



UK Government

Sub-Regional Fuel Poverty in England, 2026 (2024 data) Methodology Document

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Statistical Methodology

Sub-regional fuel poverty statistics methodology: 2024 data

1. Introduction

The Annual Fuel Poverty Statistics Report¹ is an Accredited Official Statistic, which provides a comprehensive view of the latest statistical trends and analysis of fuel poverty in England. These statistics report on the proportion of all households in fuel poverty in England and the depth of their fuel poverty. The report also looks at the key drivers of fuel poverty and how fuel poverty in England varies depending on dwelling and household characteristics.

The sub-regional Official Statistics in Development aim to complement the fuel poverty Accredited Official Statistics by estimating the number and proportion of fuel poor households for smaller geographical areas, for example at individual Local Authority (LA) level. The sub-regional statistics do not report on the average fuel poverty gap.

The headline statistics detailed in the 2026 annual report are based on projections to 2025, to provide more timely estimates of fuel poverty, while the sub-regional fuel poverty estimates are based on the 2024 modelled data. Interpretation of the sub-regional results should therefore be undertaken separately to the 2025 fuel poverty projections.

The sub-regional fuel poverty modelling provides estimates of the level of fuel poverty for all Output Areas (OAs) across England, using a regression model developed using predictors of fuel poverty from the English Housing Survey (EHS) data. These are then aggregated to higher level geographies, which are constrained to the regional fuel poverty totals. This document provides an outline of the methodology using the 2024 data.

This year's sub-regional fuel poverty report, and the sub-regional data tables, can be found at the following link:

<https://www.gov.uk/government/collections/fuel-poverty-sub-regional-statistics>

¹The latest [Annual Fuel Poverty Statistics Report](#) can be accessed via the link.

Data created

For each of the following geographical levels, estimates have been created for the total number of households, the number of fuel poor households, and the proportion of households in fuel poverty:

- Table 1: English Region (former Government Office Region)²
- Table 2: County, Local Authority / Unitary Authority
- Table 3: Parliamentary Constituency
- Table 4: Lower Super Output Area (LSOA)

2. Methodology

The 2024 sub-regional fuel poverty model is based on national data drawn from the EHS combined 2023 and 2024 dataset. Application of the model requires specific local area data for a variety of demographic and socio-economic factors, which are derived from the 2024 Experian data.

It is not possible to produce sample-based estimates at the local level because of the relatively small sample size in the EHS survey, which does not give sufficient coverage for each of the 296 Local Authorities or the individual Census Output Areas (COAs) within them. To produce estimates at this level, EHS data is used to create a model which can then be applied to a national (household level) dataset. The limitation this brings is the possibility that small areas which are atypical in characteristics are unlikely to be identified by the model. It is therefore essential to compare, where possible, the modelled sub-regional level results to the national and regional statistics.

The process undertaken for the modelling can be summarised in the following five stages:

a. Regression model

A set of predictor variables for fuel poverty are determined using EHS data and the fuel poverty indicator. This process was newly carried out for these latest statistics using 2024 data, which provides the most up to date sample for which to model the predictors of fuel poverty. The model generated six variables, five of which match the modelling approach used in previous years which was a set of variables based on the 2016 to 2019 data.

² These are Accredited Official Statistics and are presented in the [Annual Fuel Poverty Statistics Report](#) available on this page.

The LILEE fuel poverty model currently uses the following six variables, the first five of which are derived from public and commercial sources, to predict the level of fuel poverty in local areas:

- Tenure – owner occupied, private rented, social rented (Experian)
- Dwelling age – pre-1919, 1919 to 1944, 1945 to 1980, post-1980 (Experian)
- Household composition (Experian)
- Mosaic household classifications by postcode – 15 socio-economic groups as detailed in the Mosaic guide³ (Experian)
- Dwelling type – terraced, detached, semi-detached, bungalow, flat (Experian)
- Government office region – North East, North West, Yorkshire and The Humber, East Midlands, West Midlands, East of England, London, South East, South West

The final variable is a new addition for this year's model and replaces employment status which was used in previous years.

b. Model application

The coefficients for each category of the final model's independent variables are run to give the predicted outcome for each household in each area. These are then combined to produce the total numbers and proportion of fuel poor at COA level, within each region separately. This is run separately for each region using a multiplying factor calculated from the modelled and published regional fuel poverty proportions applied to each COA fuel poor total.

c. Output area imputation

After this process, a small number of COAs have missing fuel poverty data. These gaps are filled by identifying COAs with complete data, which share the same LSOA as the COA with missing data. The median fuel poverty status for the COAs with complete data is used to impute the missing value, preventing any extreme values having a large impact on the imputed fuel poverty value, and resulting in the LSOA averages remaining constant.

d. Consolidation to national figures

Minor variation between modelled household totals and the national figures may yet remain due to aggregation based on multiplying by regional fuel poverty proportions, inclusive of missing COAs. A final adjustment is made in which small incremental changes are made randomly at a COA level, until the totals of all households and fuel poor households match the published regional totals.

³ [Mosaic segmentation groups and types](#)

e. Validation and aggregation

The adjusted figures are re-checked against the published totals before the data is aggregated to the most up-to-date output areas for: LSOA, Parliamentary Constituency, Local Authority District / Unitary Authority, and Region level. Further validation is then applied to ensure that the COA fuel poverty percentages are within a sensible range, and that the regional totals are achieved at each level of aggregation. Results are also compared to previous year's figures to check for consistency.

Fuel poverty model outputs

The results from the model are output as a percentage of households at 2021 COA level which are fuel poor. To convert this to a numerical total of fuel poor households, the percentage is applied to an estimate of the total number of households in each COA.

The fuel poor and household totals are then benchmarked to reflect the 2024 national fuel poverty figures. This model is then aggregated to Lower Super Output Area (LSOA), Parliamentary Constituency, Local Authority District / Unitary Authority, County and Region levels. For all areas, the latest set of geography boundaries are used.



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