

A Perfect Storm:

Fuel Poverty in Rural Scotland

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CHANGEWORCS

Executive Summary

This report evidences the drivers, impacts, and extent of fuel poverty in rural Scotland. It outlines a series of interlinking factors which combine and compound each other to produce a 'perfect storm' for severe fuel poverty in rural Scotland.

In addition to the four recognised drivers of fuel poverty, the research identifies a set of rural specific drivers which contribute to significantly higher fuel poverty and extreme fuel poverty levels in rural areas, when compared to the rest of Scotland. The rural specific drivers of fuel poverty include factors such as a cold and wet climate, a lack of affordable housing, and limited access to support services.

To explain why fuel poverty is so pervasive in rural Scotland, the report also outlines the structural barriers to fuel poverty alleviation, including where current policy designed to limit or alleviate fuel poverty fails to recognise the realities of fuel poverty in rural Scotland.

Based on data from the 2019 Scottish House Condition Survey,¹ the report presents the 'Regional Realities' for three areas of Scotland:

- Remote rural areas of Scotland
- The Scottish Highlands and Islands
- Caithness and Sutherland

Fuel poverty in these areas affects proportionately more households than in the rest of Scotland. The severity of fuel poverty is also worse, evidenced by the high rates of extreme fuel poverty and the high 'fuel poverty gap' (the amount by which fuel bills need to be lowered to lift a household out of fuel poverty).

In 2019, 24% of households in Scotland were in fuel poverty, and 12% in extreme fuel poverty. Remote rural areas of Scotland face significantly higher levels of fuel poverty, at 40%. Even more significant is that 33% of households are in extreme fuel poverty. In the Highlands and Islands, 36% of households were in fuel poverty and 24% in extreme fuel poverty. No official data is available for Caithness and Sutherland but based on location and analysis of fuel bills and energy efficiency levels, similarly high rates of fuel poverty can be assumed.

¹ Scottish Government (2020) [Scottish House Condition Survey](#)

The analysis indicates that all four recognised drivers of fuel poverty are contributing to the higher fuel poverty rates in these regions. However, there is anecdotal evidence that high fuel prices are a particularly significant driver. This is illustrated through a case study of 781 social housing properties in Lochalsh and Skye, where tenants' energy use is less than the UK average, yet their bills are higher than average. Therefore, the structure of the energy market, which is a key driver of high electricity prices for rural households, must be addressed.

The research has resulted in a series of solutions to fuel poverty in rural Scotland, identified by the stakeholders who contributed to the research process. These are presented in the accompanying document [**Fuel Poverty in Rural Scotland: The Solutions.**](#)

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- Caithness Voluntary Group
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- East and Central Sutherland Citizens Advice Bureau
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- NHS Highland
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- Sustainable Selkirk
- The Verdancy Group
- Thurso Community Café
- Thurso Community Development Trust
- THAW Orkney
- Tighean Innse Gall
- Tìree Community Development Trust
- Voluntary Action Orkney
- Warmworks
- Waverley Housing
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1. Introduction

Fuel poverty levels in rural Scotland are higher than the rest of Scotland, and rural fuel poverty levels have been increasing since before the COVID-19 pandemic. This report evidences the extent of fuel poverty in rural Scotland and explores the reasons behind the increasing trend.

The overall aim of this report is to provide a solutions-focussed evidence base on the drivers, impacts, and extent of fuel poverty and extreme fuel poverty in three geographical areas:

- Remote rural areas of Scotland
- The Scottish Highlands and Islands
- Caithness and Sutherland

These areas were specified by the commissioners of the research. The report evidences the local and regional drivers of fuel poverty in rural Scotland generally and provides specific examples and analysis for the three regions listed above. It presents the reasons why these drivers are so pervasive, and the barriers that are preventing the alleviation of fuel poverty in rural Scotland.

The research was designed to elicit practicable solutions which respond to the specific rural aspects of fuel poverty, which are sometimes not accounted for in current policy. The solutions have been identified as part of the research process by stakeholders and are presented in the accompanying document [Fuel Poverty in Rural Scotland: The Solutions](#).

This report evidences the extent and impacts of fuel poverty in rural Scotland. It examines how the four main drivers of fuel poverty have specific impacts in rural areas. In addition to the four recognised drivers of fuel poverty, the research identified a set of additional ‘rural drivers’ which contribute to higher fuel poverty levels in rural areas when compared to the rest of Scotland.

Testimony from householders, advisors and other stakeholders illustrate some of the impacts of fuel poverty for householders in terms of self-rationing, and physical and mental health impacts. Combined with the drivers of fuel poverty, these form a cycle of wider community impacts in terms of depopulation and economic decline.

In considering why fuel poverty is so pervasive in rural Scotland, the report explores the structural barriers to fuel poverty alleviation faced by rural householders, supply chains and advice organisations. Gaps in current fuel poverty policy identified in this research mean that the realities of fuel poverty in rural Scotland are not recognised in those policies designed to limit and/or alleviate fuel poverty.

1.1 Methodology

The findings in this report are drawn from research conducted by Changeworks, which involved the following research activities:

- A desk-based evidence review of published research and evidence relevant to fuel poverty in rural Scotland.
- Analysis of data from the Scottish House Condition Survey to provide regional estimates of fuel poverty and demonstrate the differences between rural Scotland and Scotland as a whole.
- A series of interviews with householders who have a lived experience of fuel poverty, frontline advisors, and other stakeholders from a range of local and national organisations.
- Four online workshops with stakeholders during which they provided feedback on the research findings and tested the solutions presented in [The Solutions](#).

2. Drivers of fuel poverty in rural Scotland

2.1 Four recognised drivers of fuel poverty

There are four overarching drivers of fuel poverty that are well discussed within existing literature and policy: fuel prices, energy efficiency of homes, income, and energy use. These drivers are applicable across Scotland, although people experience them to different extents in rural locations compared with urban areas. This section briefly explains the nature of the four main drivers of fuel poverty and outlines the aspects of each driver that are specific to rural Scotland.

2.1.1 High fuel costs

Electricity

Electricity is currently three to four times more expensive than mains gas per kWh, meaning those who use electricity to heat their homes are likely to pay significantly more for heating. Rural households are more likely to use electricity for heat, pay more per unit, and use more units (due to poor thermal efficiency of properties, see 2.1.2). Levels of fuel poverty among households using electricity as their primary heating are consistently higher compared to households using other fuel types.²

Standing charges for electricity have increased more than for mains gas since April 2022. The primary reason for this is due to 29 energy suppliers exiting the market in recent years. The cost of supplier failure is shared amongst remaining suppliers. This cost is recouped through standing charges on electricity, but for gas this is recovered through an increase in unit rates.³ Standing charges for gas have increased slightly, however Ofgem chose to recoup costs predominantly through electricity standing charges as all households use electricity, and not all use gas.

The costs of operating the electricity grid will increase with the decarbonisation of electricity generation. Most renewable generation is located in rural areas, and increased investment in transmission and distribution networks is required to deliver electricity to towns and cities.⁴ Recovery of these costs will be borne by consumers, and will disproportionately impact people

² Scottish Government (2019) [Scottish House Condition Survey](#)

³ Good Energy (2022) [What are standing charges and why are they increasing?](#)

⁴ BEIS (now DESNZ) (2022) [Consultation: Review of Electricity Market Arrangements](#)

in rural areas, particularly those with electric heating who already pay higher standing charges despite proximity to renewable generation. In addition, green levies⁵ added to electricity bills have a greater financial impact on all-electric households compared with dual-fuel households⁶.

“The annoyance of being a 321% net generator of green electricity to the rest of the UK, all from renewables, yet we have no access to the polluting fuel which is mains gas and the price of energy is four times the cost.”

- Energy advisor, Skye

Metering and tariffs

The high prevalence of electric heating in rural areas equates to a greater percentage of homes with restricted meters⁷ (e.g., Total Heating Total Control (THTC) or Economy 7). A limited number of large, and more expensive, energy suppliers provide restricted meter tariffs, which limits customers’ ability to switch. Householders with restricted meters are not able to access more competitive standard tariffs and are also limited in their access to incentivised tariffs such as dynamic Time of Use (ToU).

In addition, restricted meters and the associated tariffs are not well understood by users. With THTC, consumers are often unaware of which appliances are connected to the low-rate meter or which times of the day cheaper rates are available.⁸

Unregulated fuels

A greater proportion of rural households are not connected to the mains gas grid and are reliant on electric heating or unregulated fuels⁹ such as oil, LPG, and solid fuels. Remote households may be limited to one or two suppliers who service their local areas. Low competition in the market means that these households may be subject to higher prices.

⁵ Green levies are additional charges placed on electricity consumption and are used to help fund energy efficiency schemes and subsidies, such as the Energy Company Obligation (ECO) and the Renewable Heat Incentive (RHI).

⁶ Energy Action Scotland (2018) [Down to the Wire: Research into support and advice services for households in Scotland reliant on electric heating](#)

⁷ These meters are restricted in that they restrict the tariff options available to households with these meter types.

⁸ Changeworks (2020) [Supporting consumers on restricted meters in Northern Scotland](#)

⁹ Unregulated fuels are those which are not overseen by a regulator, unlike electricity and mains gas which are regulated by Ofgem. There are fewer protections for householders in the unregulated market for issues such as price hikes and performance standards.

There are also additional costs associated with transportation of fuels to rural areas. Unregulated fuels can only be purchased in bulk, often with a minimum spend requirement, which is difficult for households to budget for, particularly those already in fuel poverty.¹⁰

2.1.2 Poor energy efficiency of homes

Poor energy efficiency of homes is a key driver of fuel poverty throughout Scotland. Poorly insulated properties require a greater fuel consumption to maintain comfortable temperatures. Those in fuel poverty often do not have the financial means to improve the energy efficiency of their homes, potentially leading to self-rationing and further degradation of properties and associated health risks.

Property archetypes

In rural areas there is a greater proportion of older, less energy efficient properties, particularly those of solid wall construction which can be difficult and expensive to retrofit.¹¹ Houses are often larger and isolated and are more exposed to wet and windy weather, increasing the rate of degradation. Isolated properties also have higher rates of heat loss, as they lack the benefits of shared warmth from neighbouring properties as with terraced housing or flats.

Cost of energy efficiency improvements

The issues described above (hard-to-treat construction types, older properties, and weather-related damage) equate to higher costs for retrofitting rural homes. The dispersed nature of the housing stock does not allow for aggregation of properties through energy efficiency programmes to provide economies of scale, as is the case for whole streets or neighbourhoods in urban areas. Labour costs are also higher in rural areas and retrofit supply chain and skills shortages that are being experienced throughout Scotland are amplified in rural areas¹². In rural areas there is a lack of installers who can meet PAS 2035 requirements, which creates a barrier in terms of access to funding for energy efficiency improvements (see 4.2).

Many older and traditional properties are not suitable for heat pumps without costly deep retrofit renovations. Following the proposed phasing out of fossil fuel boilers in off-gas areas

¹⁰ Energy Consumer Commission (unpublished) Fuel Debt: Support for Energy Consumers Across Energy Types [research undertaken by Changeworks]

¹¹ Scottish Government (2019) [Scottish House Condition Survey](#)

¹² Scottish Fuel Poverty Advisory Panel (2022) [Recommendations to Scottish Government](#)

from 2025,¹³ this will limit the options for low carbon heating in low efficiency rural homes to direct electric heating systems, such as storage heaters, which have high running costs.

2.1.3 Low household income

Households with lower incomes have a greater proportionate fuel spend, increasing the likelihood of low-income households being classed as fuel poor under current definitions.

In rural Scotland, 66% of employment is within the service sector, including the public sector. As such, hourly rates of pay are lower in remote rural areas compared with urban areas of Scotland.¹⁴ Average hourly rates of pay are higher in accessible rural areas compared with remote rural areas and the rest of Scotland¹⁵. However, levels of employment and income should not be considered as a standalone indicator of poverty, as this does not factor in the higher living costs for households in rural areas. It is estimated that remote rural incomes must be 10-40% higher to achieve the UK average 'Minimum Income Standard'.¹⁶

Stakeholders also discussed that rural working patterns often follow the tourist seasons. This means that household incomes are at their lowest in the winter when energy costs are highest. This is especially challenging for those on pre-payment meters who cannot distribute the cost of energy throughout the year.

2.1.4 How energy is used in the home

Household structure

Households with a higher number of children is a more important determinant of fuel poverty in rural areas than urban areas. Children and young adults in rural areas rely on electric equipment to socialise remotely and spend more time in the home compared with urban counterparts.¹⁷

¹³ Scottish Government (2021) [Heat in Buildings Strategy](#)

¹⁴ Shucksmith, M and Atterton, J (2017) [Scotland's Rural Economies](#), in Gibb, K, et al., [The Scottish Economy: A Living Book](#).

¹⁵ Scottish Government (2021) [Poverty in rural Scotland: evidence review](#)

¹⁶ Highlands and Islands Enterprise (2016) [A Minimum income standard for remote rural Scotland](#)

¹⁷ University of Leeds (2015) [Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor](#)

Self-employment and working from home are both around two to three times more common in rural areas compared with urban areas,¹⁸ meaning more people are spending long periods of time in the home, equating to greater heating and energy usage.

Culture

Stakeholders perceived that there are cultural distinctions between rural and urban communities which impact on energy consumption behaviours. For example, there is a legacy of self-rationing of heating in households who have always lived in rural regions who consider themselves as more ‘hardy’ and ‘resilient’ to local climates. This also impacts people’s ability to access support services.

“Sometimes the impacts are not visible and sometimes it’s hard to dig deeper to find out the underlying problems and see what the real impacts are on people. People are quite proud in Orkney, especially older folk, there is an apprehension about asking for help.”

- Energy Advisor, Orkney

2.2 Rural specific drivers of fuel poverty

In rural Scotland, the four main drivers of fuel poverty described above are compounded by additional factors which are specific to rural areas. These factors are explained and evidenced below and framed as a series of ‘rural drivers’.

2.2.1 Cold and wet climates

Rural areas of Scotland have comparatively lower temperatures, partly due to the urban heat island¹⁹ effect of towns and cities. The current RdSAP methodology, used to calculate the energy performance of residential buildings, does not take into consideration local geographies or climate and often underestimates thermal demand of rural properties.²⁰

Wet and windy weather is also more common in remote areas in the North and West of Scotland and the Islands. Combined with poor thermal efficiency of properties, this contributes

¹⁸ Shucksmith, M and Atterton, J (2017) [Scotland’s Rural Economies, in Gibb, K, et al., The Scottish Economy: A Living Book.](#)

¹⁹ Urban Heat Island effect describes the warming effect of high-density areas where the thermal output of buildings and people create higher temperatures.

²⁰ Glasgow Caledonian University (2017) [Uncovering hidden geographies and socio-economic influences on fuel poverty using household fuel spend data: a meso-scale study in Scotland](#)

to a higher-than-average fuel spend for rural households. Poor weather conditions also cause greater degradation of building fabric and therefore increased costs for property maintenance.

Climate impacts the energy consumption of rural households. There is greater use of tumble dryers or drying clothes indoors because of wet, cold weather.²¹ Drying indoors also relies on a warm home to reduce the risks of mould and condensation. Increased indoor humidity reduces air temperatures and requires more energy to generate and maintain adequate room temperatures.

“When you breathe out you can see the cold air. Your clothes are damp everything is damp, even after insulation. The weather has changed with climate change. Definitely. Desperately.”

- Island householder

2.2.2 High cost of living

The minimum cost of living in rural Scotland is between 15% to 30% higher than urban areas of the UK.²² Rural households face increased costs across a range of goods and services. Weekly food costs are approximately up to 4% higher for remote rural communities and up to 13% on the Islands. The cost of food is not significantly higher in rural chain supermarkets, however, prices in local convenience stores (which many remote communities rely upon) are up to 44% higher in remote rural regions and 27% higher in the Islands²³ compared with equivalent products in the supermarket.

The most significant additional cost for rural households is the cost of transport. Fuel spend on transport is often not considered within fuel poverty definitions or policy.²⁴ In the UK, petrol prices were 1.2p more expensive per litre on average in rural areas,²⁵ and rural households were found to travel 2.5 miles for every mile driven by urban counterparts.²⁶ Rural households are also often reliant on multiple vehicles where public transport links are poor. Individuals may

²¹ Scottish Government (2021) [The cost of Remoteness - reflecting higher living costs in remote rural Scotland when measuring fuel poverty: research report](#)

²² Ibid.

²³ Scottish Government (2021) [Poverty in rural Scotland: Evidence review](#)

²⁴ Glasgow Caledonian University (2017) [Uncovering hidden geographies and socio-economic influences on fuel poverty using household fuel spend data: a meso-scale study in Scotland](#)

²⁵ Data from July 2021 to July 2022

²⁶ CMA (2022) [Supply of road fuel in the United Kingdom market study](#)

work in different locations or work varying shift patterns, making car sharing impractical.²⁷ Commuting distances are also significantly higher than in urban areas, with a travel radius of 30 miles estimated on the Scottish mainland and up to 20 miles on the Islands.

2.2.3 Employment and training

As indicated in previous sections, levels of pay in rural areas are lower than the Scottish average, despite lower levels of unemployment, particularly in the Islands.²⁸ There are fewer employment and training opportunities for higher paying and/or higher skills jobs, contributing to the lower average incomes.²⁹ Many jobs are low-skilled or seasonal, and self-employment is twice as common in rural areas.

SMEs account for two thirds of businesses compared with one third in urban areas, many of which are micro-businesses with fewer than nine employees.³⁰ Smaller businesses are more susceptible to financial risks and are less resilient during times of poor economic performance than larger organisations, leading to concerns surrounding job security. Rural employers cite a lack of affordable housing as the single biggest barrier to staff recruitment (see 2.2.4).³¹

2.2.4 Affordable housing

There is a shortage of affordable housing in rural Scotland, partly driven by the popularity of rural living following the pandemic, and the high numbers of second homes and short-term lets. A lack of affordable housing is a huge barrier to recruitment for rural employees, contributes to depopulation, and inflates housing costs in rural areas.

Rural areas are not a focus for new build developments, which are often built in areas of high population density. However, the Scottish Government have committed to building 11,000 affordable homes in remote, rural and island areas by 2032.³²

²⁷ Scottish Government (2021) [The cost of Remoteness - reflecting higher living costs in remote rural Scotland when measuring fuel poverty: research report](#)

²⁸ Scottish Government (2022) [Scotland's Labour Market: People, Places and Regions – Protected Characteristics. Statistics from the Annual Population Survey 2021](#)

²⁹ Scottish Government, SRUC (2022) - [Improving our understanding of child fuel poverty in rural and island Scotland](#)

³⁰ Shucksmith, M and Atterton, J (2017) [Scotland's Rural Economies](#), in Gibb, K, et al., [The Scottish Economy: A Living Book](#).

³¹ Highlands and Islands Enterprise (2023) [Housing, population and the economy of the Highlands & Islands](#) [presentation at Rural Housing Conference 2023]

³² Scottish Government (n.d.) [Affordable Housing Supply Programme](#)

There is a comparatively smaller percentage of social housing in rural areas and a greater proportion of owner-occupied and private rented accommodation.³³ Owner-occupied and private rented properties are not currently subject to the same standards of energy efficiency as social housing,³⁴ contributing to the overall poorer quality, and lower energy efficiency, of housing in rural areas. However, the forthcoming Heat in Buildings Bill will introduce minimum standards across all housing tenures.³⁵

2.2.5 Ageing demographics

Older age groups have a greater reliance on heating and incur greater energy requirements to meet a satisfactory heating regime³⁶ as outlined in the Scottish fuel poverty definition. In 2019, older households accounted for more than double the number of those in fuel poverty compared to families with children.³⁷ Single pensioner households also have an above average fuel poverty rate³⁸, suggesting that aging populations in rural areas are one reason for the higher rates of fuel poverty.

2.2.6 Limited access to support services

The limited number and dispersed nature of public and social services in rural areas means people are less likely or able to reach out for assistance during times of financial hardship. Depopulation and aging communities are diminishing the size of the available workforce, further impacting the provision of local services.³⁹ There is also lower uptake of welfare support in rural regions owing to a lack of awareness and access to services.⁴⁰

³³ Scottish Government (2019) [Scottish House Condition Survey](#)

³⁴ Second Energy Efficiency Standard for Social Housing (EESSH2)

³⁵ Scottish Government (2021) [Heat in Buildings Strategy](#)

³⁶ Elderly (over 60) and infirm people should be able to maintain their living room temperature at 23°C, and all other rooms in their home at 18°C, for most of every day.

³⁷ Scottish Government (2019) [Scottish House Condition Survey](#)

³⁸ Scottish Government (2016) [A Scotland without fuel poverty is a fairer Scotland: report](#)

³⁹ Fixsen, A., et al., (2021) [Weathering the storm: A qualitative study of social prescribing in urban and rural Scotland during the COVID-19 pandemic](#)

⁴⁰ Scottish Government, SRUC (2022) [Improving our understanding of child fuel poverty in rural and island Scotland](#)

3. Impacts of fuel poverty in rural Scotland

3.1 Individual impacts

A common coping mechanism for dealing with fuel poverty is to only heat one room, or in some cases not, heat the home at all. This is referred to as self-rationing. The extent of self-rationing is not well-understood because the current fuel poverty definition does not provide any measure of whether or not households are meeting the required heating regimes. Many of the impacts of fuel poverty are a result of self-rationing and cold homes.

“People phoning with coughs and things saying they are not well that they can’t afford to top up or I have a lot of pensioners saying they stay in bed till 12, then they get up to have a can of soup and then they go back to bed. It’s dreadful to hear.”

- Energy advisor, Caithness

Health

Self-rationing, cold homes, and homes with poor energy efficiency levels all increase the risk of mould and condensation. These living conditions have been shown to have a negative impact on health.⁴¹ There is an increased risk of respiratory and circulatory problems, either caused directly by cold or indirectly by mould-growth in damp homes.⁴² These impacts are more severe for young children, the elderly, and disabled people.⁴³

Poor health and fuel poverty are a cycle.⁴⁴ Poor health is both a driver of fuel poverty and an impact of it. Poor health causes fuel poverty through lower incomes (due to limited capability for work) and the higher cost of living associated with health conditions.⁴⁵ It was also noted by

⁴¹ Scottish Government (2015) [Health, Energy Efficiency & Affordable Warmth: Evidence Review](#)

⁴² Energy Action Scotland (n.d.) [The Impact of Cold Temperatures on Health](#)

⁴³ Public Health England (2014) [Local action on health inequalities: Fuel poverty and cold home-related health problems](#)

⁴⁴ Marie Curie (2020) [The vicious cycle of fuel poverty and terminal illness](#)

⁴⁵ Middlemiss, L. & Gillard, R. (2015) [Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor](#)

stakeholders that fuel poverty can affect rural households' ability to access healthcare due to poor public transport and high transport costs.

Many of the householders we interviewed had serious health conditions, exacerbated by cold homes.

“Basically, [...] my daughter has to spend time in bed and put loads of layers on, hats mittens, everything. Because my son has diabetes, he has to be careful with his feet and has to layer up. [...] I’ve had severe covid and pneumonia and I have diabetes as well, it’s pretty serious here.”

- Highland householder

“I’m asthmatic so if the smoke is blowing in the house it’s not good for asthma, going out in the cold and wet is bad for my asthma and I get Raynaud’s, so my fingers and toes go at me if the fire isn’t lit.”

- Sutherland householder

Several stakeholders emphasised the negative impact on mental health, especially as an overlooked or underestimated impact of fuel poverty.

“It’s all linked together. We talk about health, but it’s not just physical health, it’s also mental health. People’s mental health is impacted by the worry of being unable to heat their home. More and more people have to choose between heating and eating.”

- Charity manager, Moray

People’s mental health is impacted through the lived experience of fuel poverty, and by the worry and uncertainty associated with not knowing if they will be able to heat their home in a month or a year. Householders described the condition of their mental health to us, which included high levels of stress, anxiety, and depression.

“I suffer from depressions and anxiety. I’m constantly stressed and anxious about how much it’s going to last me. All my money is gone in about two days again. I need to get the essentials.”

- Highland householder

“You wake up worrying about it and fall asleep worrying about it. It’s not a normal life constantly worrying about the figures. It’s all very well doing adverts saying you can save this and that. They need to put prices up for wages, they are not helping.”

- Island householder

Energy advisors explained that they deal with clients experiencing suicidal thoughts and commented on the increased emotional toll they face in their role.

“What do we do when people are phoning us telling us ‘I am freezing and I have no money’ and we have nowhere to refer them to and nothing to do? That’s beyond concerning for us. What happens if people become unwell or their mental health is so poorly that they are feeling certain ways and doing drastic things? For us there is nowhere to turn. There has always been somewhere to turn to but now that feels like that has fallen away.”

- Energy advisor, Scottish Borders

Social isolation

The negative health impacts are closely associated with other social impacts, both relating to individual households and the wider community. Stakeholders mentioned that they have witnessed increasing isolation among householders. For example, cold homes make householders less likely to invite people over; it can make it difficult for clothes to dry and result in damp-smelling clothes; this in turn can lead householders to feel embarrassed and avoid other people and community events. A consequence of this increased isolation is that householders are less likely to know where to turn and reach out for help, creating a negative spiral. Without addressing this issue, isolated households risk being left out of fuel poverty solutions such as improved energy advice and warm hubs.

“If it gets really, really cold and icy, I’ll struggle ‘cause my coal bank will empty and nobody will be able to come down and fill it up for me. I don’t know my neighbours that well. Everybody has lived here forever, so if you come into the community, you are called an incomer and it’s hard to get people to do things to help you. It’s a bit backwards sometimes.”

- Sutherland householder

3.2 Community impacts

Fuel poverty has spiralling impacts for local communities. Interview participants described how the drivers of fuel poverty are accelerating the wider issue of rural depopulation. Fuel poverty, combined with a lack of employment opportunities and affordable housing in rural areas is driving working age groups and families towards more urban regions, contributing to overall aging populations in rural areas. This trend of aging populations in rural areas is set to continue, leading to overall population decline and therefore reduced economic activity in these areas. This has implications for job availability and contributes to a cycle of economic downturn and net out-migration of working families.

At the same time, the high costs of energy means that local households reduce their spending on local goods and services and engage less in social activities. This is further compounded in rural areas where goods and services are more expensive.

Both depopulation and reduced household spending affect local businesses which may be forced to close or move to areas with greater economic potential due to staff shortages or loss of income. The resulting economic downturn has a secondary impact on rural communities as local employment opportunities dwindle and households must travel longer distances for work, again increasing the rural cost of living. It also drives depopulation, and this is reflected in a recent survey in the Highlands and Islands which found that 47% of respondents feel that people are leaving because they cannot find work.⁴⁶

⁴⁶ HIE (2022) [My Life In The Highlands And Islands Research](#)

4. Structural barriers to fuel poverty alleviation

As outlined in section 3, the health and social impacts of fuel poverty can form a cycle which prevents people getting out of fuel poverty. Despite the ongoing work by a wide cross-section of organisations to address fuel poverty, fuel poverty rates in rural Scotland continue to rise. There are a number of structural barriers which are preventing adequate action to address the drivers of fuel poverty in rural areas.

The structure of the energy market is a significant barrier, as it drives high energy prices for rural households. As this is discussed as a driver in 2.1.1 it is not included in this section. Solutions to address the barriers to fuel poverty alleviation presented by the energy market are included in the [Fuel Poverty in Rural Scotland: The Solutions](#).

4.1 Barriers faced by households

Energy efficiency schemes

Current energy efficiency schemes are not delivering at the pace and scale required in rural areas. Stakeholders felt that contractor-led and single-measure schemes can be piecemeal and do not achieve a whole-building, fabric first approach.

It was also noted that the centralised delivery of some schemes is a barrier to engagement. This is linked to historic cold-calling and mis-selling in the domestic energy efficiency and renewables market.⁴⁷ While these issues were not limited to rural areas, there is a legacy of distrust, particularly toward non-local firms. Area based approaches such as EES:ABS, which are administered per local authority area, can help build trust, even when delivered by an external organisation. An example of this is the delivery of EES:ABS in Orkney which has both an '0800' phone number and a local phone number. The local number reportedly receives around 12 times more calls than the free 0800 number.⁴⁸

There is a perception that non-local installers can result in poor outcomes and experiences for householders. Stakeholders described that there is sometimes a lack of accountability for

⁴⁷ Changeworks (2020) [Consumer protection in the domestic energy efficiency and renewable retrofit market](#)

⁴⁸ According to stakeholders participating in the research

installers who visit rural areas from the Central Belt and often do not return for maintenance or follow-up work. Stakeholders highlighted the risks associated with not having immediate support if there is a technical issue, for example with a heat pump.

Grants for energy efficiency improvements are limited for private landlords. National schemes for heating upgrades are only available to owner-occupiers. Grant uptake in the owner-occupied market by rural homeowners is slow compared with urban areas, due to the increased costs of retrofit and the dispersed nature of housing. Grant funding is available for homeowners of up to £9,000 (including a rural uplift of £1,500) for heat pump and energy efficiency measures.⁴⁹

Recent changes to the national Warmer Homes Scotland (WHS) scheme include the removal of funding for oil and LPG gas boilers whilst retaining funding for new mains gas boilers. This decision further exacerbates fuel poverty for vulnerable rural households whose properties may not be suitable for a heat pump without extensive fabric improvements.

Self-funding requirements

Stakeholders noted that the requirement for partial self-funding for improvements was a barrier for many fuel poor households. This barrier may result in uneven access to energy efficiency improvements where people with more disposable income are more likely to reduce their energy costs.

Another participant explained that the many different funding streams, each with their own requirements, makes the energy support landscape very difficult to navigate. This increases the need for expert energy advice services and is reflected in the solutions identified during this research.

Digital infrastructure

Mobile network infrastructure in many rural areas was not sufficient for the installation of first-generation smart meters (SMETS1), particularly in remote regions. Second generation smart meters (SMETS2) now rely on long-range radio communications, providing coverage for over 99.5% of Scotland.⁵⁰ However, this has meant that rural households in Scotland have waited the longest for a smart meter, and some may not be able to access one at all, due to the costs and difficulties associated with connection.⁵¹ Rural households therefore are unable to benefit

⁴⁹ Scottish Government (2022) [Enhanced support to make homes warmer and greener](#)

⁵⁰ <https://www.smartme.co.uk/smets-2.html> [Last accessed 14th March 2023]

⁵¹ Citizens Advice Scotland (2016) [Smart Move: Taking Stock of the Smart Meter rollout programme in Scotland](#)

from the associated rewards, such as flexible tariffs (e.g., dynamic ToU), incentives for reducing energy use during peak times, or the use of smart appliances.

Digital connectivity and internet speeds are also a limiting factor in some rural areas. This reduces access to online learning and training platforms, their energy supplier (many of which direct customers to use web chats), digital health and wellbeing support services, and remote jobs reliant on good internet access. This is especially isolating for remote communities who may not have these services and opportunities physically present within their local area.

4.2 Local supply chain barriers

Energy efficiency schemes are not delivering at scale in rural areas because of supply chain issues and the standards required. This challenge is recognised in the Heat in Buildings Supply Chain Delivery Plan⁵² and the Fuel Poverty Strategy⁵³. Supply chain issues have knock-on effects for householders. Low competition in the market can mean rural households are exposed to higher prices. Contractors may have to travel long distances to jobs in rural areas, further increasing costs to the householder.

Accreditation and Training

According to stakeholders, the high degree of uncertainty around PAS 2035 presents a barrier to the retrofit supply chain. PAS 2035 is a retrofit specification that is currently required to deliver funded retrofit schemes such as ECO4. It is likely to be included in Scottish delivery programmes as part of the Heat in Buildings Strategy.⁵⁴ Installers are unwilling to invest in the skills and training required for accreditation when they are unsure of the long-term pipeline of work. Once the retrofit sector is associated with more security, there will also be a need for increased availability of and funding for training and accreditation in rural communities. Travel and accommodation expenses for training are also a barrier for small rural firms.⁵⁵

Procurement barriers

Microbusinesses and sole traders face administrative resource barriers to accessing publicly procured retrofit work. For example, suppliers can evidence compliance through certification,⁵⁶

⁵² Scottish Government (2022) [Towards an Industry for Green Heat: heat in buildings supply chains delivery plan](#)

⁵³ Scottish Government (2021) [Tackling fuel poverty in Scotland: a strategic approach](#)

⁵⁴ Scottish Government (2022) [Heat in Buildings Strategy Scottish Government Quality Assurance Policy Statement](#)

⁵⁵ Scottish Rural Fuel Poverty Task Force (2016) [Delivering affordable warmth in rural Scotland: Action plan](#)

⁵⁶ For example, certification of standards such as ISO 9001, ISO 14001, ISO 16001.

but many microbusinesses do not have these certificates. They must instead answer a series of compliance questions.

"A lot of these tenders are being done by guys on the kitchen table at night or at weekends. And they will get to that point at ten o'clock at night and they are on question 35 and they go 'you know what, I'm not bothering'."

- Stakeholder, Scottish Borders

Housing providers consulted as part of this research also described difficulties attracting large companies from the Central Belt to undertake retrofit work. This is the case in the Scottish Borders, as well as regions that are further from the Central Belt.

Apprenticeships

One respondent said that many sole traders and small businesses were keen to take on apprentices, but the costs were too high. Another respondent described that their organisation had a training facility which closed as it was too challenging to secure funding.

Upon completion of apprenticeships in the public sector, staff are quickly 'lost' to the private sector due to higher wages. This wage differential is particularly stark in areas with buoyant job markets such as Shetland where there is a high density of construction jobs.

4.3 Challenges for local support organisations

Accessing funding

Several of the interview participants had experienced that rural communities were disadvantaged in funding bids. In some cases, this is due to funders prioritising projects that reach high volumes of people which skews funding awards in favour of urban projects. Funding bids from smaller organisations with a smaller reach cannot compete. It was felt that funding bodies and their application forms do not consider the realities of delivering fuel poverty services in rural areas.

Another barrier is the high demands associated with funding applications which can be difficult to meet in organisations with few staff or limited capacity. One respondent said their organisation struggled to access the Energy Redress Scheme due to the application requirements. For this particular scheme, the minimum award amount of £20,000 is a barrier to some smaller organisations.

Short-term funding

Stakeholders described the short-term nature of funding as another significant barrier. Short-term contracts and a lack of job security make it difficult for organisations to retain skilled advisors, resulting in a loss of local expert knowledge.

“People end up losing their job, but also we lose a local understand of what rural homes need. So there are longer social impacts in the community.”

- **Campaigns officer, rural Scotland**

Short-term funding also requires organisations to dedicate significant resource to securing new funding every year, which is particularly burdensome for small organisations. Several of the stakeholders involved in this research had experienced loss of valued energy-related services and staff due to these funding barriers.

Running costs

Local organisations are now facing the additional challenge of having to pay increasingly expensive energy bills without an increase in funding. One participant described that the local community hall was used less because it was impossible to keep warm. At the extreme end, charities and community spaces can be forced to close to due to increased running costs.

Metering issues

Advisors referred to a lack of understanding among energy suppliers of restricted meters. Additionally, there is a lack of communication from suppliers and network operators to advice organisations. Uncertainty around Radio Teleswitching (RTS) arrangements⁵⁷ was cited as a key example of this.

The complexity of metering arrangements in rural areas is compounded by a lack of meter engineers. Before the Covid-19 pandemic, some island clusters had a designated meter operator. However, the engineer in the Western Isles was made redundant during the pandemic. Households in the region now rely on engineers visiting from other parts of Scotland. This results in delays and means that engineers may not have knowledge of the different types of meters more commonly found in rural areas.

⁵⁷ SFHA (2023) [Update on RTS restricted meters](#)

4.4 Policy progress and remaining gaps

Fuel poverty policy in Scotland

Scotland's Fuel Poverty Act sets out a legal definition of fuel poverty and extreme fuel poverty in Scotland and includes statutory targets to reduce fuel poverty. The Act also recognises the need for a defined uplift in the Minimum Income Standard for remote rural areas. Research from Loughborough University defined the necessary uplifts in relation to different household types, and the uplift is recalculated every year to reflect inflation. The report recognises that the research used to define the uplift *"is not a comprehensive survey of additional costs – it does not include the additional cost of fuel and takes only partial account of the situations of particularly remote areas."*

In 2016, the short-life Scottish Rural Fuel Poverty Task Force set out recommendations to address rural fuel poverty.⁵⁸ These have informed subsequent fuel poverty policy, however many rural-specific issues that were highlighted require further action.

Fuel poverty policy in the UK

While fuel poverty is devolved to the Scottish Government, the UK government maintains responsibility of energy market policy, primarily through Ofgem and the Department of Energy Security and Net Zero (DESNZ, previously BEIS). DESNZ has also administered UK-wide energy support schemes such as the Energy Bills Support Scheme. Ofgem's role is to protect energy customers, and their Vulnerability Strategy⁵⁹ recognises that living in a rural area, living off the gas grid and having a certain meter type (such as restricted meters) are all circumstances which can make a customer more vulnerable. The Strategy identifies a wide range of desired outcomes, though most are not specific to rural areas. On the issue of unaffordable heating for off-gas customers, the desired outcome is increased gas connectivity; however, this is not an option for many people in rural Scotland.

Policy gaps relating to fuel cost

Policy tools such as Ofgem's price cap and the energy price guarantee are also generally presented based on a 'typical' dual-fuel⁶⁰ household. This is defined as one which uses 2,900 kWh of electricity and 12,000 kWh of gas in a year. However, as acknowledged in Ofgem's

⁵⁸ Scottish Rural Fuel Poverty Task Force (2016) [Delivering affordable warmth in rural Scotland: action plan](#)

⁵⁹ Ofgem (2019) [Consumer Vulnerability Strategy 2025](#)

⁶⁰ Dual fuel is used to describe tariffs for both electricity and gas from the same supplier. Suppliers often offer a discount to these customers.

recent consultation on typical domestic consumption values,⁶¹ accurate consumption data for the 15% of UK homes without a gas supply is lacking. The assumptions also fail to account for the much higher average electricity usage in Northern Scotland and the different types of meters and tariff structures for all electric households.

Analysis of the energy price guarantee found that in January 2023 a typical yearly bill remained at £2,500 for a ‘typical domestic dual-fuel customer’ but changes to the tariff structures left some THTC customers with a £215.80 increase.⁶² In 2022, the Scottish Government has urged the UK government to rebalance energy bills to reduce the premium paid by consumers using electric heating.⁶³

Few policies address the issue of unregulated fuels. Users of these fuel types have become increasingly vulnerable during the energy crisis; for example, the price of oil and LPG rose by over 100% since the beginning of the crisis.⁶⁴ The UK government delivered a £200 Alternative Fuel Payment in the winter of 2022-23.⁶⁵ This amount does not close the fuel poverty gap, which in 2017-19 was more than £1,000⁶⁶ in the Highlands and which has likely increased significantly since. Additionally, payments were not issued until February, and some households did not receive automatic payments as there is no central database of homes using alternative fuels. Due to the need for households to pay upfront for fuel, these delays are likely to have left households without heating fuel for the early winter months.

Energy advisors also noted that there is a lack of immediate financial support for households who pay for their energy via direct debit unless they have energy debt. In contrast, households with prepayment meters can receive emergency top-up vouchers, although they also pay a slightly higher energy cost. The UK Government has now committed to ending the prepayment meter standing charge premium.⁶⁷

⁶¹ Ofgem (2023) [Call for Input: Review of Typical Domestic Consumption Values 2023](#)

⁶² Lochalsh and Skye Housing Association (2023) Electricity Price Update – North Scotland – 11 January 2023 [produced and circulated quarterly by LSHA, available from energyadvice@lsha.co.uk]

⁶³ Scottish Government (2022) [Spring Statement: letter to UK Government](#)

⁶⁴ National Energy Action (2023) [The hardest hit: Impact of the energy crisis](#)

⁶⁵ BEIS (now DESNZ) (2022) [Vital help with energy bills on the way for millions more homes across Great Britain and Northern Ireland](#)

⁶⁶ Scottish Government (2021) [Heat in buildings strategy: island communities impact assessment](#)

⁶⁷ UK Government (2023) [Spring Budget 2023](#)

Policy gaps relating to household income

A range of different financial support schemes currently exist to help households with their energy bills (Table 1). However, these payments are universal amounts and do not account for the disproportionately higher costs of heating and larger fuel poverty gap in rural areas.

Most of the schemes are only available to households on means-tested benefits. Households in rural Scotland are more likely to miss out on these due to a higher degree of price-driven fuel poverty (i.e. household income is above the benefits threshold, but too low to afford high household energy bills).⁶⁸ This was also raised as an issue in the stakeholder interviews. Analysis in 2020 found that 42% of rural fuel poor households were not eligible for the WHD.⁶⁹ This is likely to have increased significantly because of the energy crisis.

The Home Heating Support Fund offers funding for all fuel customers with considerations for specific circumstances and costs. One advisor described this fund as ‘a lifeline’. However, households can only apply once and it is unclear how support will be continued after the fund runs out. It is also likely that many households in need will miss out on this support due to lack of awareness. As demonstrated in Table 1, few of the other existing fuel poverty support schemes include considerations for the rural aspects of fuel poverty.

Table 1: Summary of relevant energy-related financial support schemes for domestic customers

Scheme	Amount (p/a)	Eligibility	Application Process	Rural considerations	Fuel Poverty Specific
Warm Home Discount	£150	Core group: Low-income pensioners Broader group: Criteria vary between suppliers, primarily means-tested benefits	Many eligible people miss out due to a complex and opaque application process ⁷⁰	No	Partly
Winter Fuel Payment	£250-£600	Pensioners	Automatic payment	No	Yes

⁶⁸ Scottish Government (2021) [Poverty in rural Scotland: evidence review](#)

⁶⁹ Changeworks (2020) [Warm Home Discount as an effective form of fuel poverty relief](#)

⁷⁰ Ibid.

Winter Heating Payment	£50	Households on certain means-tested benefits	Automatic. Replaces Cold Weather Payment in Scotland	No	Yes
Council Tax Rebate	£150 (once)	Households in council tax band A-D		No	Partly
Energy Bills Support Scheme	£400 (once)	Every household with electricity meter		No	No
Alternative Fuel Payment	£200 (once)	Anyone without mains gas	Concerns around how to identify recipients	Yes	No
Home Heating Support Fund	Varies (once)	Anyone can apply	Requires online application - vulnerable people may need support to access	Yes (indirect)	Yes
Social Housing Fuel Support Fund	Varies	Social housing tenants		No	Yes

Gaps relating to energy efficiency

Existing fuel poverty policy is largely focussed on energy efficiency, with the Scottish Government explicitly taking a ‘fabric first’ approach. The Fuel Poverty Strategy makes some considerations for remote and rural properties. For example, Warmer Homes Scotland uses a National Customer Price mechanism that accounts for additional costs of delivering energy efficiency measures in rural areas. Additionally, Area Based Schemes have more funding available to reflect higher costs in rural areas.

However, stakeholders expressed that these considerations do not go far enough in delivering adequate energy efficiency improvements in rural Scotland. The general experience was that too many homes fall outside the criteria of existing schemes.

Gaps relating to energy use in the home

The fuel poverty definition assumes that nine hours of heating is adequate for most households, except circumstances where enhanced heating regimes are required. Working from home is not included in the enhanced heating regime and the associated cost increase is therefore not accounted for in the fuel poverty definition.

Weather and climate

The distinct adverse weather conditions in much of rural Scotland are not considered in any existing policies. The £25 Cold Weather Payment was the only scheme that considered the impact of geographical differences on energy costs, even if this was considered inadequate by

some organisations.⁷¹ As of 2022, this was changed to a Winter Heating Payment of £50 per year regardless of weather. While this means a wider base of households will receive the payment, there is no longer any support that targets areas with colder weather. It should be noted that temperature alone is a flawed metric on adverse weather in Scotland, as the excess heat loss experiences in many rural properties are due to wind and wind-driven rain.⁷²

⁷¹ Citizens Advice Scotland (2022) [CAS Response to the Scottish Government's consultation on Low Income Winter Heating Assistance](#)

⁷² Scottish Rural Fuel Poverty Task Force (2016) [Delivering affordable warmth in rural Scotland: action plan](#)



Regional Realities

The following three sections present the results from data analysis for three geographic regions:

- Remote rural areas of Scotland
- The Highlands and Islands
- Caithness and Sutherland

The data analysis illustrates the levels of fuel poverty in these three regions. The results quantify some of the drivers of fuel poverty described in the previous sections to provide a comparison to the Scottish average.

A note on the data used

Some of this data was collected through a special request from the latest available Scottish House Condition Survey (SHCS). Due to the COVID-19 pandemic, the most recent version of this data is from 2019, meaning official fuel poverty statistics are dated. Nonetheless, the relative values from the analysis, compared to those for overall Scotland, does indicate the typical differences that are relevant currently.

An estimate of more recent levels of fuel poverty can be seen in the map below (Figure 1), produced by Energy Action Scotland. The map provides an estimate of fuel poverty levels by local authority as of 1 April 2022. The estimates extrapolate the 2019 SHCS local authority level fuel poverty data using an uplift percentage estimated by the Scottish Government. The uplift sought to illustrate the impact of the energy price cap increase in April 2022. This is not as reliable as the outputs from SHCS, but it is currently the best estimate there is of recent fuel poverty levels by local authority. The map clearly shows that rural local authorities have higher rates of fuel poverty, and that the estimates are significantly higher than the 2019 SHCS data used in this report.

FUEL POVERTY BY LOCAL AUTHORITY

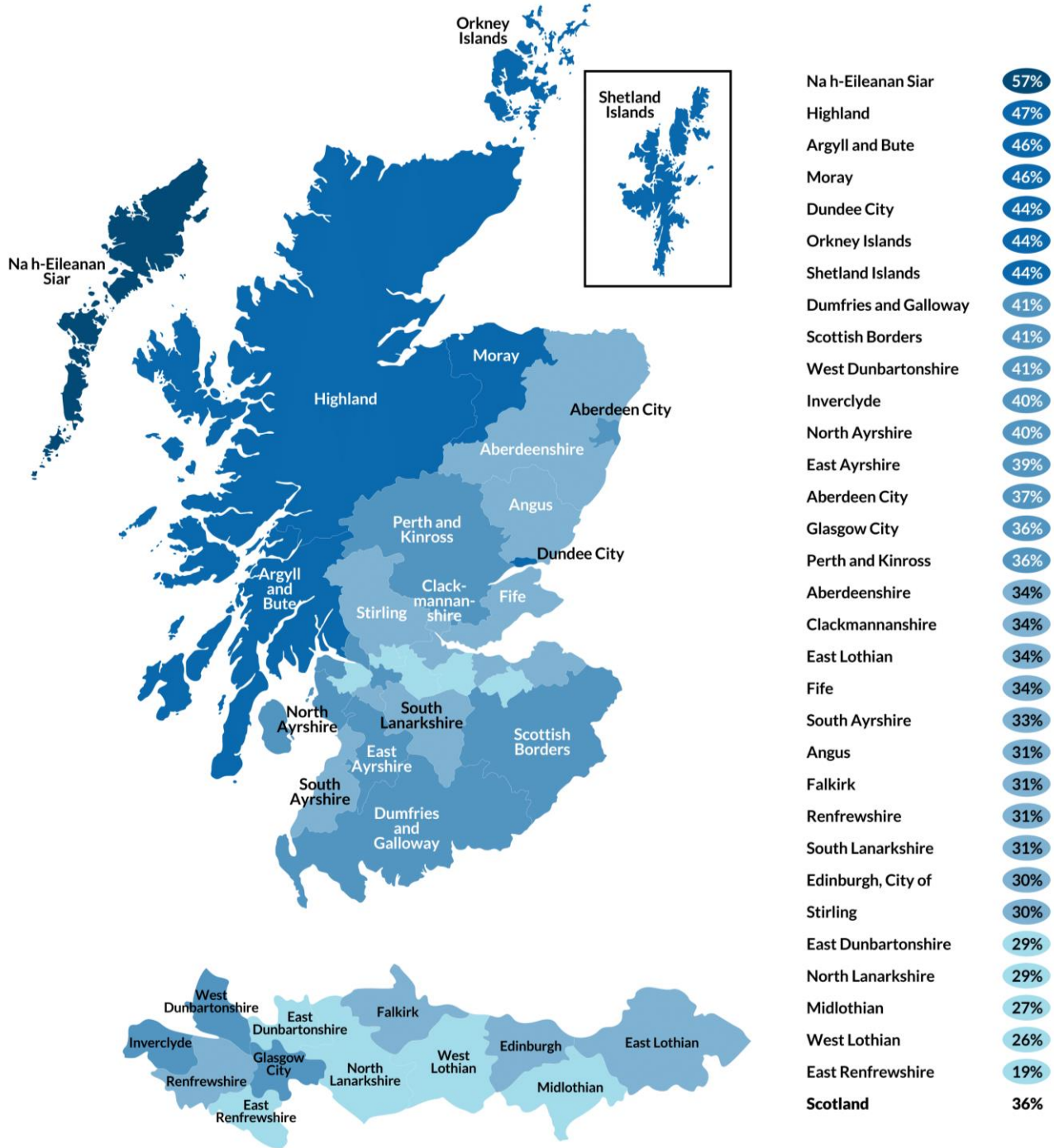


Figure 1: Fuel poverty estimates by local authority as of 1 April 2022. Image reproduced with permission from Energy Action Scotland.

5. Remote rural Scotland

This section examines the extent of fuel poverty in remote rural Scotland. It explores how many of the drivers and barriers described above are more extreme in remote rural areas when compared to accessible rural areas or the rest of Scotland.

Defining 'remote rural Scotland'

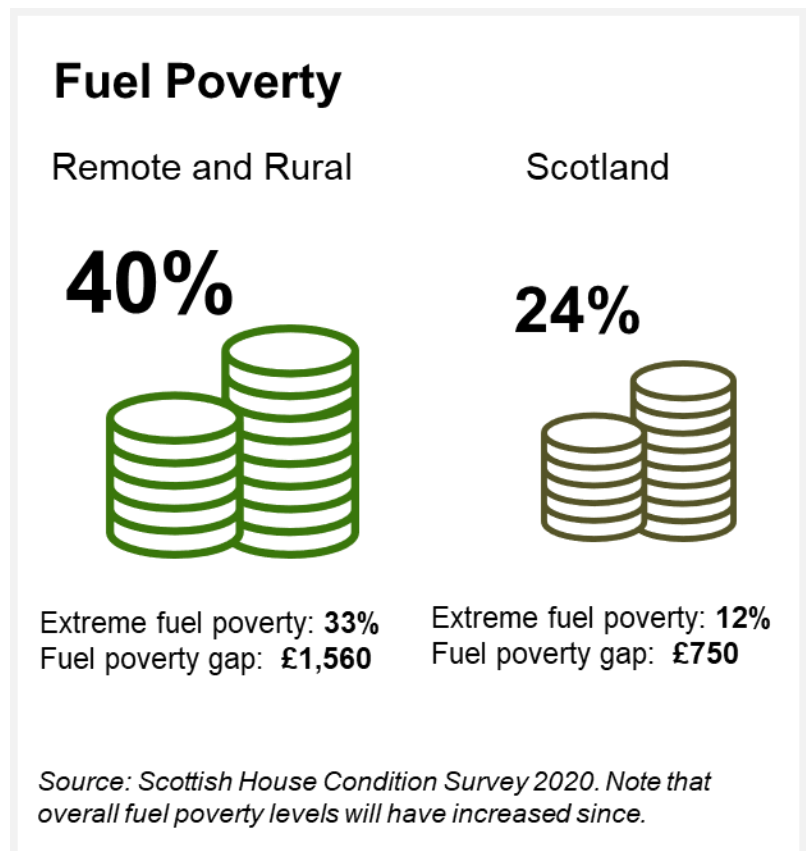
When gathering statistics for remote rural Scotland, we used data available for class 6 of the 6-fold Urban Rural classification.⁷³ This represents areas with a population of less than 3,000 people, and with a drive time of over 30 minutes to a settlement of 10,000 or more.

Fuel poverty levels

The proportion of households in remote rural areas in extreme fuel poverty is around three times the proportion in accessible rural areas and in the rest of Scotland.⁷⁴ Fuel poverty (40%) and extreme fuel poverty (33%) in remote rural Scotland were significantly higher than throughout the rest of the country (24%, and 12%, respectively) in 2019.

The fuel poverty gap (the amount by which fuel bill need to be lowered to lift a household out of fuel poverty), was £1,560 - more than twice as high as the £750 average for Scotland that year.

The higher fuel poverty levels in rural areas can be explained by both lower incomes (particularly after housing costs) and higher fuel bills, which are driven by several factors (see **Error! Reference source not found.**).



⁷³ Scottish Government (2018) [Scottish Government Urban Rural Classification 2016](#)

⁷⁴ Scottish Government (2021) [Rural Scotland Key Facts](#)



Median income (before and after housing costs)

Remote and Rural	Scotland
Before Housing Costs £24,000	Before Housing Costs £27,716
After Housing costs £19,200	After Housing costs £25,012

Source: Scottish House Condition Survey – Special request

Income

Income levels in remote rural areas, both before and after housing costs, were lower than the Scottish average in the last SHCS. In particular, income after housing costs was 23% lower than the Scottish average at £19,200.

Average wages and household incomes in remote rural areas are lower than the Scotland average. In contrast, households in accessible rural areas tend to have higher average wages and household incomes.⁷⁵ This illustrates the disparities that exist with rural parts of Scotland.

Fuel bills

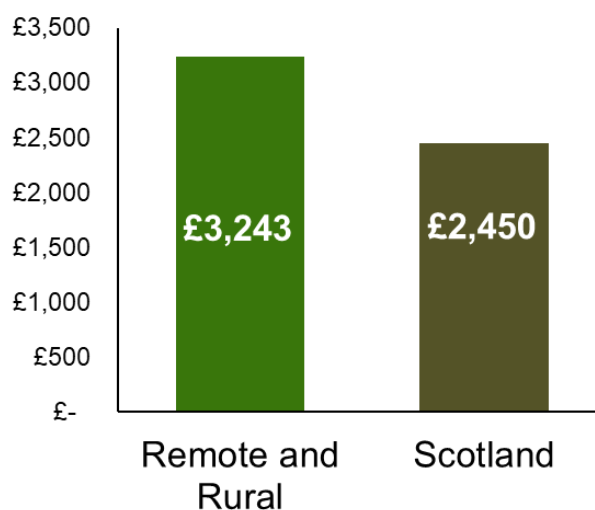
We modelled the yearly fuel bills needed to meet the standard heating regime in a 3-bedroom property.

In remote rural areas, the modelled yearly bill was one-third higher at £3,243 per year than the national average of £2,450.

The modelling only accounts for differences in fuel types and their costs and does not consider behaviour or the energy efficiency of properties.

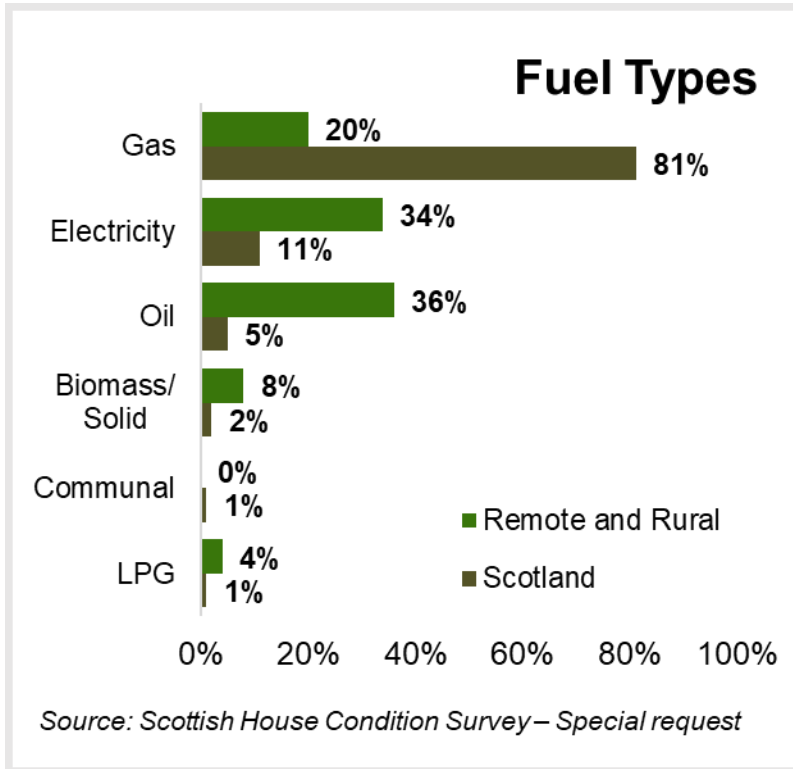
Average yearly modeled heating

for a 3-bedroom property in October 2022



Source: Scottish House Condition Survey – Special request

⁷⁵ National Statistics (2021) [Rural Scotland Key Facts 2021](#)




Remote rural areas have more properties using electricity, oil, LPG, and solid fuels than the rest of Scotland, which explains this difference. For example, oil is the main fuel type for 36% of homes in remote rural areas, compared to 5% in Scotland.

We also analysed electricity consumption data from DESNZ⁷⁶ to give a better indication of actual (rather than modelled) usage and bills.⁷⁷

In 2020, remote rural households used 25% more electricity for heating (7,555 kWh/yr) compared with the Scottish average (6,059 kWh/yr). This indicates that when considering household behaviour, energy use for heating and therefore heating bills will be higher remote rural Scotland.

Due to a lack of available consumption data, we were unable



Electricity use for heating

Remote and Rural:	7,555 kWh/yr/mtr
Scotland:	6,059 kWh/yr/mtr

Source: DESNZ Postcode level Economy 7 use 2020

⁷⁶ DESNZ (2022) [Postcode level domestic gas and electricity consumption](#)

⁷⁷ Note: The consumption data is for Economy 7 tariffs, which can be used as a proxy for electricity used for heat (i.e., storage heaters).

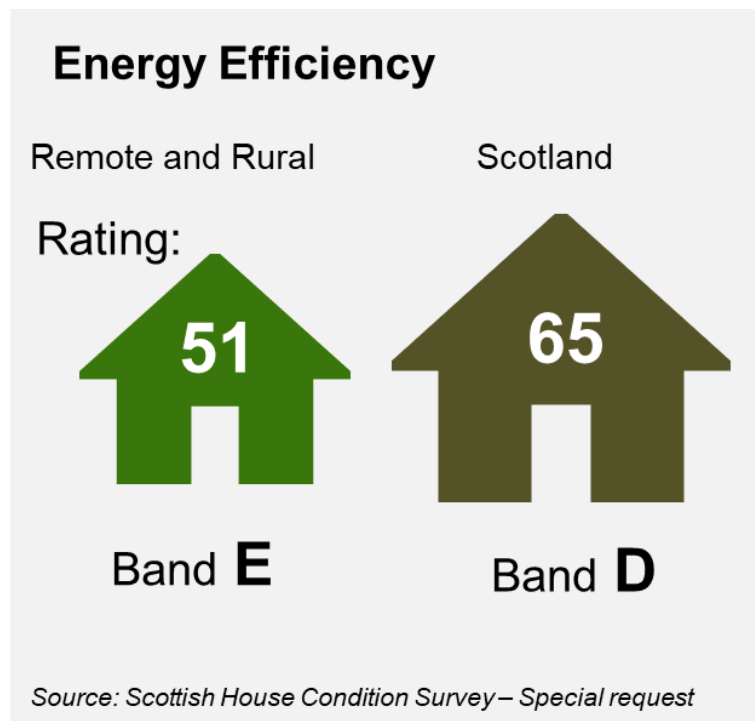
to conduct similar analysis to compare actual and modelled energy use for households using oil, LPG, and solid fuel.

We contacted several rural oil buying clubs and fuel suppliers for average household consumption figures, however no data was available. Data provided by one rural oil buying club demonstrated a steady decline in the average order volume from December 2020 to December 2022. This suggests households have been increasingly self-rationing as energy costs continue to rise.

Energy efficiency of homes

The energy efficiency of properties is lower in remote rural Scotland (EPC rating of 51 vs 65).

This is partly explained by property type, as there are more houses than flats, and houses have higher heat loss levels. The lower EPC ratings are also partially explained by expensive fuel types, as EPC ratings are an energy cost metric.



5.1 Remote rural drivers and barriers

The drivers of fuel poverty, and the barriers to its alleviation, are felt more significantly in remote rural areas, compared to accessible rural areas and the rest of Scotland. Some examples are provided below.

Population

Aging populations are more significant in remote rural areas, with 26% of the population aged over 65, compared to 21% in accessible rural areas and 18% in Scotland. Remote rural areas have a higher proportion of single pensioner households ('single older') compared to

accessible rural areas and the rest of Scotland.⁷⁸ Single pensioner households have an above average fuel poverty rate.⁷⁹

Access to services

Stakeholders representing these areas also highlighted transport costs as a significant barrier resulting in less disposable income and higher degrees of social isolation. About two thirds (69%) of people in remote rural Scotland live within a 15-minute drive time to a shopping centre, compared to 92% in accessible rural areas. Additionally, a recent survey found that in-person access to health and care services is more limited for households in remote rural areas. For example, in remote rural areas of the Highlands and Islands, 54% of households cannot access mental health services, 35% a dentist, and 34% a physiotherapist within a 20-minute drive.⁸⁰ These rates are all lower than the rates for the Highlands and Islands region overall.

Digital access

The number of homes with an internet connection is very similar to the Scottish Average (at least 87%). However, access to superfast broadband is limited, with only 29% of remote rural homes connected to superfast broadband, compared with 53% in the rest of Scotland.⁸¹ The lack of digital infrastructure presents a barrier particularly for rural households who are more likely to be required to work from home or access education and training online because of limited local provision.⁸²

⁷⁸ National Statistics (2021) [Rural Scotland Key Facts 2021](#)

⁷⁹ Scottish Government (2016) [A Scotland without fuel poverty is a fairer Scotland: report](#)

⁸⁰ HIE (2022) [My Life In The Highlands And Islands Research](#)

⁸¹ National Statistics (2021) [Rural Scotland Key Facts 2021](#)

⁸² Aberdeenshire Community Planning Partnership (2021) [Towards a Fairer Aberdeenshire: Tackling poverty & inequalities Annual Report](#)

6. The Scottish Highlands and Islands

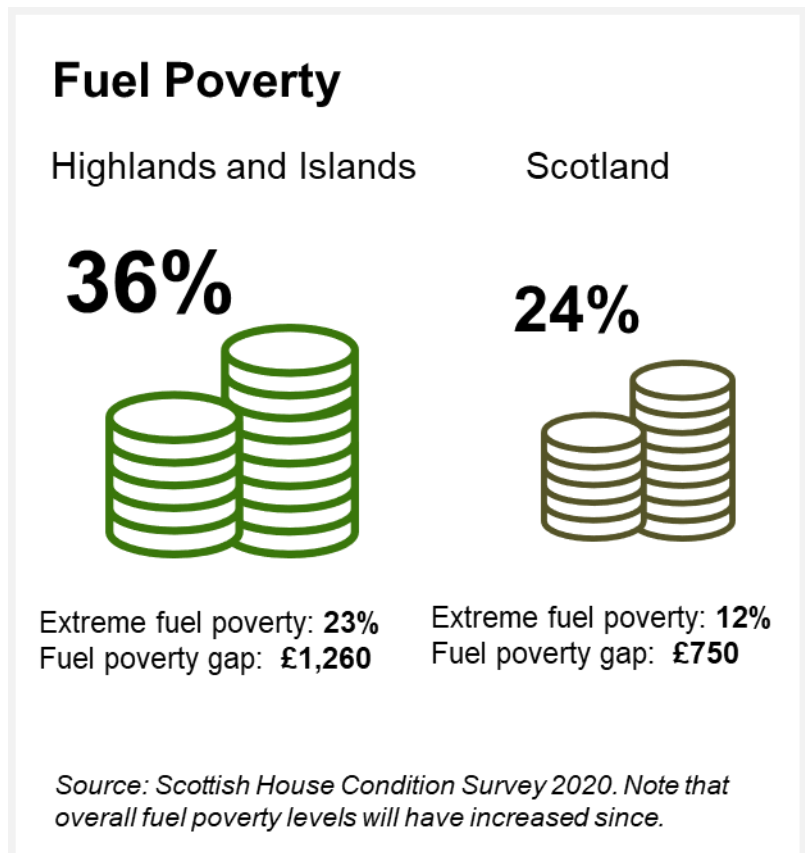
When gathering statistics for The Highlands and Islands, we used data that was available for the local authorities that are covered by Home Energy Scotland for Highlands and Islands. The analysis in this section is for all areas within the local authority areas of Argyll and Bute, Highland, Na h-Eileanan Siar, Orkney Islands, and Shetland Islands.

Fuel poverty levels

Fuel poverty (36%) and extreme fuel poverty (24%) in the Highlands and Islands were significantly higher than the average for the rest of the country (24%, and 12%, respectively) in 2019.

The fuel poverty gap (the amount by which fuel bills need to be lowered to lift a household out of fuel poverty), was much higher at £1,260 compared to the average for Scotland that year £750.

The higher fuel poverty levels can be explained by both lower incomes (particularly after housing costs) and higher fuel bills, which are driven by several factors (see **Error! Reference source not found.**).





Median income (before and after housing costs)

Highlands and Islands	Scotland
Before Housing Costs £23,340	Before Housing Costs £27,716
After Housing costs £18,600	After Housing costs £25,012

Source: Scottish House Condition Survey – Special request

Income

Income levels in the Highlands and Islands, both before and after housing costs, were lower than the Scottish average in the last SHCS. In particular, income after housing costs was 26% lower than the Scottish average at £18,600.

Addressing housing costs is a priority for people in the Highlands and Islands. Three quarters of respondents to a recent survey agreed that there is a shortage of affordable housing, both to rent and to buy.⁸³

The issue of holiday lets is particularly pertinent in Argyll and the Islands, the Western Isles, Lochaber, Skye and Wester Ross, and Orkney.

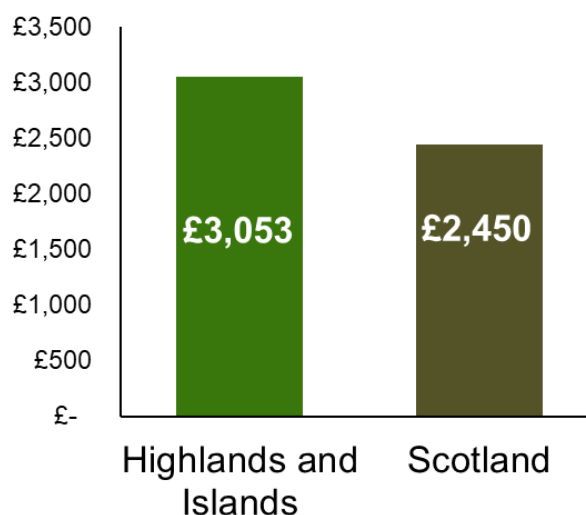
Fuel bills

We modelled the yearly fuel bills needed to meet the standard heating regime in a 3-bedroom property. In the Highlands and Islands, the modelled yearly bill was £3,053 - one-quarter higher than the national average of £2,450.

The modelling only accounts for differences in fuel types and their costs and does not consider behaviour or the energy efficiency of properties.

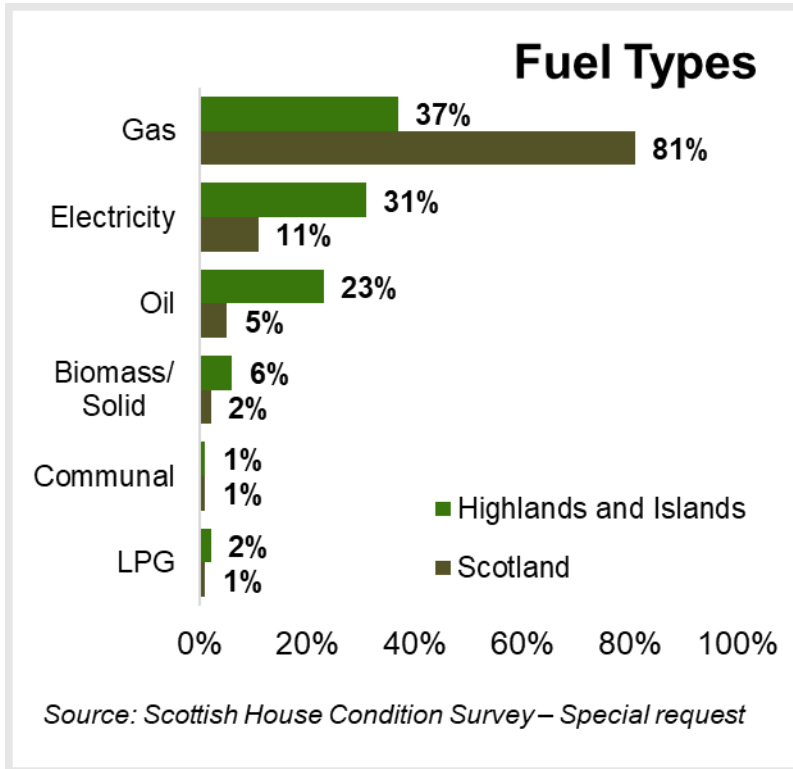
Average yearly modeled heating

for a 3-bedroom property in October 2022



Source: Scottish House Condition Survey – Special request

⁸³ HIE (2022) [My Life in The Highlands and Islands Research](#)




The Highlands and Islands has more properties using electricity, oil, LPG, and solid fuels than the rest of Scotland, which explains this difference. Just over one third of properties (37%) are on gas, compared to 81% of properties in Scotland.

We also analysed electricity consumption data from DESNZ, to give a better indication of actual (rather than modelled) usage and bills.⁸⁴

In 2020, households in the Highlands and Islands used 20% more electricity for heating (7,304 kWh/yr, compared with 6,059 kWh/yr overall in Scotland). This indicates that when considering household behaviour, energy use for heating and therefore heating bills will be higher in the Highlands and Islands.

Ofgem estimate that the typical household in the UK requires around 15,000 kWh per year to achieve an ‘appropriate heating regime’. Anecdotal evidence from stakeholders suggested that this is likely to be much higher for homes in the Scottish Islands, with one stakeholder quoting around 20,000 kWh per year. However, energy advisors described widespread and extreme rationing, estimating that



Electricity use for heating

Highlands and Islands: **7,304** kWh/yr/mtr

Scotland: **6,059** kWh/yr/mtr

Source: DESNZ Postcode level Economy 7 use 2020

⁸⁴ Note: The consumption data is for Economy 7 tariffs, which can be used as a proxy for electricity used for heat (i.e. storage heaters).

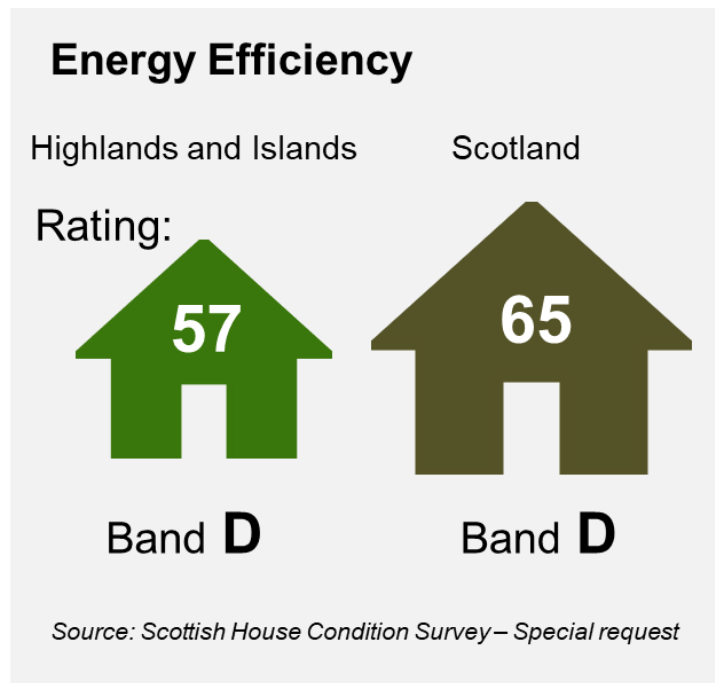
many households in the region restrict themselves to using only 7,500 kWh per year.

Due to lack of consumption data, we were unable to conduct any analysis to compare actual and modelled energy use for households using oil, LPG, and solid fuel.

Energy efficiency of homes

The energy efficiency of the properties is lower in the Highlands and Islands (EPC rating of 57 vs 65 in Scotland).

This is partly explained by property type, as there are more houses than flats, and houses have higher heat loss levels. The lower EPC ratings are also partially explained by expensive fuel types, as EPC ratings are an energy cost metric.



6.1 Regional drivers and barriers

This section provides some examples and two case studies to illustrate the extent to which the drivers of fuel poverty and the barriers to its alleviation are experienced in the Highlands and Islands. In a recent survey, half of households in the region reported their home is expensive to heat and 17% that it is difficult to heat. These issues are more acute in islands, remote rural areas, and among private renters.⁸⁵

Local services

In a recent survey, over half of respondents reported that businesses in their local area that closed because of lockdown have not reopened.⁸⁶ This exacerbates the challenges around transport described in 2.2.2, and has knock-on impacts on employment and economic development in the region.

⁸⁵ HIE (2022) [My Life in The Highlands and Islands Research](#)

⁸⁶ Ibid.

Island grid capacity

A key challenge for Scottish Islands is the lack of grid capacity to cope with the renewable generation potential. Connections for renewable energy are limited by the local load demands and balancing of island systems until large transmission infrastructure projects are constructed. There are ongoing projects, such as ReFLEX on Orkney, which aim to establish methods of dealing with generation constraint. One stakeholder commented that the project is “*great on paper*”, but not joined up enough and to achieve its goal of increasing grid connections due to rejection by the DNO. This highlights how multiple barriers often coexist which single/individual solutions are unable to overcome.

Pressure on household budgets

Stakeholders described the unique challenges that island residents can face if a ferry is cancelled and they require overnight accommodation. There is no access to financial support in such situations, and unexpected costs such as this can put huge pressures on household budgets and lead to fuel rationing as a result.

6.2 Case Study: Janice, a pensioner in fuel poverty

Janice is a pensioner living alone in a small, detached croft house. She lives and sleeps in her living room as she cannot afford to heat any bedrooms.

She uses storage heaters and buys wood and coal for an open fire. Janice receives pension credit, an annual income of around £9,000 a year. However, her energy spend on electricity alone was projected at £6,000 per year when she was first visited by an energy advisor.

Long-term energy advice: After receiving extensive in-home energy advice, Janice's electricity costs reduced to £4,500 a year, during a period of significant price increases. This is £2,000 more than the price cap of £2,500 for a 'typical household' using 15,000 kWh per year.⁸⁷ Janice's annual energy consumption is 8.7% lower, at 13,700 kWh. She also spends an additional £500 for the open fire.

Janice's heating outcomes: The Scottish fuel poverty definition is based on the cost of heating your home to 18°C (and 21°C in the living room) for a period of nine hours a day. In January, Janice's living room reached 21°C for 5.5 hours a day and the kitchen reached 18°C for 2.7 hours a day. The bathroom never reached 18°C and the rest of the home was unheated.

Janice's situation highlights that severe self-rationing can cost twice as much than the 'typical household' costs used for policy tools.

Janice is not her real name, however her situation, the figures and the monitoring data are real. These were provided to us by an energy advisor for the purpose of this research.

⁸⁷ Ofgem estimates the typical household in Britain uses 2,900 kWh of electricity and 12,000 kWh of gas in a year.

6.3 Case Study: **Social tenants’ energy consumption and bills**

This case study uses data from 781 Lochalsh and Skye Housing Association (LSHA) properties to illustrate the higher fuel prices in the area. The data shows that LSHA tenants have higher than average bills despite using less energy than the average UK household. The analysis shows that tenants’ bills would, on average, be less than half of current heating bills if LSHA properties were heated with gas boilers.

Social tenants generally have lower bills than the average household because the Energy Efficiency Standard for Social Housing (ESSH2)⁸⁸ obliges social housing providers to ensure properties are EPC band B by 2032. For LSHA, the energy efficiency score on average is 73 (band C), whereas the average of all properties in Scotland is 65 (band D).

Table 2. Comparison of energy consumption, EPC scores and EPC modelled energy demand for LSHA properties compared with an average UK household

	Average LSHA property	LSHA: Biomass heat network	LSHA: Storage heating	LSHA: Ecodan heat pump	UK terraced 2-bedroom house
Average total household consumption (kWh/yr)	7,246	9,224	7,495	6,376	13,100
Average EPC Score / Band	73 / C	77 / C	69 / C	75 / C	65 / D
EPC modelled heating and hot water demand (kWh/yr)	8,209	7,792	7,899	8,490	13,100

LSHA tenants use significantly less energy than is predicted by the standard heating regime. LSHA has tracked the heating and hot water use of their tenants (Table 2) and their data indicates that overall annual kWh use for heating (7,246 kWh/yr) is very low compared to an average 2-bedroom UK terraced house that heats their property according to the standard heating regime (13,100 kWh/yr). This lower kWh use is partially explained by rationing, as the kWh use on average is 88% of the use modelled in EPCs (8,209 kWh/yr on average). The rest of the difference will be explained by the higher energy efficiency and the social housing stock including more (smaller) flats.

⁸⁸ Scottish Government [Energy Efficiency and Fuel Poverty](#)

Tenants' energy use is less than average, yet their bills are higher than average. This highlights the importance of fuel prices in explaining higher fuel poverty rates in areas such as Skye and Lochalsh. Despite the kWh use of LSHA households being 55% of an on gas 2-bedroom UK terraced house, the heating bills are higher (£1,815/yr⁸⁹ vs £1,453/yr, respectively), particularly for properties with a heat pump and those with storage heaters on a THTC tariff.

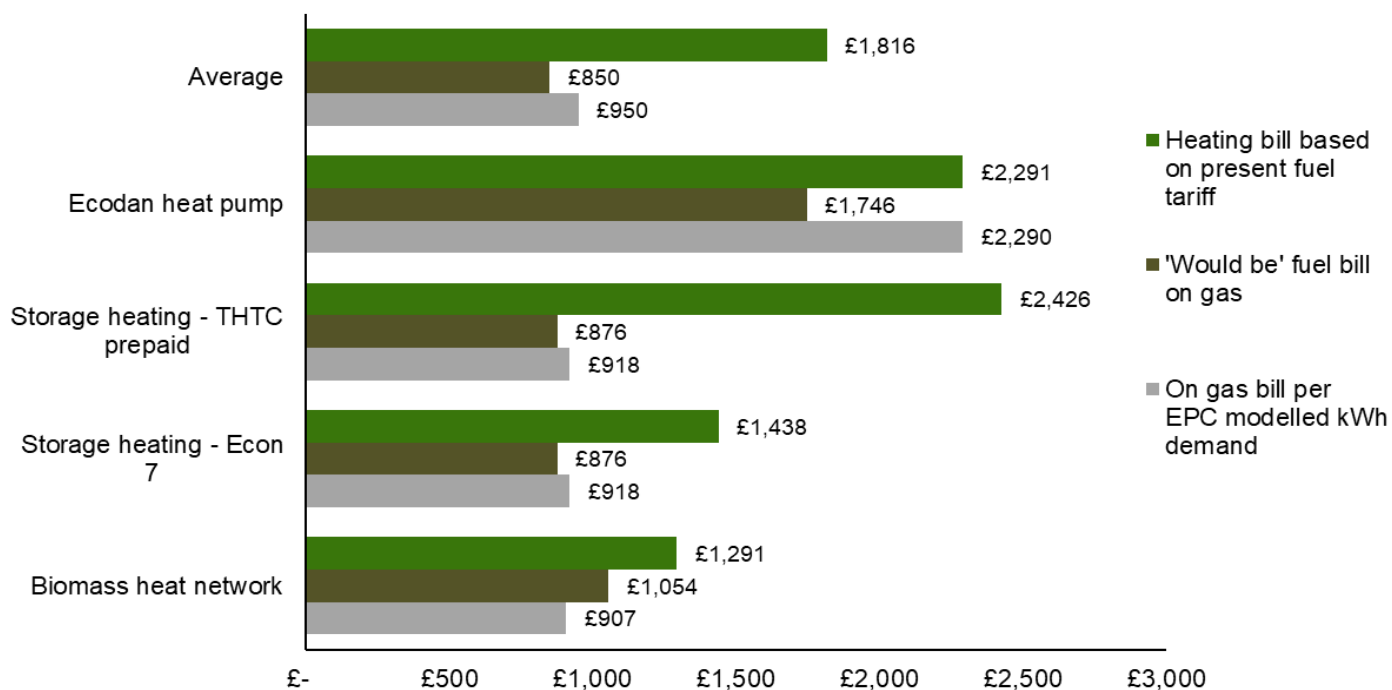


Figure 2. Comparison of current and 'would be' bills for different heating types in LSHA properties, if these properties were heated with gas boilers

The comparisons in Figure 2 show how much lower the heating bills would be if households had a gas boiler with their normal kWh use and with their EPC appropriate kWh. On average the heating bills would be less than half of current amount. The difference is less profound for households with heat pumps due to the efficiency of this heating type compared to direct electric heating.⁹⁰

This discrepancy between current heating bills and 'would be' bills on gas underlines how important fuel prices are in explaining the higher fuel poverty rates in areas such as Skye and

⁸⁹ To calculate the heating costs with the reported annual kWh use, tariffs and standing charges from the Sutherland tables from December 2022 were used for all heating except THTC for storage heaters. For the latter tariffs reported by LSHA were used.

⁹⁰ The assumed efficiency (Seasonal Coefficient of Performance) of the Ecodan heat pumps in this simulation is 2.5.

Lochalsh, and more generally for remote rural Scotland, even for households with relatively high EPC ratings.

LSHA tenants, particularly those using storage heaters on a THTC tariff, have significantly higher heating bills than an average UK house on mains gas. This is despite having relatively high energy efficiency scores and rationing their heating. Tenants with storage heaters and those connected to the biomass heat network also report lower rates of being able to stay warm on a winter's day (66%) (see Figure 3). They also have more concerns about humidity management than those with a heat pump (28% to 30%). The high heating bills can explain these numbers, as high costs prevent tenants from heating their homes sufficiently.

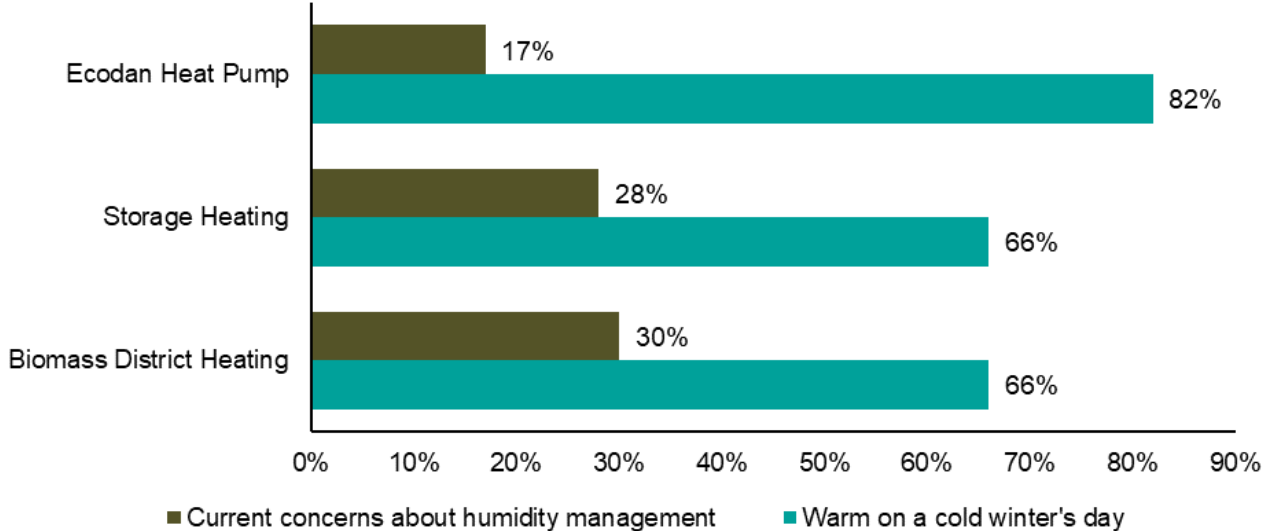


Figure 3 Tenants' self-reported heating outcomes in properties with heat pumps, storage heating and a district heating connection

7. Caithness and Sutherland

Caithness and Sutherland was selected as a case study area within the Scottish Highlands and Islands. Gathering statistics for Caithness and Sutherland was hindered by the relatively low availability of data compared to the other two areas. No official statistics for fuel poverty and income are available for example, as the Scottish House Condition Survey cannot provide data because there are not enough datapoints to represent the area properly. This limitation is caused by the sensitive nature of some of the data needed to calculate fuel poverty, such as household income and vulnerability status.

Given that the area is in the Highlands and Islands area and covers a large area of remote rural Scotland, we can assume that here too, fuel poverty rates are higher than the national average.

Income

Although no official income data is available for Caithness and Sutherland, the latest HIE survey⁹¹ shows incomes in Caithness and Sutherland to be only 87% of national average incomes. It is worth noting that salaries in Caithness are likely to be higher than the regional average for Highland. The Dounreay decommissioning site employs approximately 13% of the workforce in Caithness and the average salary is about £10,000 higher than the Highland average.⁹²

In contrast, 58% of respondents to the most recent Sutherland Affordable Warmth survey⁹³ indicated that they had an income of less than £20,000 a year. Stakeholders identified that recruitment and retention of staff is a key issue for small businesses in Sutherland. This is mainly due to low wages and terms and conditions (such as short-term contracts).

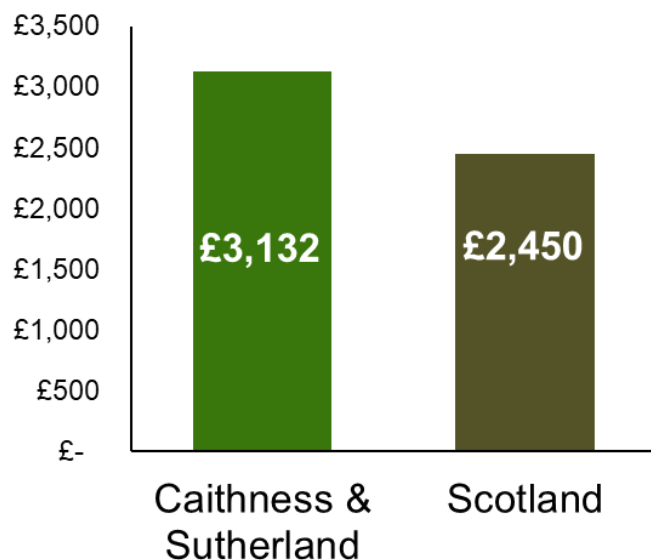
⁹¹ Highlands and Islands Enterprise (2022) [My life in the Highlands – Caithness & Sutherland summary report](#)

⁹² Nuclear Decommissioning Authority (2022) [Dounreay Socio-economic Report](#)

⁹³Sutherland Community Planning Partnership (2021) Sutherland Affordable Warmth Survey & Fuel Poverty Summit Report

Average yearly modeled heating

for a 3-bedroom property in October 2022



Source: Energy Saving Trust

Fuel bills

We modelled the yearly fuel bills needed to meet the standard heating regime in a 3-bedroom property. In Caithness and Sutherland, the modelled yearly bill was £3,132 per year - one-quarter higher than the national average of £2,450. The modelling only accounts for differences in fuel types and their costs and does not consider behaviour or the energy efficiency of properties.

Caithness and Sutherland have more properties using electricity, oil, LPG, and solid fuels than the rest of Scotland, which explains this difference. The most common fuel type, oil, is used by 44% of households, compared to 5% in Scotland.

We also analysed electricity consumption data from DESNZ, to give a better indication of actual (rather than modelled) usage and bills. The consumption data is for Economy 7 tariffs, which can be used as a proxy for electricity used for heat (i.e. storage heaters).

In 2020, households in Caithness and Sutherland used 26% more electricity for heating (7,653 kWh/yr, compared with 6,059 kWh/yr/ overall in Scotland). This indicates that when considering household behaviour, energy use for heating and therefore heating bills will be higher in Caithness and Sutherland.

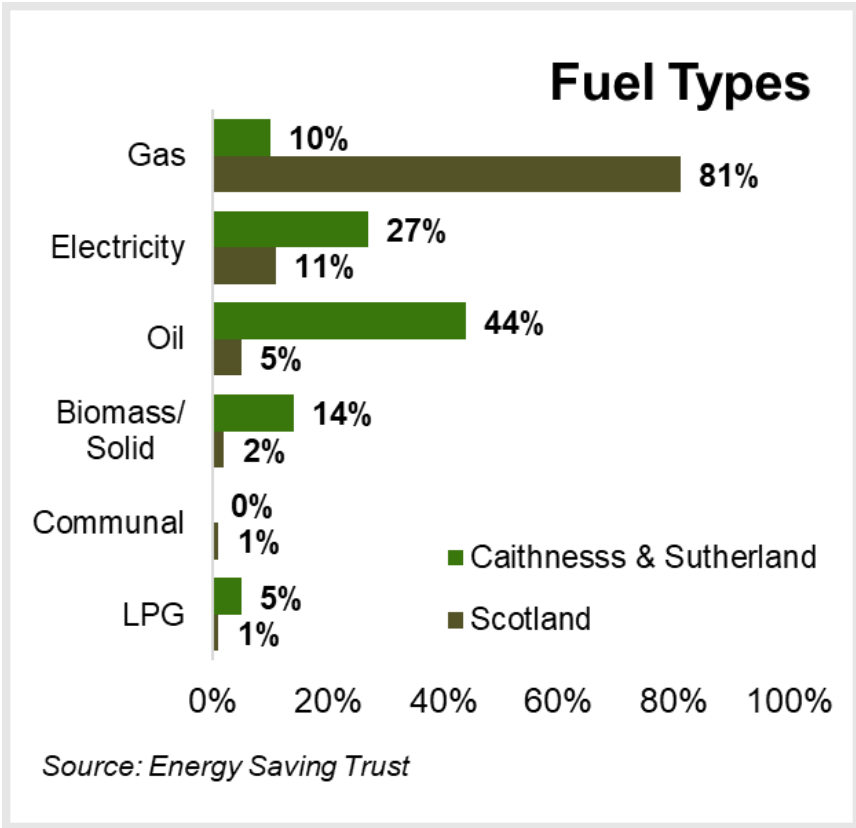


Electricity use for heating

Caithness & Sutherland: **7,653** kWh/yr/mtr

Scotland: **6,059** kWh/yr/mtr

Source: DESNZ Postcode level Economy 7 use 2020



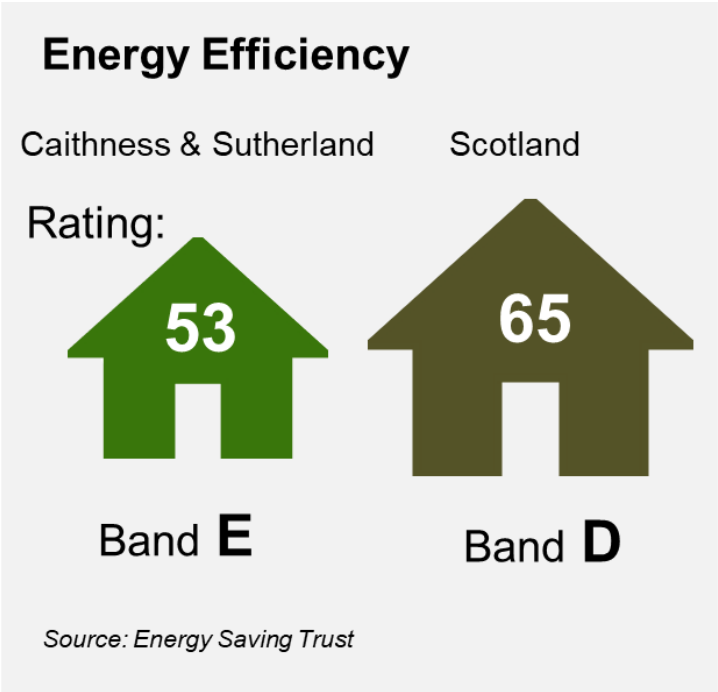
90% of homes in Caithness and Sutherland do not have access to mains gas, and two thirds use unregulated heating fuels.

We were unable to conduct any analysis to compare actual and modelled energy use for households using oil, LPG, and solid fuel as there is no consumption data available.

Energy efficiency of homes

The energy efficiency of the properties is lower in Caithness and Sutherland than the Scottish average (EPC rating of 53 vs 65). This is partly explained by property type, as there are more houses than flats, and houses have higher heat loss levels. The lower EPC ratings are also partially explained by expensive fuel types, as EPC ratings are an energy cost metric.

It is worth noting that Caithness will likely have slightly higher average EPC ratings compared to Sutherland due to the presence of local gas grids in Thurso and Wick.



7.1 Regional drivers and barriers

Stakeholders noted that Caithness and Sutherland are particularly isolated and without an urban centre. This means that many of the fuel poverty drivers, and the barriers to its alleviation, are amplified. Some examples are provided below.

Population

Caithness and Sutherland have the largest proportion of children under 15 or elderly people over 65 (all non-working age groups) in the Highlands. Sutherland also has the highest proportion of over 60s anywhere in the Highlands (38.5% compared with average 29.6%) and this continues to rise. The population is also decreasing steadily.⁹⁴

Depopulation is a big concern in Caithness and Sutherland. The areas are forecasted to lose 21% and 12% of their populations respectively by 2041.⁹⁵ The consequences are both a loss of economically active people as well as an older remaining population in need of increasing support. A lack of childcare, particularly in Caithness, was also cited as contributing toward depopulation and the area not being attractive for young working families.

Housing

There is a lack of affordable housing in Caithness and Sutherland, which is reflected in the results of a recent survey of residents.⁹⁶ Over two thirds of respondents (69%) say that there is a shortage of housing in their local area, and 67% that locals can't afford housing. However, these results are lower than those for the whole Highlands and Islands region (75% and 74% respectively).

2017 data from Highland Council⁹⁷ indicates that over 20% of homes in Caithness were social rented (Highland average 19%), and there were lower levels of private renting in Caithness than in Highland overall. This suggests that there is greater provision of affordable housing in Caithness than other areas in the Highland Council area.

⁹⁴ Highlands and Islands Enterprise (2022) [My life in the Highlands – Caithness & Sutherland summary report](#)

⁹⁵ Scottish Government (2020) [Convention of the Highlands and Islands](#)

⁹⁶ Ibid.

⁹⁷ Highland Council (2017) [Local Housing Strategy: 2017/22](#)

The data also indicated that Sutherland had a high proportion of second homes (12% of dwellings, compared to the Highland average of 6%) and vacant homes (4%).⁹⁸ This is likely to restrict the availability of homes and increase the cost of housing.

Energy use and metering

Sutherland's residents rely more heavily on electricity than any other fuel source for heating meaning that many cannot benefit from 'dual fuel' discounts. As a result, a significant number of households have restricted meters (such as THTC)⁹⁹ which limit householder choice in terms of supplier and payment flexibility (See 2.1.1).

There is one meter engineer in Caithness which has resulted in a backlog of metering issues. Many households with broken meters are receiving estimated energy bills while they wait for their meters to be fixed. This makes it difficult for householders to manage their energy bills. Smart meter installations in the area are also delayed.

Fuel theft

Stakeholders in Sutherland commented that there has been an increase in heating oil thefts. Fuel theft exacerbates fuel poverty and is a source of anxiety in the community.

Bill support payments

Stakeholders described difficulties in redeeming prepayment vouchers such as those issued as part of the Energy Bills Support Scheme. Local shops in some areas of Caithness and Sutherland do not have PayPoint or PayZone capabilities. Householders must travel to redeem their vouchers, which is an additional cost and for some is prohibitive. In fact, the Highland local authority area had the highest rate of uptake of the vouchers in Scotland for the period of October to December 2022,¹⁰⁰ but data for Caithness and Sutherland is not available.

⁹⁸ Ibid.

⁹⁹ Sutherland Community Planning Partnership (2021) Sutherland Affordable Warmth Survey & Fuel Poverty Summit Report

¹⁰⁰ Department for Energy Security and Net Zero (2022) [Energy Bills Support Scheme GB: payments made by electricity suppliers to customers](#)

8. Conclusion

Fuel poverty rates are worse than the Scottish average in all three of the regions explored as part of this research. This is based on data from 2019 and, given the current energy price and cost of living crises, it is likely that fuel poverty and extreme fuel poverty rates are now even higher than the analysis suggests.

As illustrated by the data analysis for the three regions, all four recognised drivers of fuel poverty are contributing to the higher rates of fuel poverty in rural areas. This demonstrates the need to continue to address all four drivers. However, there is evidence that high fuel prices are a particularly significant driver for rural areas. Therefore, the structure of the energy market, which is a key driver of high electricity prices for rural households, must be addressed.

This research also highlights the limitations of current fuel poverty metrics in providing figures for specific areas in Scotland. Currently the most specific output of the SHCS is at the local authority level. Proxies for fuel poverty can be used (for example energy efficiency rating data), however fuel poverty status data according to the Scottish definition is not available at smaller scales. Greater granularity of data would allow the measurement, understanding, and tracking of fuel poverty in areas such as Caithness and Sutherland.

The research evidenced other structural barriers, in addition to the energy market, which explain why current efforts to alleviate fuel poverty are not having the necessary impact and results. The barriers relate to access to energy efficiency schemes, digital infrastructure for smart meters, funding for advice provision, metering issues, access to public sector procurement for local installers, and gaps in current fuel poverty policy.

These barriers must be addressed to alleviate rural fuel poverty. The research has resulted in a series of solutions, identified by stakeholders, which are designed from the 'bottom up' in response to the specific challenges of rural fuel poverty. The solutions are presented in the accompanying document [Fuel Poverty in Rural Scotland: The Solutions](#).



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