



Fife Fuel Poverty Composite Index

Focus on Levenmouth Area

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This briefing sets out the findings for Levenmouth 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:

- Buckhaven Central (rank 9),
- Methil Trees East (rank 11),
- Kennoway South East (rank 29),
- Denbeath South (rank 31),
- Methilhill Toll Bar (rank 39),
- Kennoway North West (rank 40),
- Methil Trees West (rank 41),
- Methil Methilhill (rank 42),
- Kennoway East (rank 47), and
- Buckhaven Birds (rank 49).

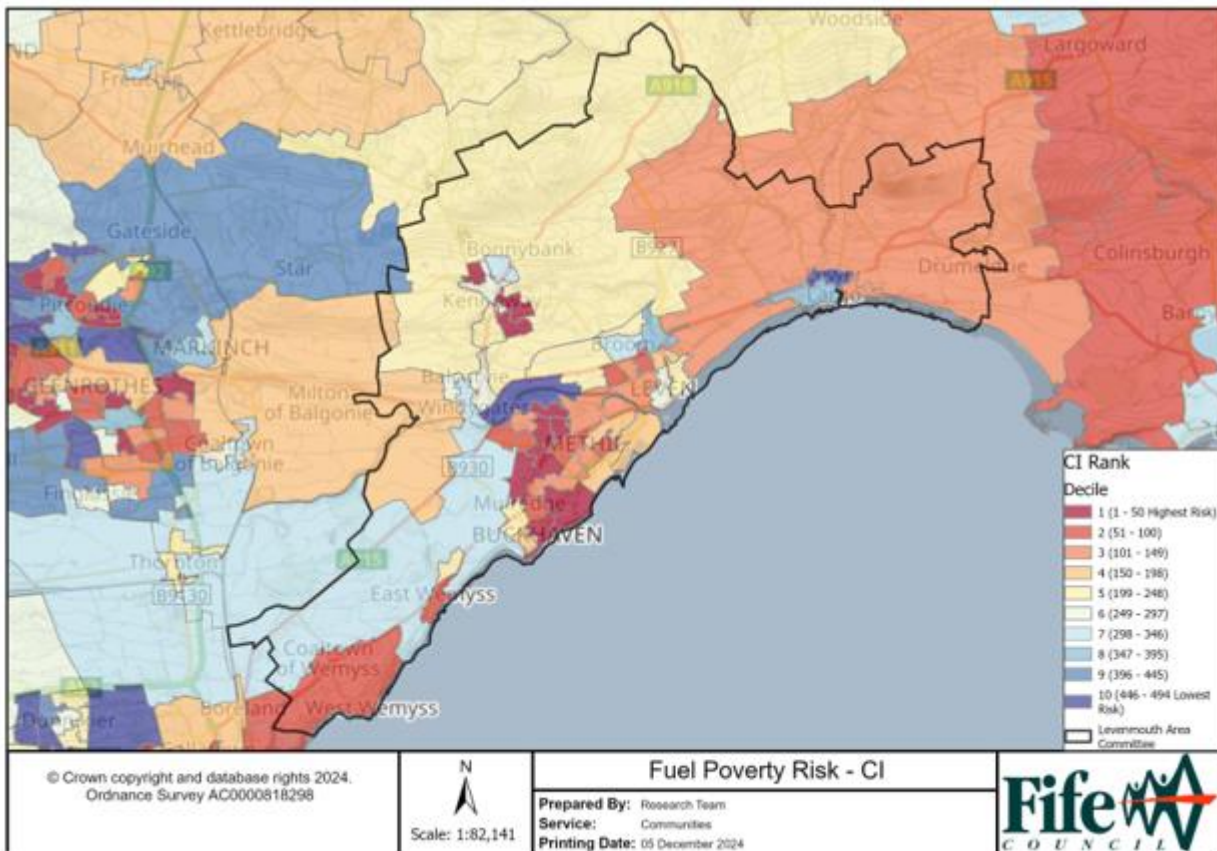


Figure 1 – Map showing deciles from highest to lowest fuel poverty risk on the Overall Composite Index (Fife Fuel Poverty Composite Index, 2024)

Areas with increased fuel poverty risk polarised in the Levenmouth area, with areas linked to demand risk differing to the areas linked to ability to pay risk. Only Buckhaven Central is in the highest risk group (decile 1) for both sub-indices. Areas of reduced risk include Leven Castlefleurie and Lower Largo Northern.

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.

Pockets of increased risk for the Demand sub-index within the outskirts of urban areas.

The Demand sub-index highlights higher risk (decile 1) in the following areas:

- Lower Largo (rank 7),
- Methil Trees East (rank 33),
- Kennoway South East (rank 34),
- Buckhaven Central (rank 37), and
- Leven Links (rank 42),

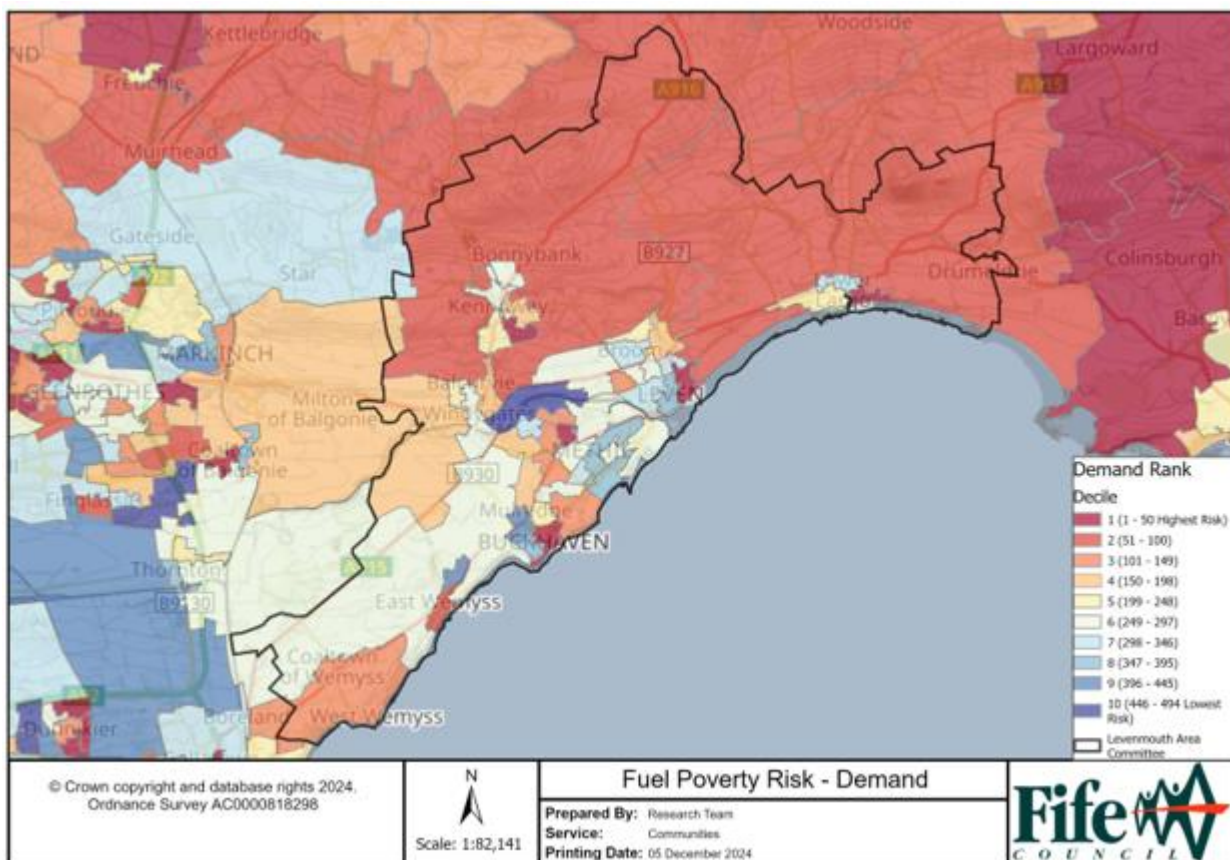


Figure 2 – Map showing deciles from highest to lowest fuel poverty risk on the Demand sub-index (Fife Fuel Poverty Composite Index, 2024)

High risk datazones spread out within the Levenmouth area. Areas indicating increased percentage of properties below EPC C and higher estimated fuel bill within both urban and accessible rural areas. Increased risk linked to the people sub-index, heating requirements from certain demographics including over 65 population, percentage properties 4+ occupants and contributions for chronic disability. 9 datazones in the highest risk group (decile 1) compared to 3 datazones for property. The Levenmouth area has the second highest average 65+ years population following North East Fife, and the highest contributions for chronic disability, with Buckhaven South detailing the highest in Fife.

Ability to Pay

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

In comparison to the Demand sub-index, datazones with increased risk of fuel poverty linked to ability to pay for fuel are concentrated within primarily urban areas, excluding the accessible rural datazone East Wemyss McDuff.

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

- Methil Memorial Park (rank 3),
- Aberhill (rank 6),
- Buckhaven South (rank 7),
- Lower Methil (rank 13),
- Methil Savoy (rank 15),
- Buckhaven Central (rank 33),
- East Wemyss McDuff (rank 35),
- Buckhaven North (rank 37),
- Methil Old Bayview (rank 39),
- Methil Kirkland (rank 43), and
- Methilhill North (rank 44).

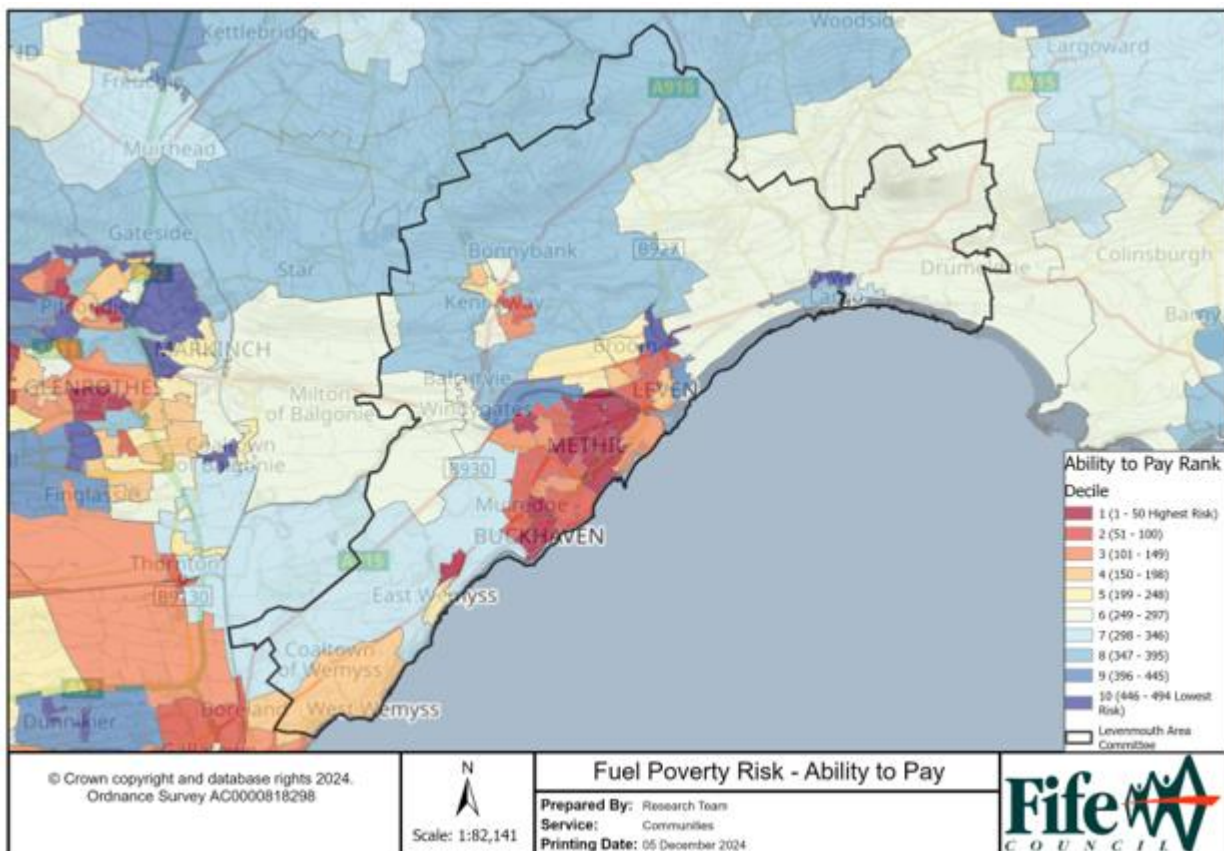


Figure 3 – Map showing deciles from highest to lowest fuel poverty risk on the Ability to Pay sub-index (Fife Fuel Poverty Composite Index, 2024)

The Levenmouth area indicates the lowest average median income, with 7 of the 10 lowest income datazones. This area also indicates the highest average universal credit claimants, following Cowdenbeath.

Datazones indicating 2 times the Fife average for lone parents with dependent children include Methil Kirkland, Leven Mountfleurie East, Methilhill North, Methil Trees East, Methil Savoy and Kennoway North West.

Increased older people on low income, reflected by the guarantee pension credit variable, within the Methil and Denbeath areas. Levenmouth area has the second highest average social housing, following Cowdenbeath. Areas indicating reduced ability to pay risk include Leven Castlefleurie, Lower Largo Northern, Leven Letham Glen and Leven Links.

Patterns of Fuel Poverty Risk

There are 51 datazones that make up the Levenmouth 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 Levenmouth Area, demand for fuel poverty support appears to be driven mainly by ability to pay.

On the overall index, 18 of the 51 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while only 2 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the demand sub-index, 10 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while only 3 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the ability to pay sub-index, 22 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while only 4 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

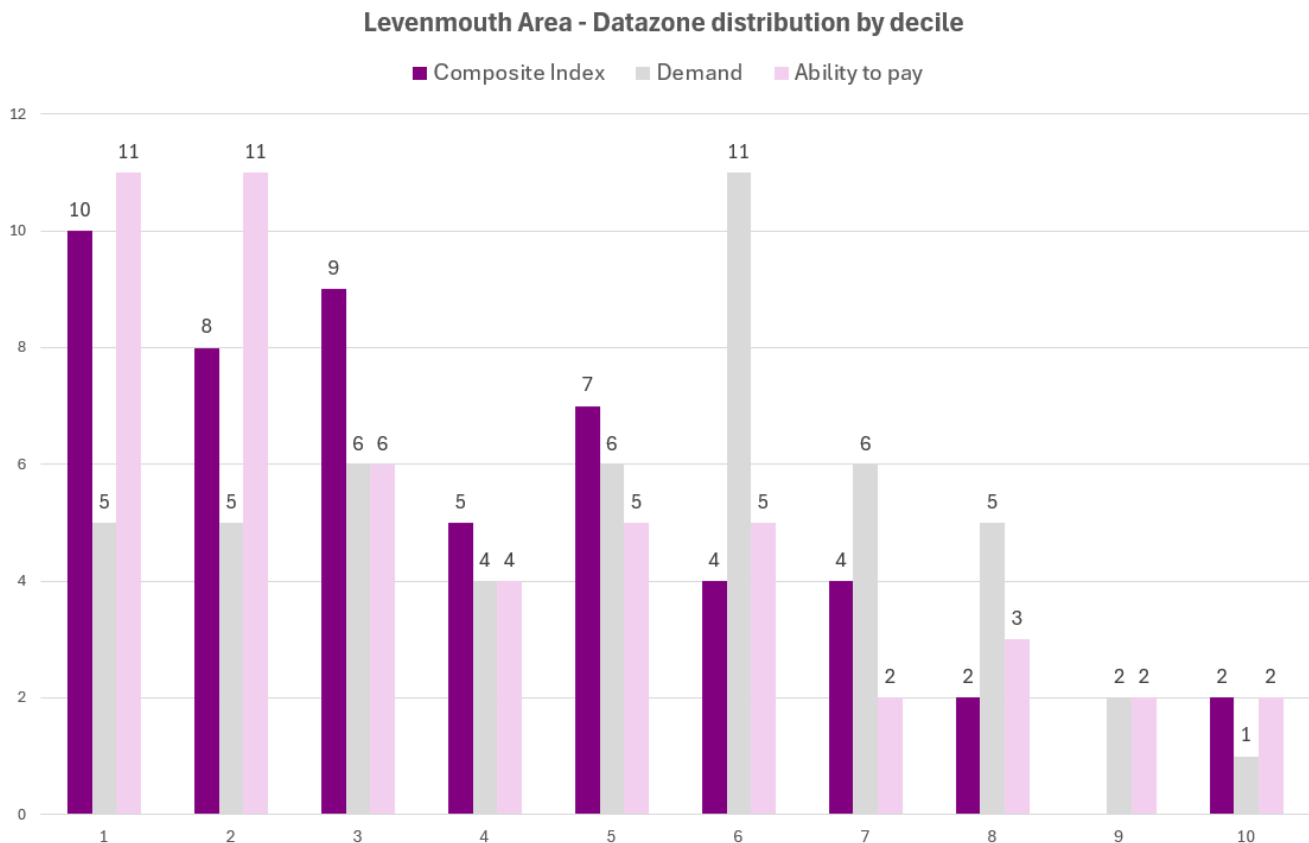


Figure 4 – Distribution of datazones by deciles 1-10 for Overall Index, and Demand and Ability to Pay sub-indices (Fife Fuel Poverty Composite Index, 2024)

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, Levenmouth Area has 18% of Fife's 20% highest risk datazones on the overall index, 9.9% of highest risk for Demand sub-index, and 22% of the Ability to Pay sub-index.

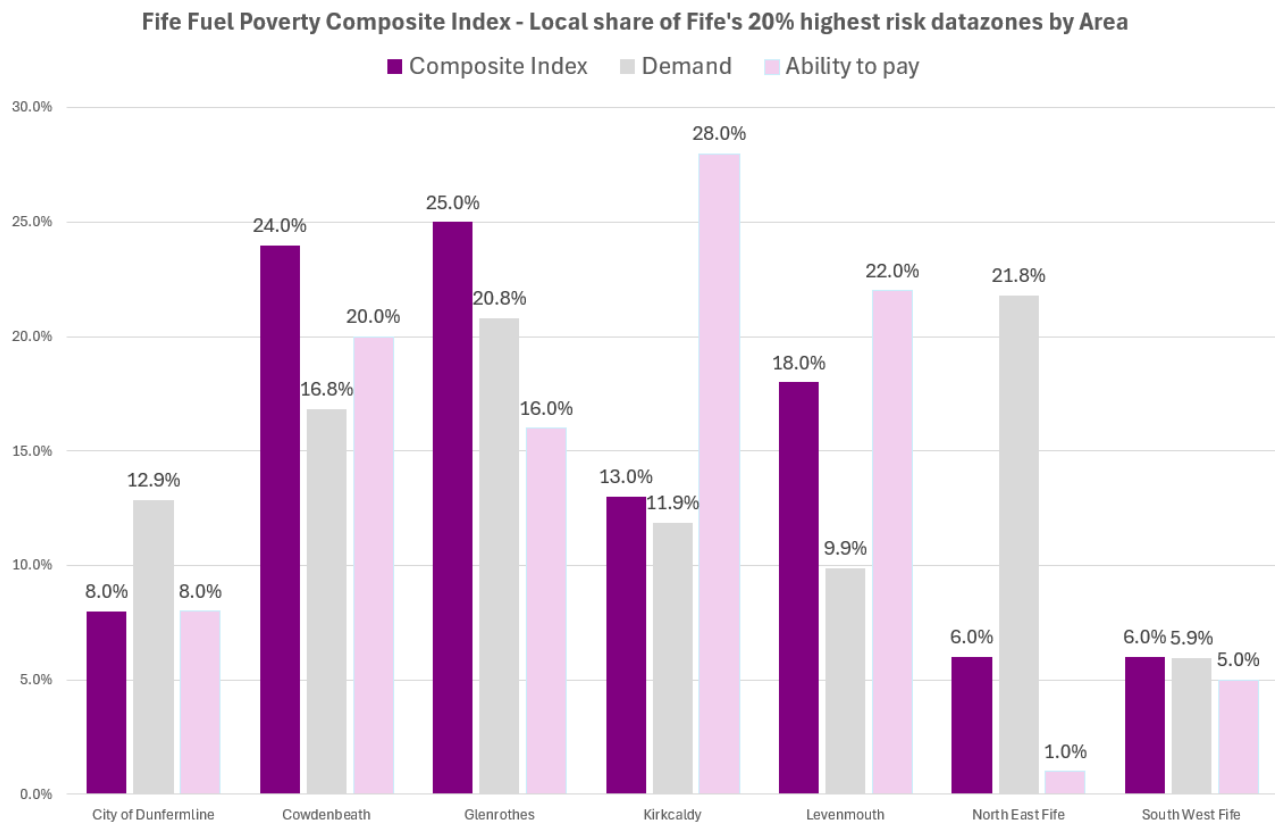


Figure 5 – Local share of Fife's 20% highest risk datazones by Area (Fife Fuel Poverty Composite Index, 2024)

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
S01009621	Buckhaven Central	9	37	33
S01009626	Methil Trees East	11	33	53
S01009655	Kennoway South East	29	34	142
S01009619	Denbeath South	31	131	52
S01009628	Methilhill Toll Bar	39	122	94
S01009658	Kennoway North West	40	51	166
S01009627	Methil Trees West	41	100	122
S01009625	Methil Methilmill	42	147	76
S01009656	Kennoway East	47	149	92
S01009624	Buckhaven Birds	49	163	91
S01009633	Methil Savoy	59	252	15
S01009629	Methilhill South West	69	178	105
S01009620	Buckhaven North	70	247	37
S01009543	East Wemyss Shore	77	70	220
S01009646	Leven Mountfleurie East	82	125	168
S01009637	Methil Old Bayview	88	260	39
S01009544	Wemyss Villages	91	125	180
S01009647	Leven North	99	255	60
S01009638	Methil Kirkland	104	280	43
S01009654	Lower Largo	111	7	330
S01009651	New Gilston and Upper Largo	118	57	290
S01009630	Methilhill North	122	312	44
S01009618	Denbeath North	133	253	114
S01009632	Methil Memorial Park	138	373	3
S01009634	Methil Sea Road	140	317	61
S01009641	Leven South West	144	321	59
S01009645	Leven Montrave	144	255	125
S01009635	Methil New Bayview	150	255	133
S01009622	Buckhaven South	154	385	7
S01009636	Aberhill	162	393	6
S01009631	Lower Methil	163	388	13
S01009640	Scoonie South	191	335	97
S01009639	Leven Links	203	42	409
S01009661	Bonnybank and Montrave	207	76	380
S01009649	Broom North	215	223	237
S01009623	Buckhaven North West and Muiredge	228	416	58
S01009644	Leven Mountfleurie West	234	248	228
S01009542	East Wemyss McDuff	240	442	35
S01009657	Kennoway Sandy Brae	243	201	280
S01009615	Windygates West	259	204	292

S01009642	Leven South	270	352	157
S01009617	Windygates Kennoway and Leven Roads	272	160	350
S01009659	Kennoway Central	279	285	230
S01009648	Broom South	302	324	213
S01009616	Windygates East	305	286	256
S01009660	Kennoway North East	312	295	255
S01009541	East Wemyss and Standingstone	338	279	308
S01009652	Lundin Links	347	216	383
S01009650	Leven Letham Glen	383	193	451
S01009653	Lower Largo Northern	452	334	458
S01009643	Leven Castlefleurie	481	481	418

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](https://know.fife.scot/_data/assets/pdf_doc/0037/649873/Fuel-Poverty-Composite-Index-2024-Methodology.pdf)