



## Fife Fuel Poverty Composite Index

### Focus on Kirkcaldy Area

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This briefing sets out the findings for Kirkcaldy Area from the Fife Fuel Poverty Composite Index 2024. It identifies the neighbourhoods with the 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.

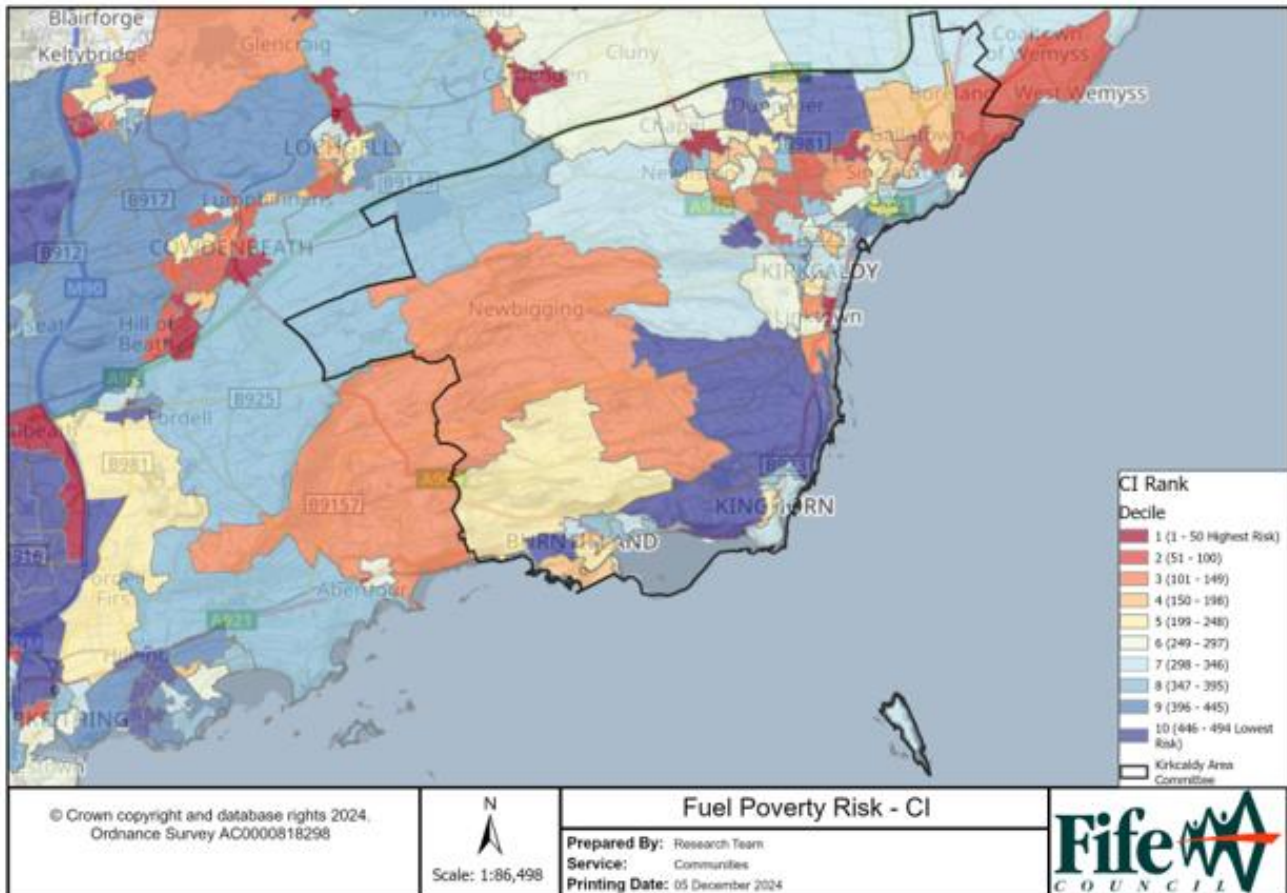
## Composite Index

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 averaging results from the Demand and Ability to Pay sub-indices.

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

- Linktown East (rank 17),
- Smeaton North (rank 37), and
- Chapelhill and Torbain (rank 46).



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

Increased fuel poverty risk highlighted primarily within urban areas in the Kirkcaldy area. There is variation between neighbourhoods, with the highest risk pockets (decile 1) spread out across Kirkcaldy. There is a cluster of increased risk areas (decile 2) within Bennochy, Hayfield, Kirkcaldy Valley East, Kirkcaldy Valley West, Forth Park North, Sinclairtown East and Dysart.

Increased risk (decile 2) is detailed within Hayfield/Bennochy, Dysart, Forth Park North, Kirkcaldy Valley East, Kirkcaldy Valley West and Sinclairtown East.

Further datazone breakdown is provided in Appendix 1.

## Demand

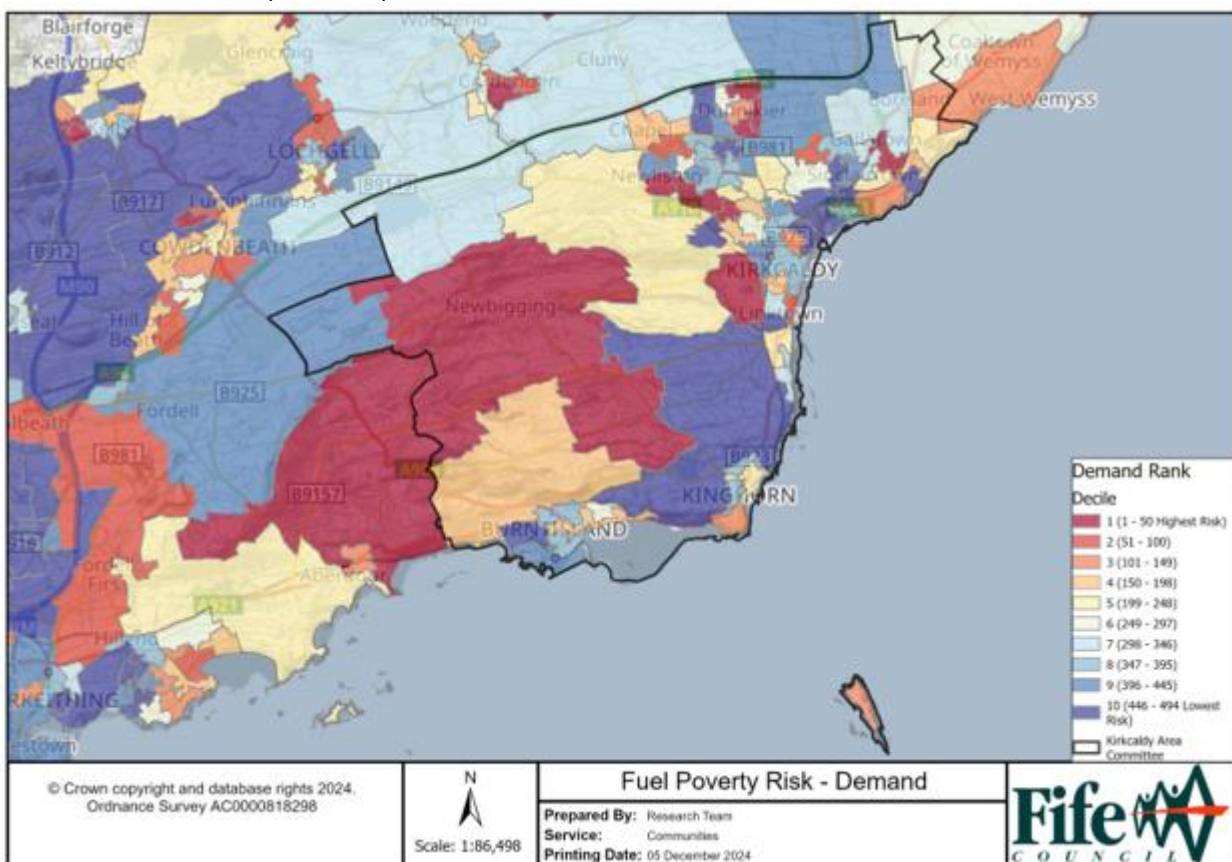
The Demand sub-index considers the risk of fuel poverty associated with demand for fuel.

Demand is derived from averaging sub-indices for

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

Datazones with the highest risk based on the demand sub-index include:

- Raith Estate and Southerton (rank 4),
- Dunnikier East (rank 13),
- Dunnikier North (rank 16),
- Newliston (rank 17),
- Bennoch West (rank 20),
- Auchtertool (rank 24),
- Dunnikier South (rank 31),
- Sinclairtown East (rank 44), and
- Kirkcaldy Long Braes (rank 46).



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

The highest risk demand datazones are primarily towards the outskirts of Kirkcaldy.

Datazones with significantly increased properties with an EPC below C and 4+ occupants within West and North Kirkcaldy including Bennoch West, Raith Estate and Southerton, Newliston, Kirkcaldy Long Braes, Auchtertool and the Dunnikier area. There are higher median estimated fuel bills within these datazones. Chapel indicates increased fuel efficiency however a higher than average fuel bill. Only Raith Estate and Southerton is in the highest risk group (decile 1) for both property and people sub-indices due to reduced property fuel efficiency, above average fuel bill, increased 65+ population and 4+ occupants. Areas with increased risk for the demand people sub-index, with above average over 65+ years population and increased chronic disability contributions include Linktown East, Sinclairtown East and Smeaton North.

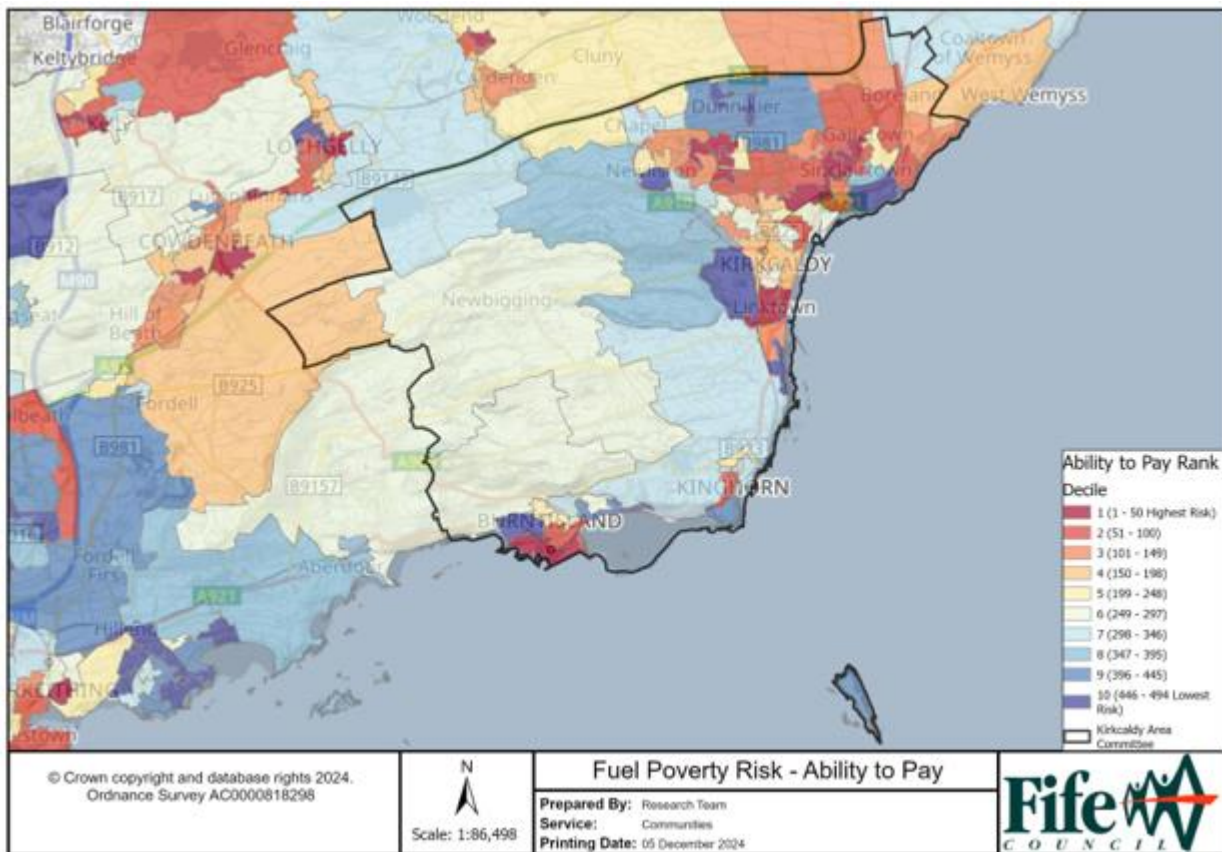
## Ability to Pay

The Ability to pay sub-index, takes account of household income and ability to pay for fuel. This demonstrates pockets of ability to pay with increased risk in both urban and rural areas, including coastal areas, throughout Fife.

The map below highlights known pockets of income deprivation in those areas identified as highest risk in terms of ability to pay.

Datazones with highest risk (decile 1) on the ability to pay sub-index include:

- Sinclartown Central (rank 2),
- Linktown Central (rank 9),
- Burntisland Docks (rank 10),
- Sinclartown West (rank 12),
- Pathhead North West (rank 14),
- Gallatown West (rank 17),
- Linktown North (rank 26),
- Templehall North (rank 29),
- Templehall (rank 34),
- Templehall North Eastern (rank 36),
- Linktown East (rank 41), and
- Fair Isle (rank 42).



**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)**

Increased ability to pay risk within areas linked to higher deprivation (SIMD 2020) including Linktown, Templehall/Fair Isle, Sinclartown/Gallatown and Burntisland Docks. Areas indicating 2.5 times the Fife average of percentage universal credit claimants include Sinclartown Central, Linktown East and Gallatown West, with these areas also showing lower median income.

The Kirkcaldy area details the second highest level of guarantee pension credit claimants in Fife, following Cowdenbeath, with datazones 3 times the Fife average including Gallatown West, Fair Isle, Linktown East, Linktown North, Sinclartown Central and Pathhead North West.

## Patterns of Fuel Poverty Risk

There are 80 datazones that make up the Kirkcaldy 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.

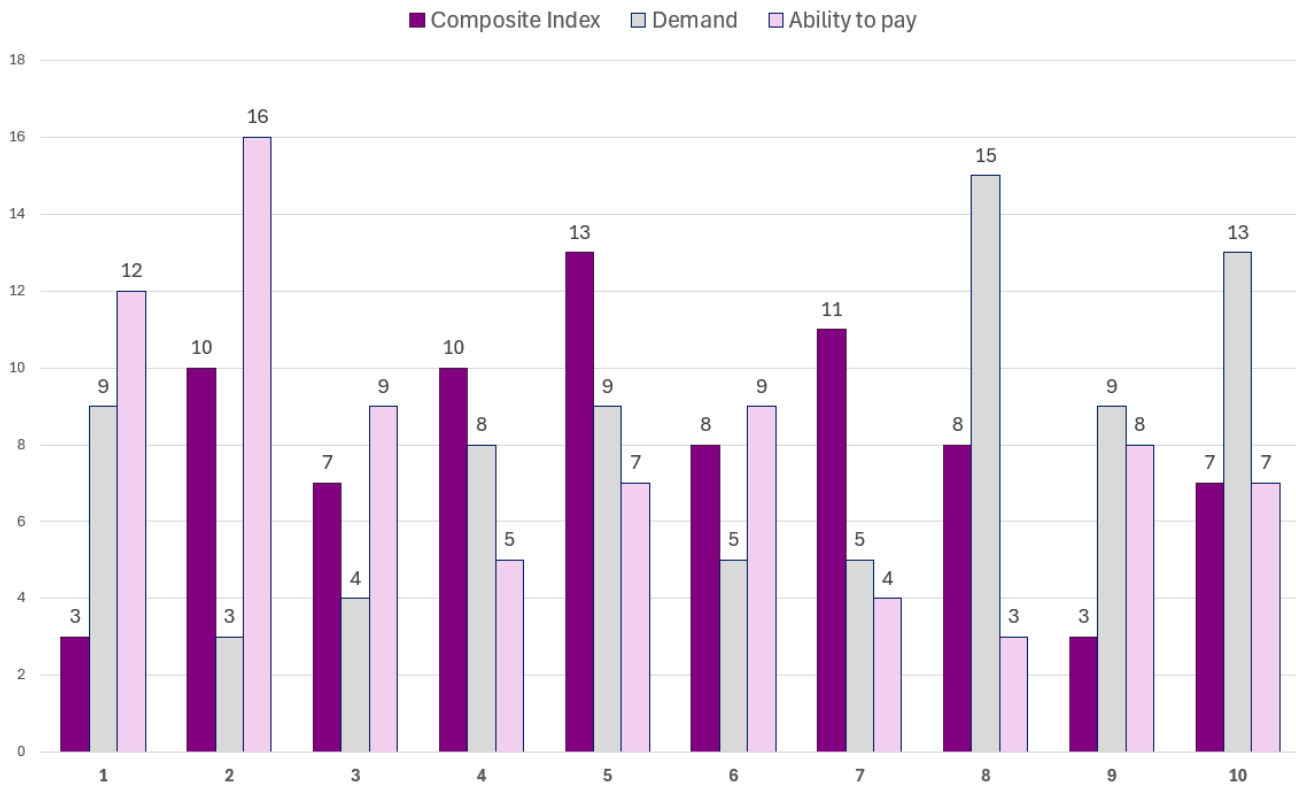
In Kirkcaldy Area, demand for fuel poverty support appears to be driven mainly by ability to pay.

On the overall index, 13 of the 80 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 10 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the demand sub-index, 12 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 22 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

In terms of the ability to pay sub-index, 28 datazones are in the 20% highest fuel poverty risk (deciles 1 and 2), while 15 are in the 20% lowest fuel poverty risk (deciles 9 and 10).

**Kirkcaldy Area: Datazone distribution by decile**



**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

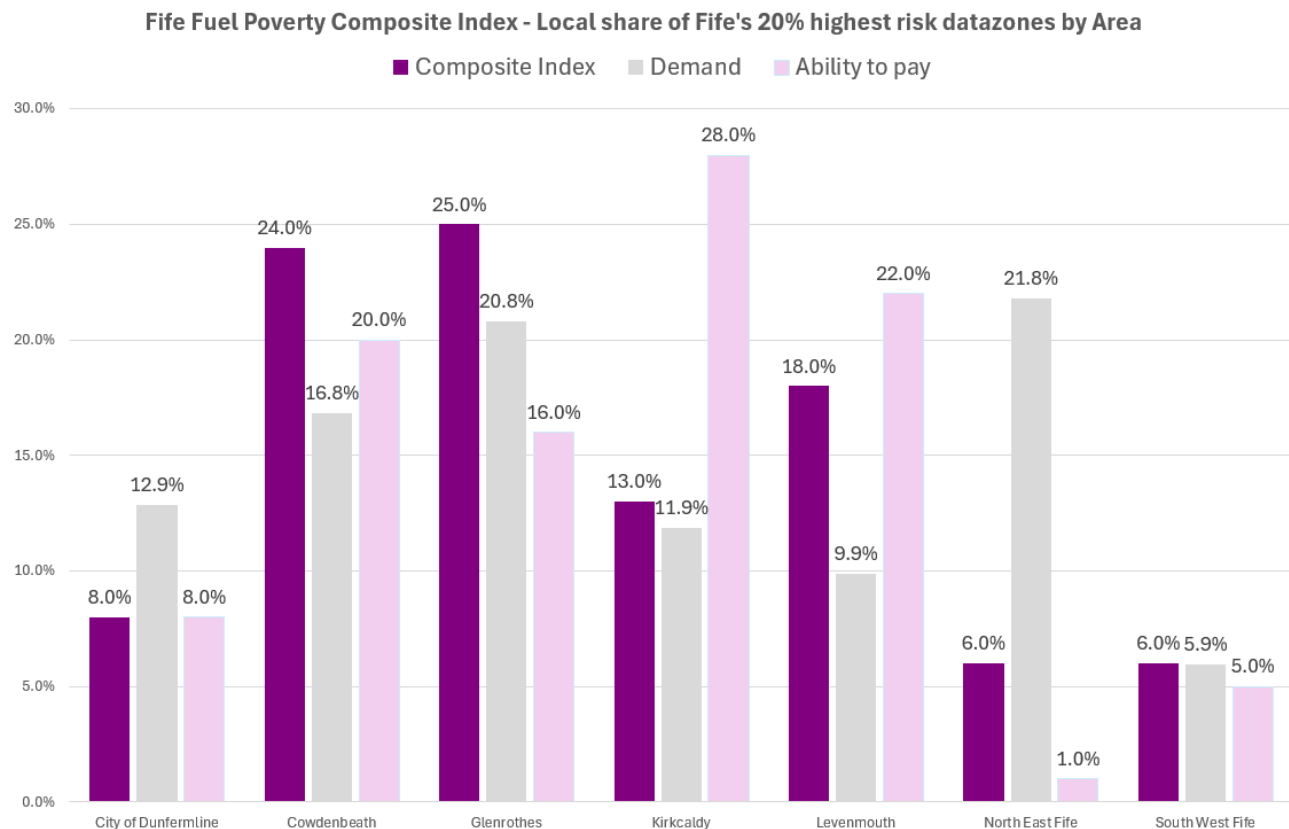
If the risk of fuel poverty was distributed equally across each of the Areas of Fife, then each Area would have 20% of its datazones in the 20% highest fuel poverty risk for Fife.

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 (deciles 1 and 2), Kirkcaldy Area has 13% of Fife's 20% highest risk datazones on the overall index, 11.9% of highest risk for Demand sub-index, and 28% 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
S01009471	Linktown East	17	84	41
S01009521	Smeaton North	37	69	138
S01009516	Chapelhill and Torbain	46	91	143
S01009537	Dysart North	58	170	96
S01009488	Bennochty West	64	20	258
S01009539	Sinclairtown East	67	44	238
S01009504	Kirkcaldy Valley West	73	216	70
S01009525	Hayfield South	74	223	65
S01009509	Kirkcaldy Valley East	78	207	85
S01009485	Bennochty South West	83	172	123
S01009487	Forth Park North	89	154	146
S01009523	Hayfield North	91	234	71
S01009536	Dysart North East	94	208	100
S01009457	Auchtertool	103	24	296
S01009472	Linktown North	110	310	26
S01009535	Gallatown West	115	326	17
S01009474	Linktown South and Seafield North	117	239	106
S01009522	Smeaton South	122	268	88
S01009499	Kirkcaldy Long Braes	146	46	337
S01009506	Templehall North Eastern	148	350	36
S01009532	Overton	167	349	55
S01009477	Kirkcaldy Central North	170	133	276
S01009531	Mitchelston and Randolph	171	327	83
S01009534	Sinclairtown Central	173	409	2
S01009540	Sinclairtown North	174	338	77
S01009458	Burntisland Central	174	181	234
S01009505	Templehall	176	382	34
S01009500	Fair Isle	176	374	42
S01009503	Craigmount and Greenloanings	182	290	132
S01009460	Burntisland Docks	198	433	10
S01009462	Burntisland Grange and Orrock	203	176	275
S01009480	Kirkcaldy Central South	207	173	283
S01009510	Dunnikier South	212	31	427
S01009513	Dunnikier North	213	16	443
S01009528	Pathhead South and Sands	215	387	73
S01009498	Newliston	219	17	449
S01009459	Burntisland Links	222	384	85
S01009468	Kinghorn Central	228	375	99
S01009502	Templehall West	233	397	78
S01009508	Templehall North	234	447	29



S01009511	Dunnikier East	241	13	467
S01009533	Sinclairtown West	247	471	12
S01009473	Linktown Central	248	475	9
S01009501	Dunearn	257	393	102
S01009493	Raith Estate and Southerton	257	4	491
S01009524	Pathhead North West	263	485	14
S01009515	Fair Isle North	266	362	139
S01009520	Chapel	269	193	312
S01009538	Dysart Central	281	449	67
S01009482	Bennochty Balfour	295	361	170
S01009512	Dunnikier Central	295	121	410
S01009486	Forth Park	307	254	289
S01009469	Kinghorn North	315	246	307
S01009463	Burntisland Nether Grange	316	273	282
S01009479	Kirkcaldy Central	319	381	175
S01009478	Kirkcaldy Central and East	321	480	79
S01009467	Kinghorn South	326	138	431
S01009483	Bennochty East	331	372	205
S01009465	Burntisland Meadowfield	336	355	231
S01009494	Raith	340	236	353
S01009527	Pathhead Central	343	489	106
S01009529	Kirkcaldy Viewforth	345	236	360
S01009530	Ravenscraig	349	116	484
S01009496	Blackcraigs and West Torbain	353	411	193
S01009481	Bennochty North	357	427	183
S01009466	Burntisland East	359	186	428
S01009484	Oriel and Forth	362	426	191
S01009470	Kinghorn North West	366	378	243
S01009507	Templehall East	368	401	223
S01009464	Burntisland East Toll	395	368	297
S01009497	Redcraigs	401	438	246
S01009514	Dunnikier North West	438	271	475
S01009526	Braehead and the Path	440	493	266
S01009476	Seafield South and Landward	455	456	344
S01009475	Seafield Central	456	337	464
S01009519	Capshard	461	424	402
S01009495	Raith and Long Braes	468	461	393
S01009517	Chapelwood	474	482	403
S01009518	Chapel Moss	483	483	426
S01009461	Burntisland Kirkton	494	478	485

## 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](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](#)