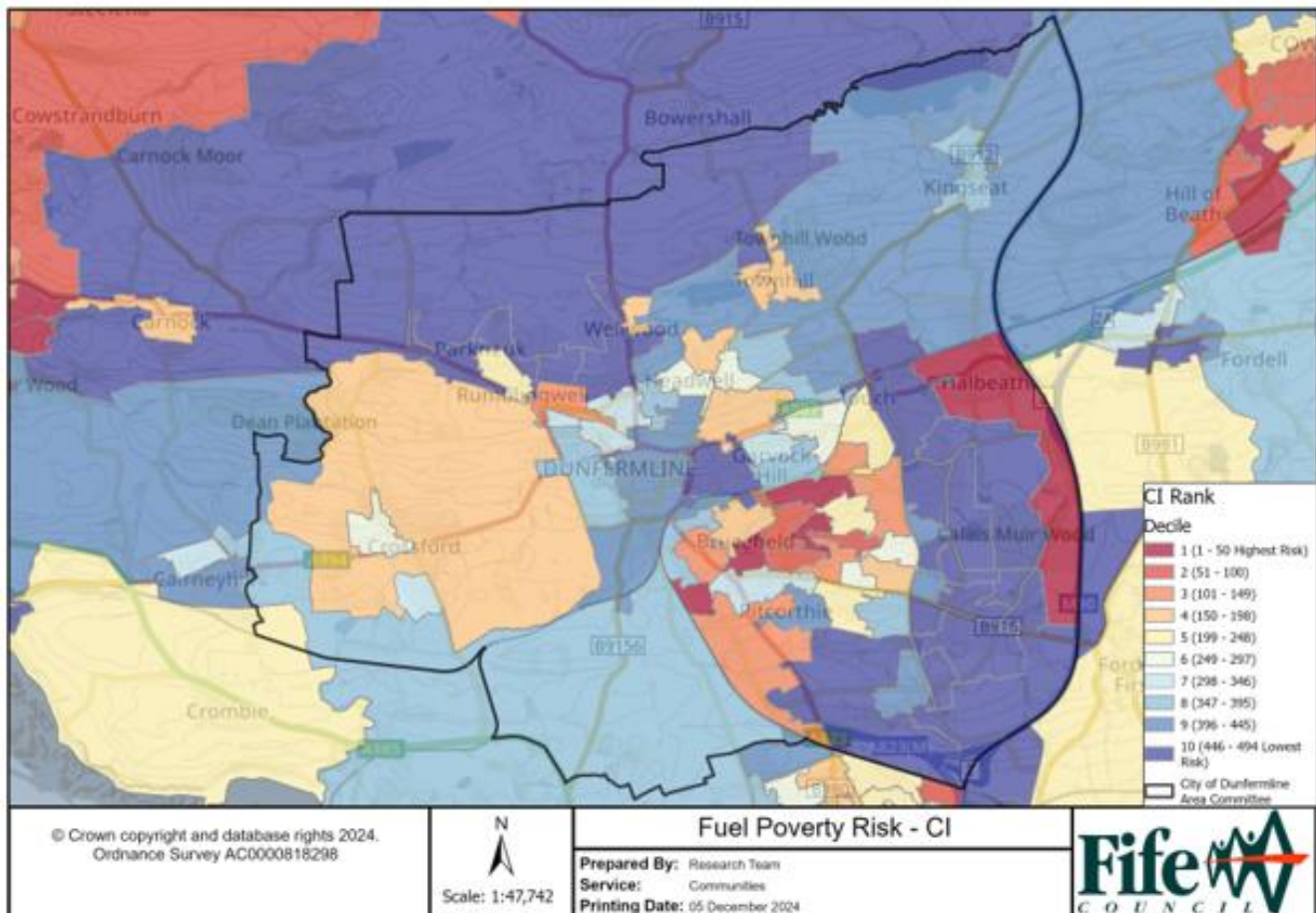


Figure 1 – Map showing deciles from highest to lowest fuel poverty risk on the Overall Composite Index (Fife Fuel Poverty Composite Index, 2024)

No datazones in the City of Dunfermline area are in the highest fuel poverty risk (decile 1) for both the demand and ability to pay sub-indices.

Increased risk in the South East of the city, with pockets within Halbeath, Woodmill, Brucefield, Abbeyview and Pitcorthie. 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.

Within City of Dunfermline Area, the Demand sub-index highlights greatest risk (decile 1) in:

- Crossford East and Berrylaw (rank 2),
- Crossford West (rank 9),
- Brucefield North (rank 15),
- Pitreavie (rank 32), and
- Pitcorthie Central (rank 39).

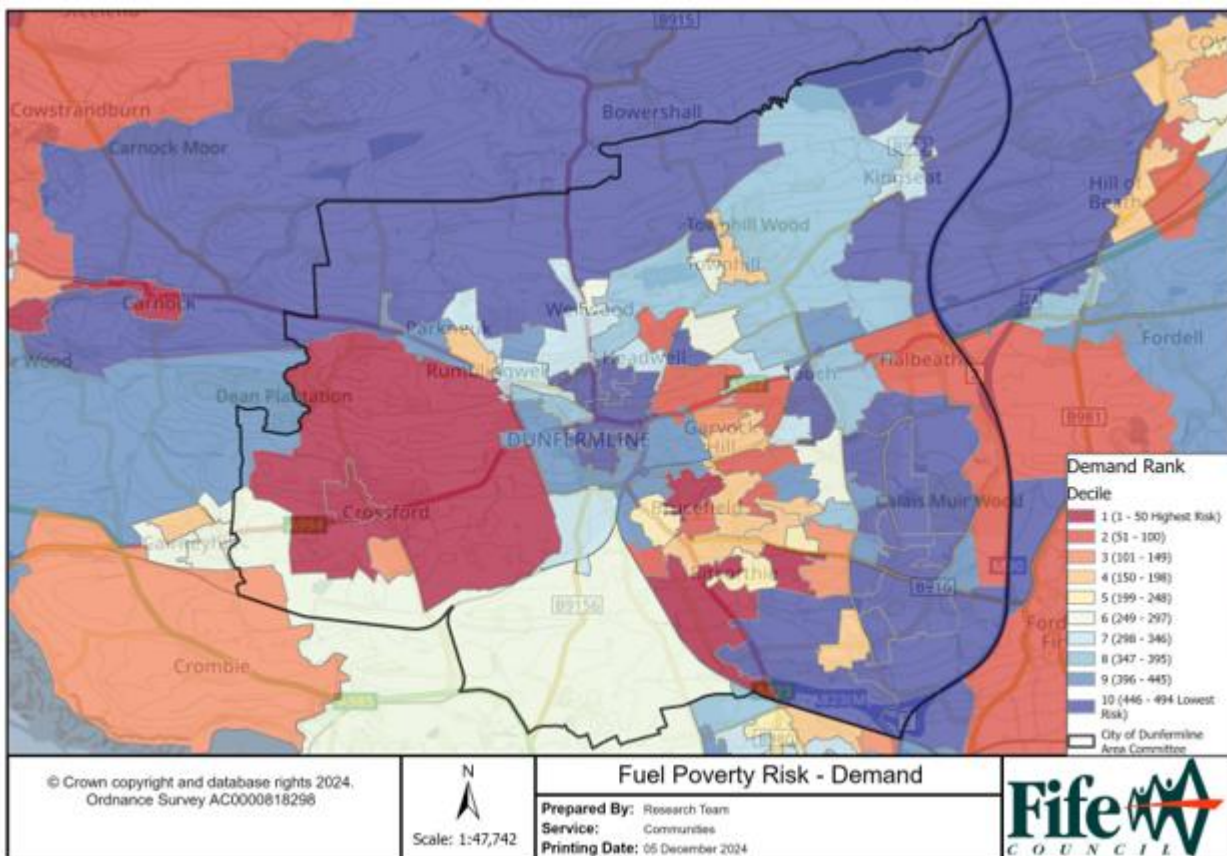


Figure 2 – Map showing deciles from highest to lowest fuel poverty risk on the Demand sub-index (Fife Fuel Poverty Composite Index, 2024)

Pockets of increased fuel poverty risk linked to the demand sub-index within East Dunfermline and Crossford, with reduced risk within the centre and housing developments on the outskirts. The City of Dunfermline area has the lowest average percentage of properties below EPC C. High risk areas (deciles 1&2) including Crossford datazones, Garvock Hill North East, Pitcorthie Central, Brucefield North, Brucefield South, Bellyeoman South West, Pitreavie, detail increased properties below EPC C and high estimated median fuel bills. The City of Dunfermline has the highest average percentage of properties with 4+ occupants, with increased household size in the Duloch/Masterton areas. It has the lowest 65+ years population. Crossford East and Berrylaw is the only datazone within City of Dunfermline with the greatest risk (decile 1) for both building and people sub-indices, ranked 2 for Demand in Fife.

Ability to Pay

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

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

- Touch (rank 18),
- Headwell East (rank 31),
- Woodmill North (rank 45), and
- Baldridgeburn North (rank 49).

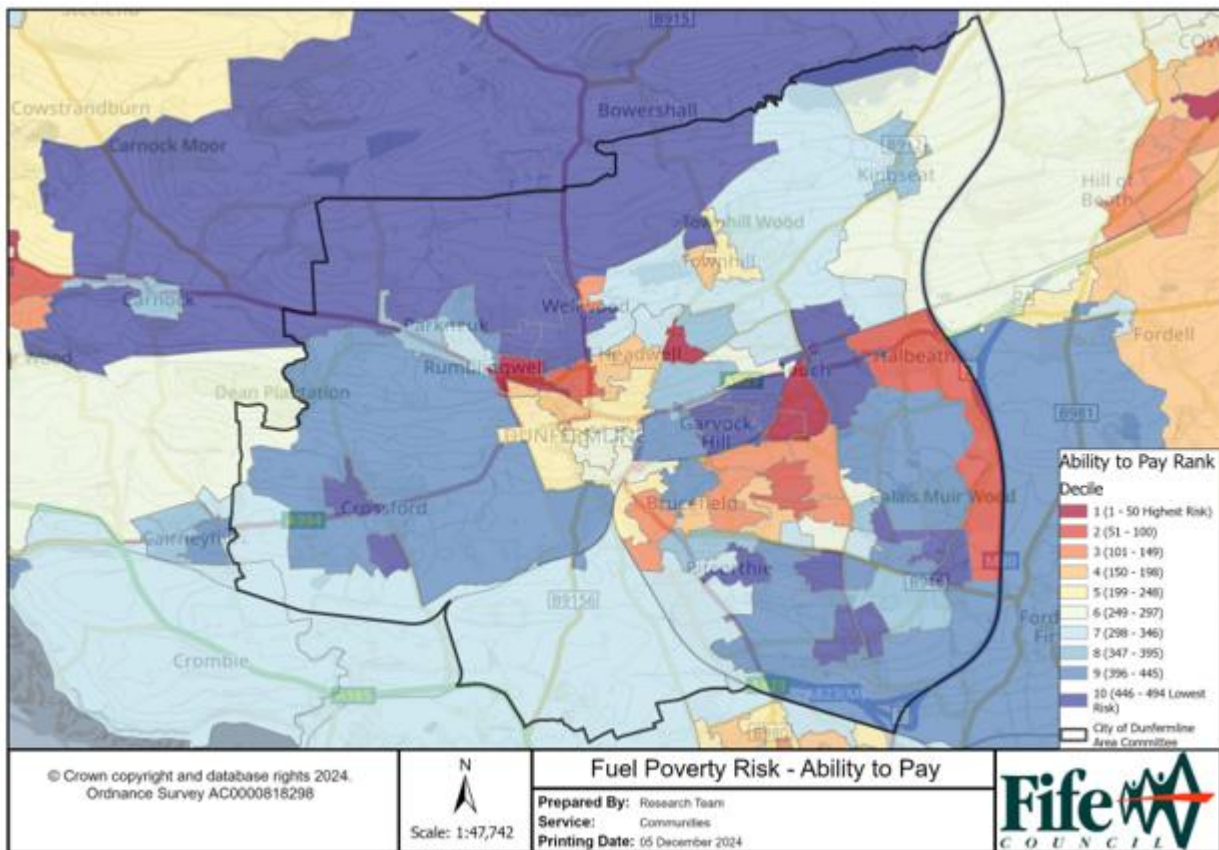


Figure 3 – Map showing deciles from highest to lowest fuel poverty risk on the Ability to Pay sub-index (Fife Fuel Poverty Composite Index, 2024)

The City of Dunfermline Area details the second highest average median income, following North East Fife, with reduced percentage universal credit, guarantee pension credit claimants and lone parents with dependent children. Increased risk within the central areas and Headwell, Broomhead and Touch and compared to the demand sub-index.

Prominent datazones with reduced demand risk and increased ability to pay risk (deciles 1&2) include Touch, Headwell East, Woodmill North, Balbridgeburn North, Broomhead and Abbeyview North. These datazones highlight reduced incomes and significantly higher universal credit claimants compared to the Fife average.

Datazones indicating older people on lower income, with 2 times the Fife average for guarantee pension credit claimants include Duloch North West, Woodmill West, Abbeyview North, Touch, Abbeyview Central and Halbeath. Excluding Duloch North West, these areas also detail above average increased chronic disability contributions in the demand sub-index.

Patterns of Fuel Poverty Risk

There are 76 datazones that make up the City of Dunfermline 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.

This highlights that datazones within the Dunfermline Area are skewed towards lower fuel poverty risk across the domains of the index.

On the overall index, only 8 of the 76 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 31 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the demand sub-index, 13 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 30 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the ability to pay sub-index, 8 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 30 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

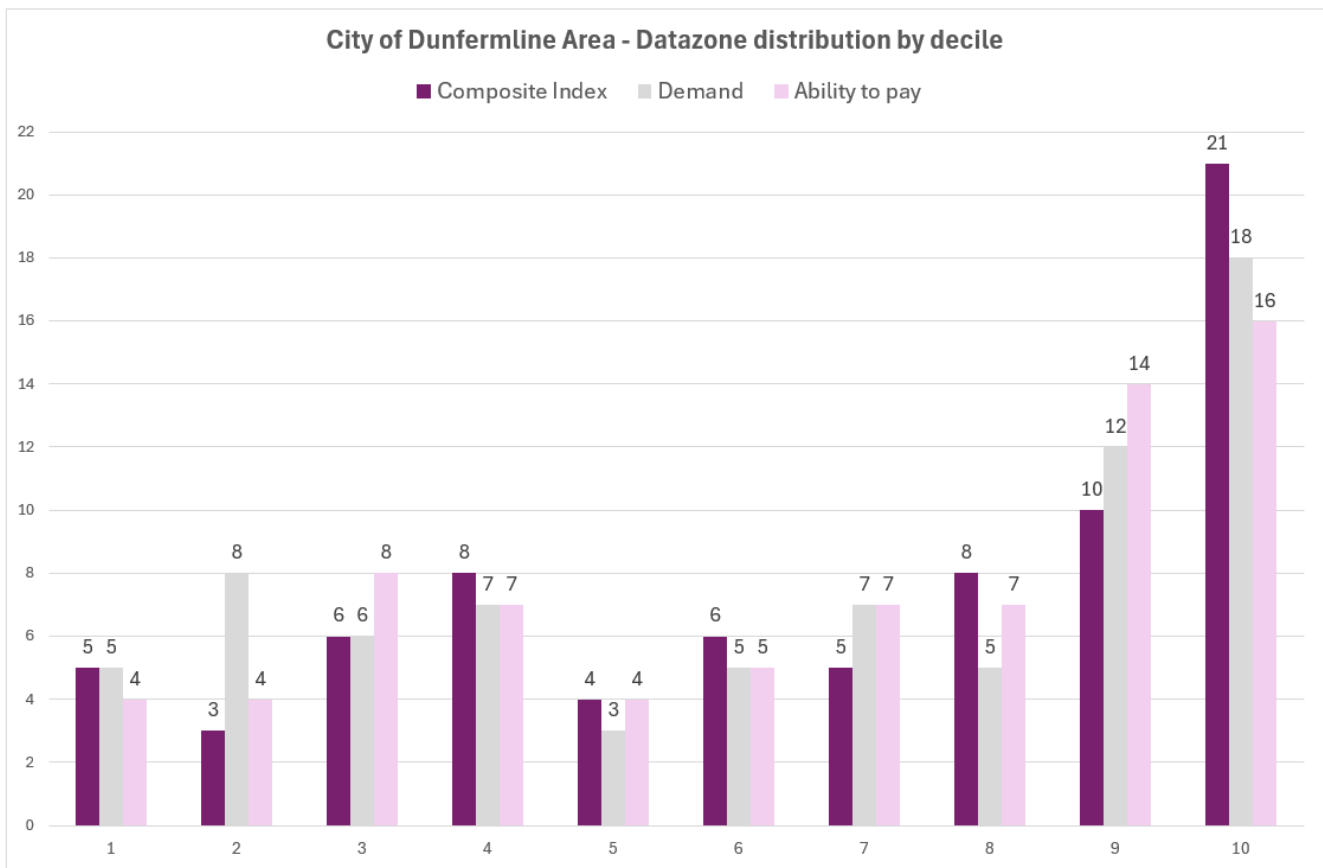


Figure 4 – Distribution of datazones by deciles 1-10 for Overall Index, and Demand and Ability to Pay sub-indices (Fife Fuel Poverty Composite Index, 2024)

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, City of Dunfermline Area has 8% of Fife's 20% highest risk datazones on the overall index, 12.9% of highest risk for Demand sub-index, and 8% of the Ability to Pay sub-index.

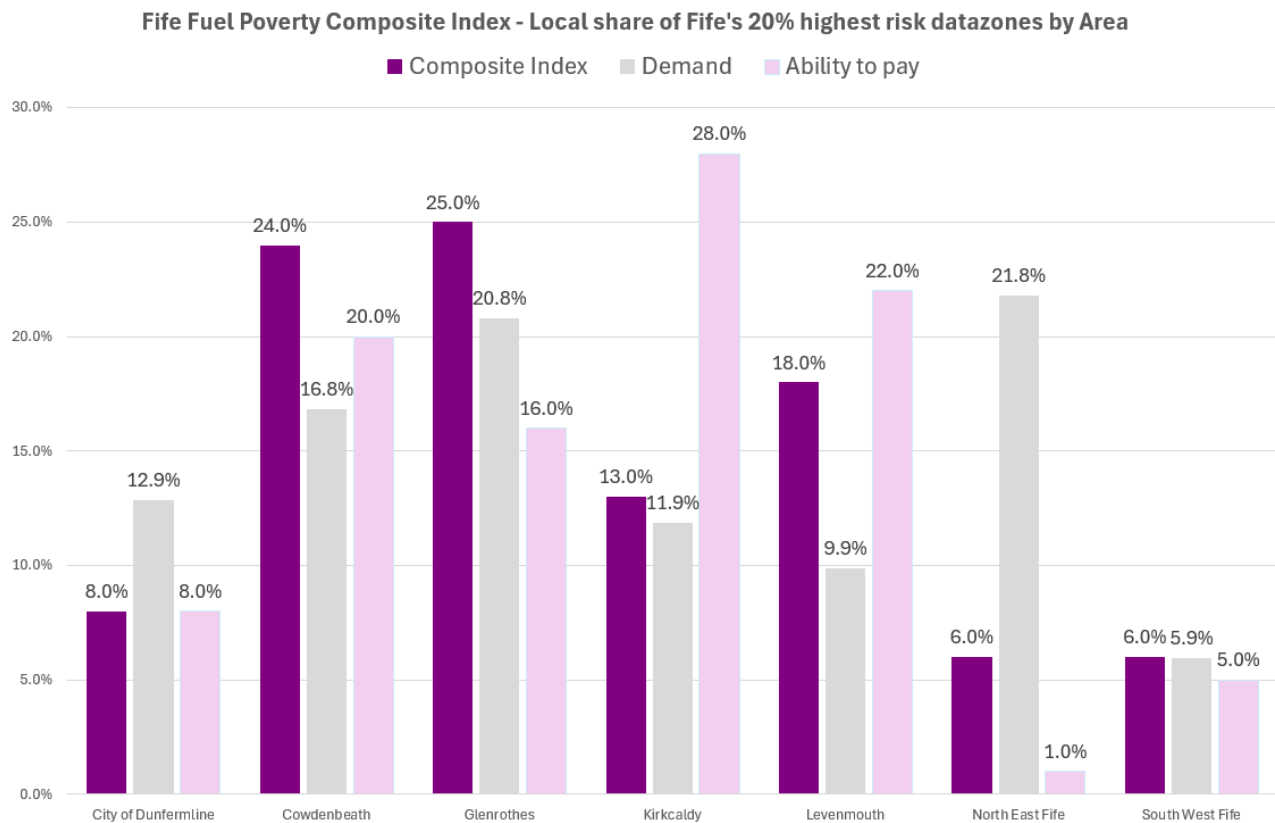


Figure 5 – Local share of Fife's 20% highest risk datazones by Area (Fife Fuel Poverty Composite Index, 2024)

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
S01009404	Halbeath	14	58	62
S01009335	Woodmill West	27	58	113
S01009311	Pitbauchlie West	36	78	128
S01009341	Abbeyview West	38	53	159
S01009315	Brucefield South	50	92	163
S01009337	Pitcorthie North West	55	149	112
S01009340	Abbeyview Central	56	178	84
S01009333	Woodmill South	78	174	118
S01009313	Brucefield South West	113	226	116
S01009338	Abbeyview East	125	250	108
S01009342	Pitcorthie North	125	187	171
S01009334	Woodmill North	127	315	45
S01009298	Balbridgeburn North	130	316	49
S01009361	Pitreavie	135	32	336
S01009304	Headwell North	156	93	300
S01009292	Wellwood	163	281	120
S01009289	Crossford East and Berrylaw	169	2	406
S01009345	Abbeyview Linburn	171	138	272
S01009323	Townhill East	180	195	226
S01009303	Bellyeoman South West	184	68	356
S01009324	Townhill West	190	265	166
S01009314	Brucefield North	195	15	422
S01009293	Milesmark East	206	149	306
S01009339	Abbeyview North	222	401	68
S01009355	Pitcorthie Central	222	39	430
S01009336	Touch	226	452	18
S01009302	Headwell East	249	454	31
S01009290	Crossford West	249	9	476
S01009344	Abbeyview South East	274	365	147
S01009319	Garvock Hill North East	274	65	447
S01009305	Headwell Central	287	331	190
S01009343	Pitcorthie North East	293	213	317
S01009300	Balbridgeburn South	298	382	153
S01009301	Broomhead	305	488	54
S01009360	Pitbauchlie and Pitcorthie North West	316	168	387
S01009291	Crossford South	316	110	445
S01009318	Garvock Hill West	343	113	482
S01009356	Pitcorthie East	347	147	452
S01009320	Bellyeoman South	351	308	294
S01009299	Pittencrieff	360	409	206

S01009327	Kingseathill	371	249	379
S01009312	Brucefield West	375	436	200
S01009317	Garvock Hill South	377	160	478
S01009322	Kingseat	386	299	347
S01009306	Headwell South West	389	465	186
S01009307	Carnegie Drive	404	471	217
S01009326	Queen Margaret Hospital	404	363	325
S01009358	Pitreavie Castle East and Heathery	408	196	494
S01009362	Pitcorthie West	409	242	454
S01009310	Ladys Mill	411	297	400
S01009309	Abbey Parks South and Brucefield North West	413	413	288
S01009330	Dulloch North West	420	430	278
S01009325	Bellyeoman North and Townhill Landward	424	377	340
S01009308	Abbey Parks North	437	491	250
S01009350	Dulloch South West	444	444	321
S01009296	Beveridgewell Western and Parkneuk	448	341	440
S01009297	Beveridgewell East	449	331	453
S01009294	Milesmark West	452	401	391
S01009316	Transy	462	398	429
S01009332	Lynebank	466	391	457
S01009351	Dulloch West	470	484	389
S01009354	Masterton Central	471	486	395
S01009359	Masterton North	472	445	438
S01009357	Pitreavie Castle West	475	451	436
S01009331	South Fod and Calais Muir	476	468	420
S01009329	Dulloch North North West	477	492	399
S01009295	Beveridgewell West	478	418	474
S01009349	Dulloch South	480	463	432
S01009321	Queen Margaret Fauld	484	423	488
S01009328	Dulloch North East	485	476	437
S01009347	Dulloch South East	487	431	490
S01009352	Masterton South	488	458	468
S01009353	Middlebank	489	490	441
S01009348	Dulloch Central	490	446	489
S01009346	Dulloch East	491	474	463
S01009277	Gowkhall and Landward	493	464	477

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](#)