Department for Environment Food & Rural Affairs

Government Statistical Service

Statistical Digest of Rural England:

8 - Energy

March 2025

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Cover photos

		Ward 2011	Rural-Urban Classification
TL	Helmsley marketplace	Helmsley	Rural Village and Dispersed in a sparse setting
TC	Horton-in-Ribblesdale train station with Penyghent behind	Penyghent	Rural Village and Dispersed in a sparse setting
TR	St Giles Church, Skelton	Rural West York	Rural Town and Fringe
CL	Fishing Boat, Marske-by-the-Sea with Hunt cliff in the distance	St Germain's; Saltburn	Rural Town and Fringe
CR	Thornton Force Waterfall, Ingleton Waterfalls Trail	Ingleton and Clapham	Rural Village and Dispersed in a sparse setting
BL	Farmer working the fields in Knapton	Rural West York	Rural Town and Fringe
BC	Remote pub at Ribblehead viaduct	Ingleton and Clapham	Rural Village and Dispersed in a sparse setting
BR	Glamping pod in the North York Moors	Pickering East	Rural Town and Fringe in a sparse setting

All cover photos provided by Martin Fowell.

Contents

About the Statistical Digest of Rural England

The Statistical Digest of Rural England (hereafter the Digest) is a collection of statistics on a range of social and economic topics and provides broad comparisons between Rural and Urban areas by settlement type. For more information on our classifications, including maps and diagrams explaining the classification, see Appendix 2: Defining Rural areas.

The Digest has been restructured into thematic reports and incorporates the previously separate publication the Rural Economic Bulletin.

The Digest consists of the following thematic reports:

1. Population
2. Housing
3. Health and Wellbeing
4. Communities and Households
5. Connectivity and Accessibility
6. Education, Qualifications and Training
7. Rural Economic Bulletin
8. Energy

In March 2024 the content relating to energy that was previously split across the Housing and Communities and Households chapters has been consolidated into a new Energy report. Appendix 1, shows the sub-themes within each of the 8 Digest reports. Thematic reports will be updated individually and not every report with be updated every month. The most recent updates for this theme are shown in Table 1.
Please note: Energy Performance Certificates and Energy Cost and Consumption were initially published as single sections, and they were split when the new Energy report was created. CO_2 emissions was added as a new section in November 2024. The latest update in March 2025 updated the number in chapters B and C to 2024 data.

Table 1: Update monitor for Energy subsections
where "✔" indicates the topic has been updated, "✘" indicates the topic has not been updated, and "New" indicates a new topic with analysis not previously included within the Digest.

Section	August 2023	May 2024	November 2024	March 2025
Fuel poverty	✘	✔	✘	✘
Energy Performance Certificates: average Energy Efficiency Score	✘	✘	✘	✔
Energy Performance Certificates: achieving energy efficiency category C	✘	✘	✘	✔
Energy costs	New	✘	✘	✘
Energy consumption	New	✘	✔	✘
CO_2 emissions			New	✘

Official Statistics

These statistics have been produced to the high professional standards set out in the Code of Practice for Official Statistics, which sets out eight principles including meeting user needs, impartiality and objectivity, integrity, sound methods and assured quality, frankness and accessibility.

More information on the Official Statistics Code of Practice can be found at: Code of Practice for Statistics.

This publication has been compiled by the Rural Statistics Team within the Rural and Place Team in Defra:

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There is a 2011 Census version of the Digest which looks at the data from the 2011 Census and where possible makes comparisons to the 2001 Census results.

This can be found at https://www.gov.uk/government/statistics/2011-census-results-for-rural-england

The 2021 Rural-Urban Classification was released on 6 March 2025. Details of the 2021 Rural Urban Classification can be found at: https://www.gov.uk/government/collections/rural-urban-classification. It will take some time for the Digest to be updated throughout using the new classification. Where relevant Statistics drawing on the 2021 Census will be added to Digest thematic reports.

Energy

This part of the Statistical Digest of Rural England focuses on Housing, and covers the following:

- fuel poverty (Section A)
- average Energy Efficiency Scores from Energy Performance Certificates (Section B)
- properties achieving energy efficiency category C (Section C)
- energy costs (Section D)
- energy consumption (Section E)
- CO_2 emissions (Section F)

The key findings from this chapter are summarised with the following set of headline clouds:

Fuel poverty - key findings

590 thousand Rural households were in fuel poverty in 2023

Fuel poverty in rural areas is above average in Cumbria, Yorkshire, Durham, Lincolnshire, coastal areas of East Anglia, along the England / Wales border and in north-west Devon

Fuel poor Rural households would need an additional household annual income of £568 to bring them out of fuel poverty

More than one in ten Rural homes is heated with oil, in Urban areas it is four in every thousand

In Rural areas one in four properties (1.4m) are off the gas grid

The more rural the area the greater the proportion of domestic properties heated by oil

Proportionally more off-grid households are in fuel poverty than on-grid households and the depth of their fuel poverty is greater

In Eden and Mid-Suffolk more than half of the properties are off the gas grid

Energy Performance Certificates: average Energy Efficiency Score - key findings

The age of the property matters more than its level of rurality when it comes to energy efficiency, typically the older the home the lower the energy efficiency

Rural homes built in the last decade are just as efficient as Urban homes built over the same period

Owner occupied Rural homes were the least energy efficient, - it is the Social rent sector that offered the most energy efficient homes

Rural homes built between 1930 and 1982 are typically energy efficiency rating D, whereas those built since 2012 are rating B

The overall median Energy Efficiency Score is higher in London than elsewhere because of its higher flats to houses ratio

There is little difference between the average energy efficiency of Detached and Semi-detached properties, but Flats and maisonettes are the most energy efficient

The Rural areas with the lowest median Energy Efficiency Scores for 1983 to 2011 properties still had higher median score Energy Efficiency Scores than the highest scoring Rural areas for either pre-1930s properties or 1930 to 1982 properties

Energy Performance Certificates: achieving energy efficiency category C - key findings

Proportionally fewer homes over 10 years old reach an EPC rating of C or better in Rural areas than in Urban or London areas

The proportion of Rural homes rated EPC band C or better increased by 9 percentage points between 2021 and 2024

88% of pre-1930 Rural properties have an Energy Efficiency Rating low enough to put a lower income occupant at possible risk of descending into fuel poverty

The more Rural the area the lower the proportion of properties with an EPC rating of C and above

Just under 7 in 10 Flats in Rural areas had an EPC rating of C or better, for Detached properties it was just over 4 in 10

For all tenancy statuses, proportionally fewer properties had an EPC rating of C and above in Rural areas than in Urban areas outside of London

Energy costs - key findings

The modelled average energy cost is £95 more per year for a Rural home than an Urban home

New Rural homes have a modelled average energy cost less than half that of existing rural housing stock

The modelled energy cost for Owner-occupied homes is more than for rented homes in both Rural and Urban areas.

Energy consumption - key findings

In 2022 average domestic Rural electricity consumption was 800 kWh lower than it was in 2015

In 2020 there was an upward spike in domestic electricity consumption accompanied by a downward spike in non-domestic consumption in response to COVID-19 lockdowns

Rural areas account for a quarter of total non-domestic electricity consumption

Rural areas account for just under 20% of total domestic gas consumption

Between 2020 and 2022 average rural domestic gas consumption fell by 21.2% in response to energy price rises

Estimated Carbon dioxide (CO_2) emissions from domestic properties - key findings

An existing home in either Rural or Urban areas, on average, emits 2.7 times the CO_2 of a new home

For existing homes in Rural areas the average CO_2 emissions were 15% higher than in Urban areas

A Detached home in Rural areas emits 2.4 times the CO_2 of a Flat or maisonette in Rural areas

Kensington and Chelsea was the Local Authority with the highest estimated CO_2 emissions for Detached homes (19 tonnes/year)

Eden was the Rural Local Authority with the highest estimated CO_2 emissions for Detached homes (7 tonnes/year)

The 10 Local Authorities with the highest estimated CO_2 emissions for Detached homes were in London

An Owner-occupied home in Rural areas emits 1.7 times the CO_2 of a Social rent home

A. Fuel poverty

There is a higher proportion of fuel poor households in Rural areas than in Urban areas and the depth of the fuel poverty for these Rural households is greater, especially if their homes are off the gas grid.

Summary

Households in fuel poverty are those living in a property with a Fuel Poverty Energy Efficiency Rating of band D or below in a home that cannot be kept warm at reasonable cost without bringing their residual income below the poverty threshold. There are 3 key elements (drivers) in determining whether a household is fuel poor: (1) household income; (2) household energy efficiency; and (3) fuel prices. The fuel poverty gap (£) is an estimate of the depth of fuel poverty, and it can be either the reduction in fuel costs or the increase in household income needed for a household to not be in fuel poverty.

In 2023, the proportion of fuel poor households was higher in Rural areas (13.9%) than in Urban areas (12.8%). This corresponds to 590,000 households in Rural areas. In Rural areas the proportion of fuel poor households in 2023 is 2.3 percentage points higher than in 2019 (the first year under the current methodology). By contrast in Urban areas the proportion of fuel poor households was 1.1 percentage points lower in 2023 than it was in 2019. So, over the last 5 years, levels of fuel poverty have risen in Rural areas, but they have fallen in Urban areas.

Households in Rural areas had an average fuel poverty gap of £568 in 2023 - this is £186 more than the average fuel poverty gap of £382 in Urban areas. Over the last 5 years, the average fuel poverty gap for Rural households has increased from £413 (in 2019) to £568 (in 2023), which is an increase of £155 (or 38%). For the 62,000 fuel poor Rural households living in the least energy efficient houses, the average fuel poverty gap was more than £1,800, whereas in 2019, the average fuel poverty gap for those households living in these houses with the poorest energy efficiency rating was £1,200.

The most common way of heating a home is through mains gas central heating. In Predominantly Rural areas only 72% used mains gas in 2023 compared to 83% in Predominantly Urban areas. Oil played a greater part in the heating fuel picture in Predominantly Rural areas (10% of homes) than in Predominantly Urban areas (0.4% of homes).

In Predominantly Rural areas one in four properties (24.5%) were off the gas grid in 2022 compared to 11.5% in Predominantly Urban areas. Around a quarter of Predominantly Rural Local Authorities have at least 35% of domestic properties off the gas grid. In absolute terms, 1.4 million properties in Predominantly Rural areas are off the gas grid and this value has been stable over the 2015 to 2021 period. Overall, there is a greater proportion of off-grid households in fuel poverty than on-grid households and over the last decade more progress has been made in moving on-grid households out of fuel poverty than for off-grid households. The depth of the fuel poverty for those who are fuel poor is also greater when the household is off-grid rather than on it. In 2023 the average fuel poverty gap for off-grid households was around £800 compared to around £320 for on-grid households.

Defining fuel poverty

Fuel poverty or being fuel poor is where a household is living in a property with a Fuel Poverty Energy Efficiency Rating (FPEER) of band D or below in a home that cannot be kept warm at reasonable cost without bringing their residual income below the poverty threshold. As explained in Note A-5., there are therefore three key elements (drivers) in determining whether a household is fuel poor: (1) household income; (2) household energy efficiency; and (3) fuel prices. The 2014 fuel poverty target for England set an objective to ensure that as many fuel poor households as reasonably practicable achieved a minimum energy efficiency rating of band C by 2030 (Note A-1)

Low Income High Costs (LIHC) was the preferred metric for measuring fuel poor households from 2011 to 2018. Note A-2 explains how LIHC was defined. For data representative of 2019 onwards (Note A-3) the Department for Energy Security and Net Zero (DESNZ) uses Low Income Low Energy Efficiency (LILEE) as the preferred metric. Estimates for both metrics were produced for 2019 to allow a comparison.

Based on household income and the energy efficiency of their home, all households can be divided into 4 groups (Figure A-1). If their property FPEER is of band D (Note A-4) or below (under the solid horizontal line on Figure A-1) they are defined as Low Energy Efficiency (LEE) and if the FPEER is C or above they are defined as High Energy Efficiency (HEE). When assessing fuel poverty, the income used in the assessment is the income available after housing costs, tax and national insurance. The income threshold for fuel poverty is shown as a “best fit” sloped dashed line on Figure A-1. The line is sloped because the less energy efficient the home the greater the impact of fuel costs on available income. Households to the left of the sloped line are defined Low Income (LI) and those to the right of the line are defined as High Income (HI). The lower left group therefore becomes Low Income Low Energy Efficiency (LILEE), these are the fuel poor households. In 2023 13.0% of households in England were defined as fuel poor. Note A-5 provides more details on the LILEE methodology.

The **fuel poverty gap** is an estimate of the depth of fuel poverty. The fuel poverty gap is the reduction in fuel costs needed for a household to not be in fuel poverty. As shown in Figure A-2 a household can escape fuel poverty by increasing the energy efficiency of their home to a FPEER of at least Band C or by crossing the income threshold. Crossing the income threshold could be achieved by increasing the absolute household income through things like gaining employment or increasing their salary by getting a better paid job or government intervention.

Using the two example households in Figure A-2, one household is in a home that is very energy inefficient, but their household income is close to the income threshold. For this type of household reducing fuel costs or increasing income brings them out of fuel poverty more easily than by increasing the efficiency of their home. The second illustrative household has very Low Income but a more efficient home than the first example. For this household improving energy efficiency would move them out of fuel poverty.

As shown in the Statistical Digest of Rural England:2 – Housing, housing in Rural areas is more likely to be detached and much less likely to be flats than in Urban areas. There is also a higher proportion of Rural housing that is more than 100 years old (Note A-6). In 2019 the Energy Savings Trust stated that nearly 20% of homes in rural areas are in the very energy inefficient F and G categories, compared to just 2.4% in urban areas (Note A-7). Figures from the DESNZ / BEIS 2022 Fuel Poverty Statistics suggest that this 20% is an overestimate. These 2023 figures show that 6.8% of Rural households are living in properties that are rated F or G compared to 1.4% of

households in Urban areas. More information on the energy efficiency of homes can be found in the Energy Performance Certificates sections of this report (Section B and C).

In Predominantly Rural areas there is also a greater reliance on heating oil than in Predominantly Urban areas - see the "Fuel types used for central heating" section. Unlike domestic gas prices, there is no cap on domestic oil prices, so there is the potential for it to be more expensive to heat a home with heating oil than gas.

Figure A-1: A schematic diagram to show how fuel poor households were defined in 2023
The numbers in percentages are the proportion of households in 2023 in each of the 4 groups. This diagram is based on Figure 2.2 in the **Annual fuel poverty statistics report: 2024** publication. FPEER on the Y-axes is Fuel Poverty Energy Efficiency Rating. LI and HI are High and Low Income respectively. HEE and LEE are High and Low Energy Efficiency respectively.

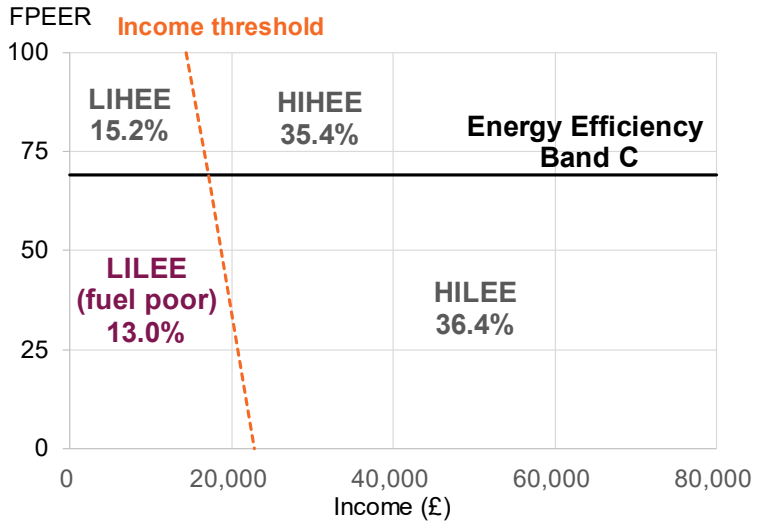
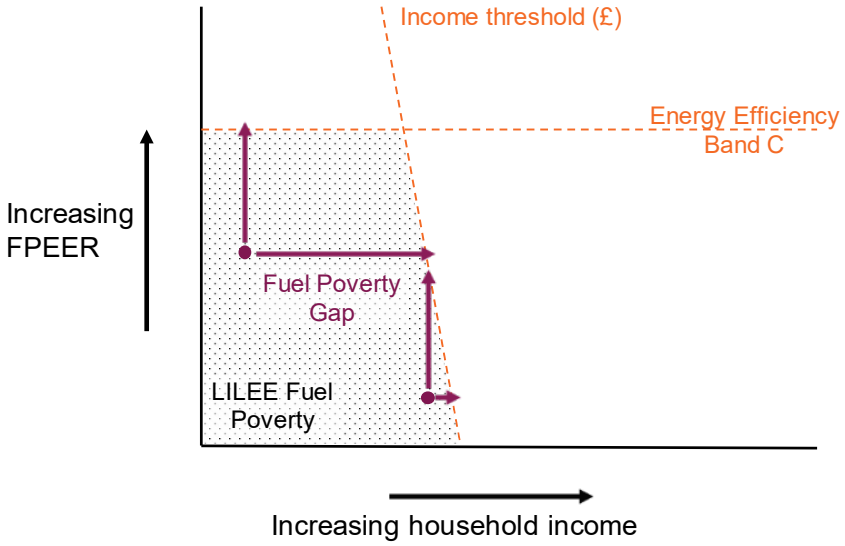


Figure A-2: A schematic diagram representing the fuel poverty gap
The hatched area represents those households in fuel poverty and the arrows represent the property energy efficiency or household income gains that 2 households (represented by the small circles) would need to make to exit fuel poverty. This diagram is based on Figure 1 in the **Annual fuel poverty statistics report: 2023** publication.

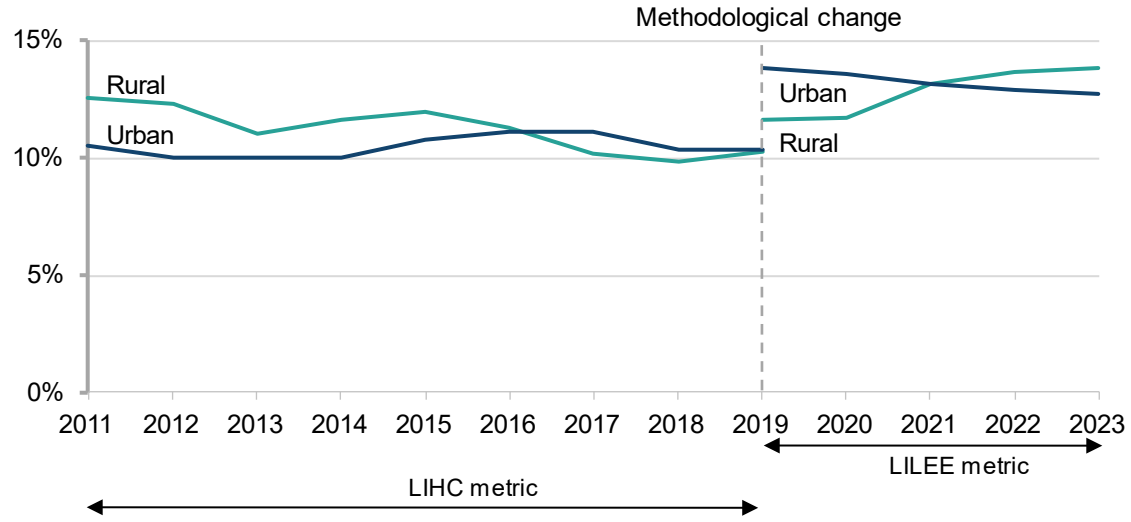


Fuel poor households

There were 3.2 million fuel poor households in England in 2023 (see Figure A-1 for a definition of fuel poor). In Rural areas there was 590 thousand fuel poor households and in Urban areas there was 2.6 million fuel poor households. As Figure A-3 shows, historically between 2011 and 2015 fuel poverty was proportionately more prevalent in Rural areas than in Urban areas under the old LIHC metric. In 2017 and 2018 fuel poverty was marginally more prevalent in Urban areas than in Rural. In 2019 under LIHC there was 10% of households in fuel poverty in both Rural and Urban areas.

The change of in methodology from LIHC to LILEE as the preferred metric resulted in increases of 1.3 percentage points in fuel poor Rural households and 3.4 percentage points in fuel poor Urban households (Figure A-3). Unlike some other variables a consistent time series under the LILEE is not included within the long-term fuel poverty trend tables that are updated annually as part of the Fuel Poverty Statistics publication (Note A-8).

Figure A-3: Line chart showing the proportion of fuel poor households (%) in Rural and Urban areas (2011 to 2023).
Low Income High Costs (LIHC) was the preferred metric from 2011 to 2018 (Note A-2). From 2019 onwards Low Income Low Energy Efficiency (LILEE) became the preferred metric (Note A-5). The series break for the change in methodology is shown by a dashed vertical line.



Under LILEE fuel poverty was more prevalent in Urban areas than in Rural in 2019 and 2020. In 2021 the proportion of Rural households in fuel poverty rose while falling in Urban areas and the proportion of fuel poor households was 13.1% in both Rural and Urban areas. In both 2022 and 2023 the proportion of fuel poor households was higher in Rural areas than in Urban areas. In 2023 13.9% of Rural households were fuel poor compared to 12.8% of Urban households. This means that in 2023 there were 590,000 fuel poor households in Rural areas.

Comparing 2023 to 2019 (the first year under LILEE), we see that the proportion of fuel poor households in Rural areas in 2023 is 2.3 percentage points higher than in 2019. By contrast in Urban areas the proportion of fuel poor households was 1.1 percentage points lower in 2023 than it was in 2019. In other words, over the last 5 years, levels of fuel poverty have fallen in Urban areas, but they have risen in Rural areas. Note that over the last 12 months the proportion of fuel poor in Rural areas has gone up by 0.2 percentage points, while it has gone down by 0.2 percentage points in Urban areas.

DESNZ produces sub-regional fuel poverty data as Experimental Statistics (Note A-15). Estimates at the sub-regional level are modelled using proxy indicators available for low level geographies and should only be used to look at general trends and identify areas of particularly high or low fuel poverty. They should not be used to identify detailed trends over time. In 2013, BEIS undertook an internal review of the methodology used to produce sub-regional estimates of fuel poverty, in conjunction with Office for National Statistics (ONS) Methodology Advisory Service. This review found that estimates of fuel poverty were robust at Local Authority level, but not robust at lower levels of geography. We are therefore introducing Rural and Urban maps of the proportion of households in fuel poverty at Local Authority level (Figure A-4 and Figure A-5) to the Digest, but will not be producing them at more detailed levels of geography. At the time of producing this update DESNZ has not released any more recent sub-regional fuel poverty data, therefore Figure A-4 and Figure A-5 have not been revised.

Within Rural areas (Figure A-4) the proportion of households classified as fuel poor is highest in the Local Authorities along the England and Wales border. Local Authority boundaries changed in April 2023 in both North Yorkshire and Cumbria. This has reduced the number of Local Authorities in the North (Note A-16). Using these new boundaries, north of the Humber only three Local Authorities have less than 14% of households in fuel poverty. In East Anglia there are proportionally more households in fuel poverty in coastal Local Authorities than in those further inland. Proportionally more households are in fuel poverty in the three Local Authorities making up northern and western Devon than in other Local Authorities in South West England. Within the East Midlands region there is proportionally more fuel poverty in Northern and Eastern Lincolnshire and in much of Derbyshire than in southern parts of this region.

In summary, Figure A-4 shows Rural fuel poverty is above average in in Cumbria, Yorkshire, Durham, Lincolnshire, coastal areas of East Anglia, along the England / Wales border and in north west Devon and below average Rural fuel poverty in the Local Authorities of the South East region.

Figure A-5 shows the proportion of households classified as fuel poor in Urban Local Authorities. In general terms, as for Rural areas, Local Authorities with below average fuel poverty tend to be in the South East and those with above average fuel poverty tend to be in the North or the Midlands. Notable exceptions in the South East are above average fuel poverty in parts of central London. In the North East there is proportionally more fuel poverty on Teesside than in Tyne and Wear. Within Yorkshire and the Humber, York has lower levels of fuel poverty than the Urban authorities of South and West Yorkshire. In general, Local Authorities in the North West have lower levels of fuel poverty than in Yorkshire and the Humber, particularly in the south and centre of the area. However, there are still pockets of higher fuel poverty such as on Merseyside and in northern and eastern parts of the area such as Blackpool and Burnley. Of the six Urban Local Authorities where more than 20% of households are fuel poor, five are in the West Midlands.

Figure A-4: Map of the proportion (%) of households in Rural areas that are fuel poor according to the LILEE definition in 2021

The darker the shading the higher the proportion of households that are fuel poor. White areas on the map and Predominantly Urban or Urban with Significant Rural areas. This map uses Local Authority boundaries applicable from 1 April 2023. At the time of producing this update DESNZ have not released any more recent sub-regional fuel poverty data, therefore this map has not been revised. (Note A-15, Note A-16)

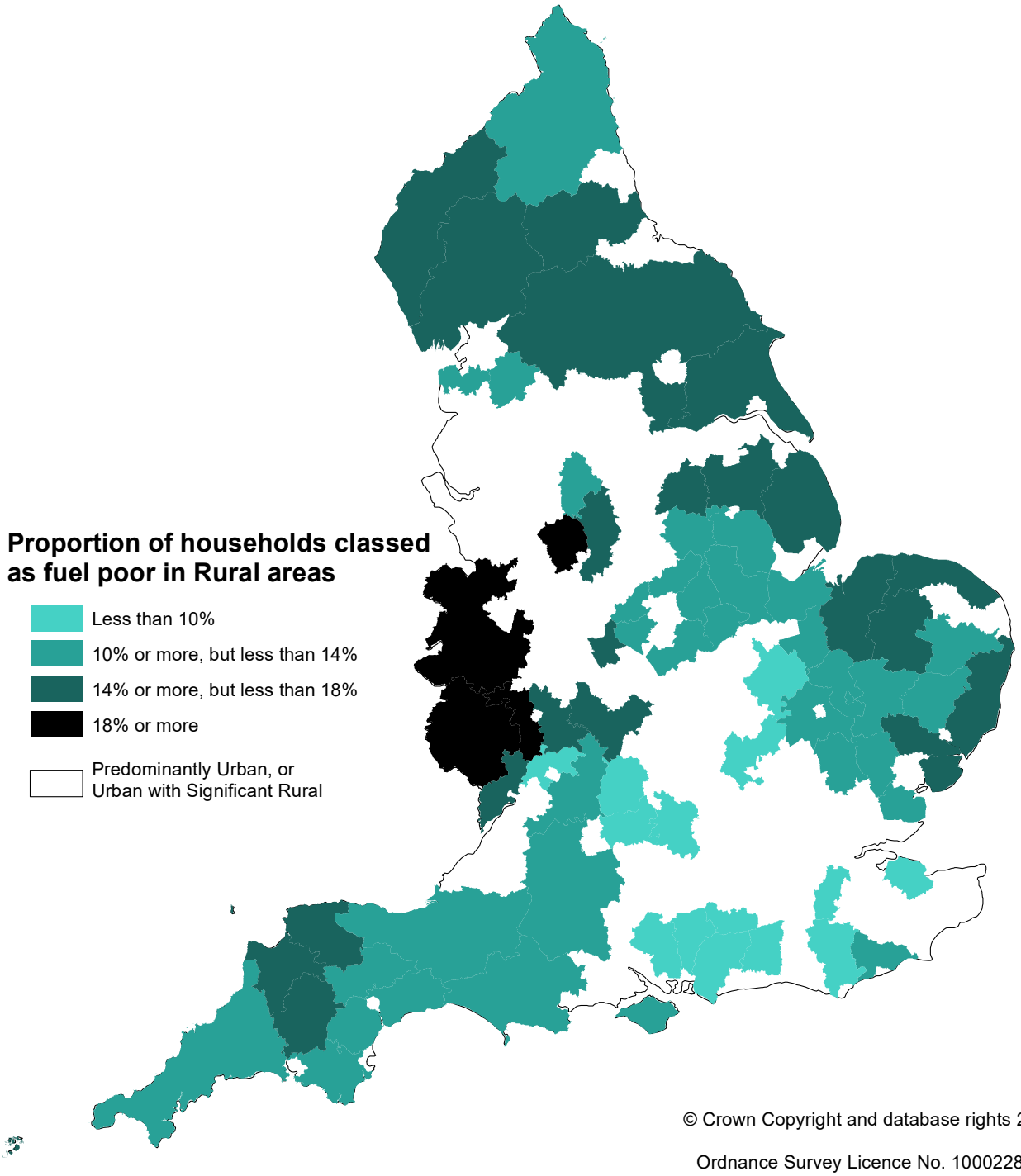
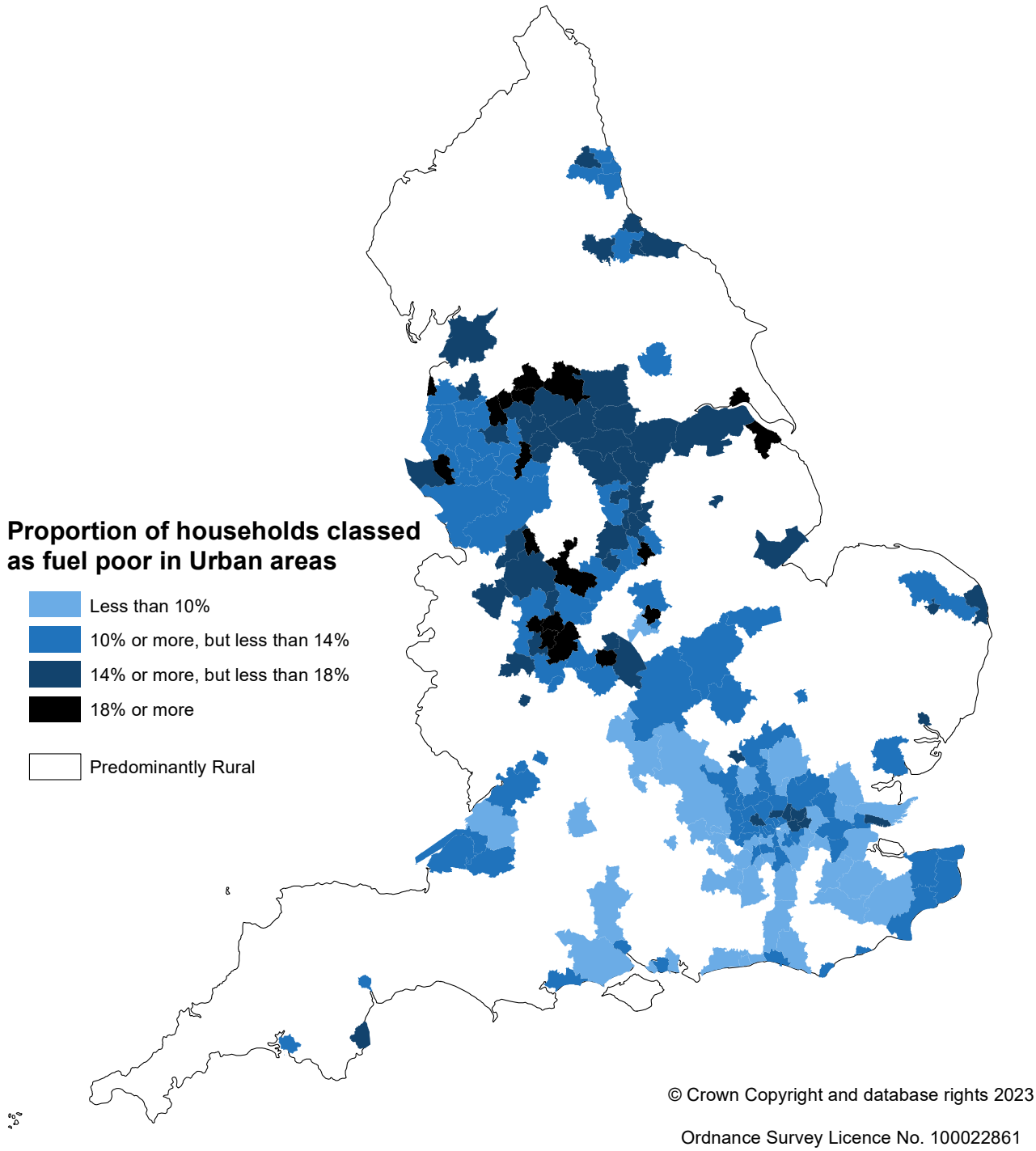


Figure A-5: Map of the proportion (%) of households in Urban areas that are fuel poor according to the LILEE definition in 2021

The darker the shading the higher the proportion of Urban households that are fuel poor. White areas on the map are Predominantly Rural. This map uses Local Authority boundaries applicable from 1 April 2023. At the time of producing this update DESNZ have not released any more recent sub-regional fuel poverty data, therefore this map has not been revised. (Note A-15, Note A-16)



Notes

- DESNZ / BEIS changed their preferred fuel poor metric from Low Income High Costs (LIHC) to Low Income Low Energy Efficiency (LILEE). Note A-5 explains how LILEE is calculated. In 2019 DESNZ / BEIS produced both estimates, so both are shown on Figure A-3. The dashed line represents the change of metric.
- In Sub-regional fuel poverty 2023 (2021 data) published in April 2023 DESNZ published on the basis of the Local Authorities that applied from 1 April 2023 despite the data being representative of 2021. This means that unlike other analysis in the Digest, Figure A-4 and Figure A-5 are on the basis of only 296 Local Authorities rather than the 309 detailed in Appendix 1: Defining Rural areas. At the time of preparing the most recent update 2021 was the most recent sub-regional data available.

Fuel poverty gap

As explained in the "Defining fuel poverty" section, the fuel poverty gap (£) is an estimate of the depth of fuel poverty, and it can be either the reduction in fuel costs or the increase in household income needed for a household to not be in fuel poverty. Figure A-6 shows that over the period 2011 to 2023 the average fuel poverty gap (or depth of the fuel poverty) was greater in Rural areas than in Urban areas in every year over this 13-year period. The change of methodology does not affect this conclusion, but the average difference between the Rural and Urban fuel poverty gaps was bigger for the years covered by LIHC (average difference between Rural and Urban gaps of £278) than for the period from 2019 onwards under LILEE (average difference between Rural and Urban gaps of £174). In England, the average fuel poverty gap for households that were fuel poor in 2023 was £417, this is an increase compared to 2022 when it was £325.

DESNZ have revised their estimates of the fuel poverty gap in 2022 for Rural areas downwards. Their initial estimate published in 2023 showed that households in Rural areas had an average fuel poverty gap of £677 in 2022. In the February 2024 release they showed that households in Rural areas had an average fuel poverty gap of £432 in 2022 – almost £250 less that the initial release. By contrast DESNZ have revised the average fuel poverty gap for households in Urban areas upwards to £302. This means that in 2022 the fuel poverty gap was £130 (or over 40%) deeper in Rural areas than in Urban areas. The fuel poverty gap for fuel poor households in Rural Villages, Hamlets and Isolated Dwellings in 2022 was a large contributor to this revision because it was revised down from £956 to £569. There is a table showing fuel poverty figures by RUC category in Energy data tables.

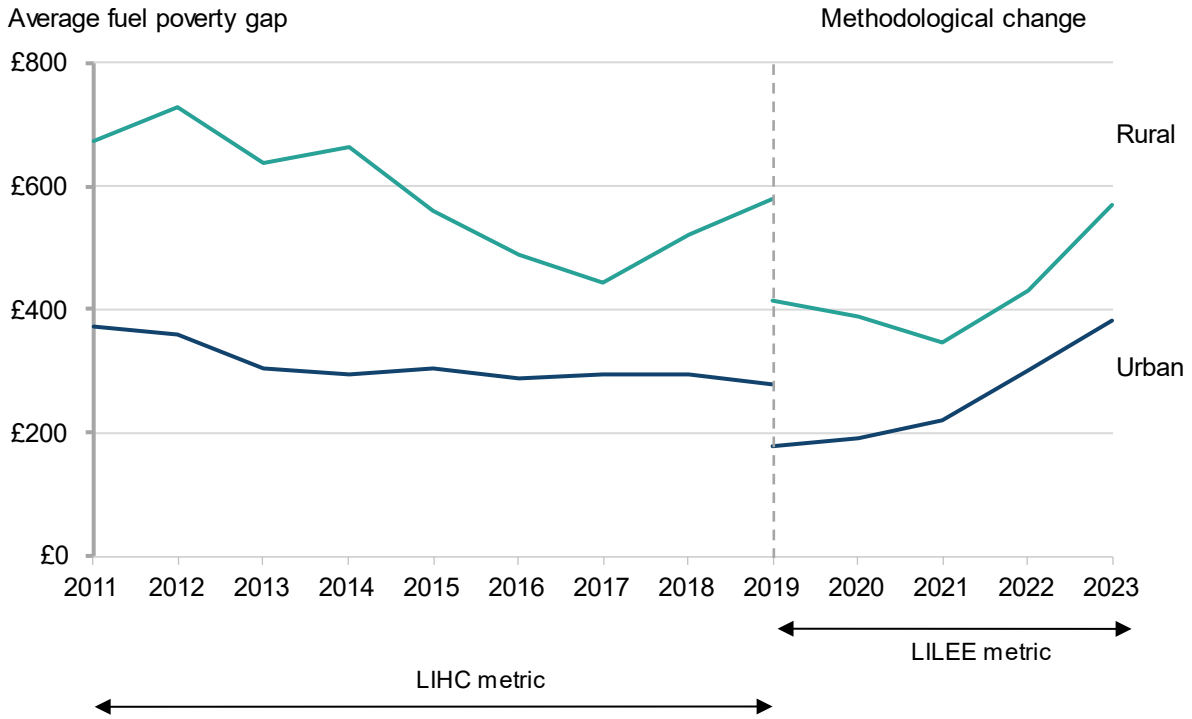
In 2023 the average fuel poverty gap for households in Rural areas was £568, this is £186 more than the average fuel poverty gap of £382 in Urban areas. So, in 2023 fuel poverty was almost 50% deeper in Rural areas than in Urban areas. The fuel poverty gap for fuel poor households in Rural Villages, Hamlets and Isolated Dwellings in 2023 was £778.

The average fuel poverty gap in 2023 in Rural areas was £136 more than it was in 2022 (32% higher), whereas for Urban areas it was only £80 more than in 2022 (26% higher). When the comparison is made to 2019 (the first year under LILEE) we see that the average fuel poverty gap for Rural households has increased from £413 to £568, which is an increase of £155 (or 38%). By contrast for Urban households the fuel poverty gap has more than doubled, increasing from £180 in 2019 to £382 in 2023.

The increasing depth of fuel poverty is a response to the rising energy costs in recent years. The fact that the depth of the fuel poverty in Rural areas has risen more than in Urban areas over the last 12 months is likely to be as a consequence of houses in Rural areas being typically larger, and often older, than Urban ones (Statistical Digest of Rural England:2 – Housing). These two factors make them less energy efficient (sections B and C) and therefore more costly to heat (Section D). In other words, the more units of energy you use to heat your home the more you are affected by the increased cost of each of those energy units.

Figure A-6: Line chart showing the average fuel poverty gap (£) in Rural and Urban areas (2011 to 2023).

Low Income High Costs (LIHC) was the preferred metric from 2011 to 2018 (Note A-2). From 2019 onwards Low Income Low Energy Efficiency (LILEE) became the preferred metric (Note A-5). The series break for the change in methodology is shown by a dashed vertical line



Using the previous LIHC metric the average fuel poverty gap for Urban households decreased between 2011 and 2019, while for Rural households the gap also decreased between 2012 and 2017, but the Rural fuel poverty gap then deepened between 2017 and 2019 (Figure A-6).

The Fuel Poverty Energy Efficiency Rating (FPEER) is a measure of the energy efficiency of a property (Note A-4). As shown on Figure A-7, in 2023 Rural households with the poorest FPEER rating of F or G had an average fuel poverty gap of over £1,800, which is similar to the average fuel poverty gap for Urban households of the same energy rating. In the revised 2022 figures the average fuel poverty gap for those Rural households in homes with the poorest FPEER rating of F or G was £1,300. For further context in 2019, the average fuel poverty gap for those households living in these houses with the poorest energy efficiency rating was £1,200 in Rural areas and £860 in Urban areas. 290,000 Rural households still lived in the least energy efficient homes in 2023; the 62,000 of those who are in fuel poverty have seen the depth of their fuel poverty increase substantially in a very short time period because energy costs have risen rapidly.

In the latest Fuel Poverty Statistics DESNZ consider fuel poverty by property characteristics (Note A-9). DESNZ reported that the fuel poverty gap was largest for converted flats (£597) and

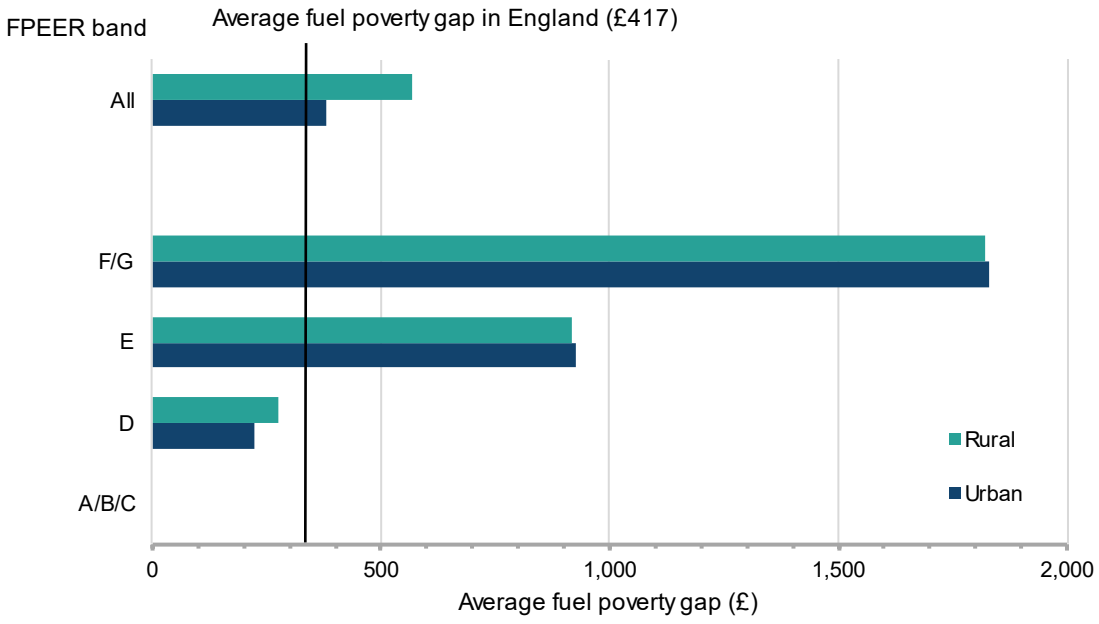
households living in converted flats were more likely to be in fuel poverty than households in any other property type. The average fuel poverty gap for households in detached properties was the only other one that exceeded £500. Comparing an end terrace to a mid-terrace (Fuel poverty detailed tables 2024 (2023 data) - Table 7) shows that 3.3% fewer households in a mid-terrace are in fuel poverty than for households in an end terrace and when the households are fuel poor the average depth of the fuel poverty is £127 less for a mid-terrace than an end terrace. This matters in a rural context because the average urban terrace is 50% longer than the average rural terrace, so there are proportionally fewer mid terraced properties in rural areas (Note A-6).

DESNZ also report that:

- the average depth of fuel poverty is higher for households in properties with solid walls than for those in homes with cavity walls, even if the solid walls have been insulated and the cavity walls have not (Fuel poverty detailed tables 2024 (2023 data) - Table 15);
- the larger the floor area the higher the average fuel poverty gap for fuel poor residents, with the value reaching £554 for households in properties with floor areas over 110m^2 (Fuel poverty detailed tables 2024 (2023 data) - Table 9); and
- the depth of fuel poverty is much higher for households in pre-1919 properties (£575) than for households in properties built after this date, but it is not correct to assume that the newer the property the lower the average fuel poverty gap for any fuel poor residents (Fuel poverty detailed tables 2024 (2023 data) - Table 8).

All 3 of these property characteristics (solid walls, bigger and older properties) are more prevalent in Rural areas than Urban areas. For example, there are over 1 million pre-1919 homes in rural areas and they account for 28% of rural residential properties compared to only 18% of urban residential properties (Note A-6).

Figure A-7: Bar chart showing average fuel poverty gap (£) in Rural and Urban areas in 2023 according to Fuel Poverty Energy Efficiency Rating (FPEER) band
(Note A-2, Note A-4, Note A-5)
The legend is presented in the same order as the clusters of bars.



Notes

- DESNZ / BEIS changed their preferred fuel poor metric from Low Income High Costs (LIHC) to Low Income Low Energy Efficiency (LILEE). Note A-5 explains how LILEE is calculated. In 2019 DESNZ / BEIS produced both estimates, so both are shown on Figure A-6. The dashed line represents the change of metric.
- On Figure A-7 the black vertical line represents the average fuel poverty gap for all households in fuel poverty. Only households living in a dwelling with an FPEER of band D-G (Note A-4 and Figure A-1) are categorised as 'Low Energy Efficiency' and are therefore at risk of being in fuel poverty depending on the household income.
- The average fuel poverty gap by Fuel Poverty Energy Efficiency Rating (FPEER) band data published by DESNZ / BEIS combines FPEER band F & G and FPEER bands A, B & C into merged categories as used on Figure A-7. It is not possible to produce a Rural-Urban Classification chart with separate estimates for bands F & G.

Fuel types used for central heating

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let (Note A-11). The ONS use information from EPCs for their Energy Efficiency of Housing publication (Note A-12). There is a March 2023 dataset covering information on the main fuel type or method of heating used in central heating of domestic properties.

Figure A-8 shows that the most common way of heating a home was through mains gas central heating. In Predominantly Urban areas 83% of domestic properties were using mains gas, but in Predominantly Rural areas the proportion of homes using mains gas was only 72%. In both Predominantly Rural and Predominantly Urban areas around 1 in 10 homes (10% in Predominantly Rural and 11% in Predominantly Urban areas) were using electric heating. In the Annual fuel poverty statistics report: 2024, Figure 3.9 showed that households using electricity for their heating had the highest likelihood of fuel poverty (24.5%, compared to 11.7% for households using gas) because of their high fuel expenditure and their lower median household income.

Figure A-8 also shows that community heating schemes were more common in Predominantly Urban areas (5% of homes) than in Predominantly Rural areas (1% of homes). From Figure A-8, it is clear that oil played a greater part in the heating fuel picture in Predominantly Rural areas (10% of homes) than in Predominantly Urban areas (0.4% of homes).

As Figure A-9 shows the more Rural an area the higher the proportion of homes that used oil-based heating systems. In Mainly Rural areas, 12% of homes were heated with oil and in Largely Rural areas 7% of homes were heated with oil. Even in Urban with Significant Rural areas 4% of homes had an oil-based heating system. In an Urban with Significant Rural Local Authority 26% to 49% of the population live in Rural parts of the Authority (including Rural Hub Towns). It is likely to be the homes of these people that contribute to this 4% of homes using oil in Urban with Significant Rural areas.

The most recent Fuel Poverty Statistics showed that there was 166 thousand households using oil that were fuel poor (Fuel poverty detailed tables 2024 (2023 data) - Table 13). These households account for 5.2% of all fuel poor households and their average fuel poverty gap is £597.This is double the average fuel poverty gap for fuel poor households who heat their home with gas.

Worksheet AD in the Energy data tables includes a Local Authority breakdown of the proportion of properties using oil as their main fuel type. Eight Predominantly Rural Local Authorities had more

than 20% of the dwellings use oil as their main fuel type. Five of these eight where in East Anglia; the remaining ones were Eden (which is now part of Westmorland and Furness), Rydale (which is now part of the larger North Yorkshire Local Authority) and Torridge in Devon (Note A-16). These data are not shown in map form because of the strong correlation with the proportion of off-grid properties shown in Figure A-12.

Figure A-8: Bar chart showing the percentage of domestic properties by main fuel type or method of heating used in central heating by Local Authority Rural-Urban Classification, 2023

This analysis is based on Energy Performance Certificate (EPC) information up to March 2023. (Note A-12, Note A-17). The legend is presented in the same order and orientation as the cluster of columns.

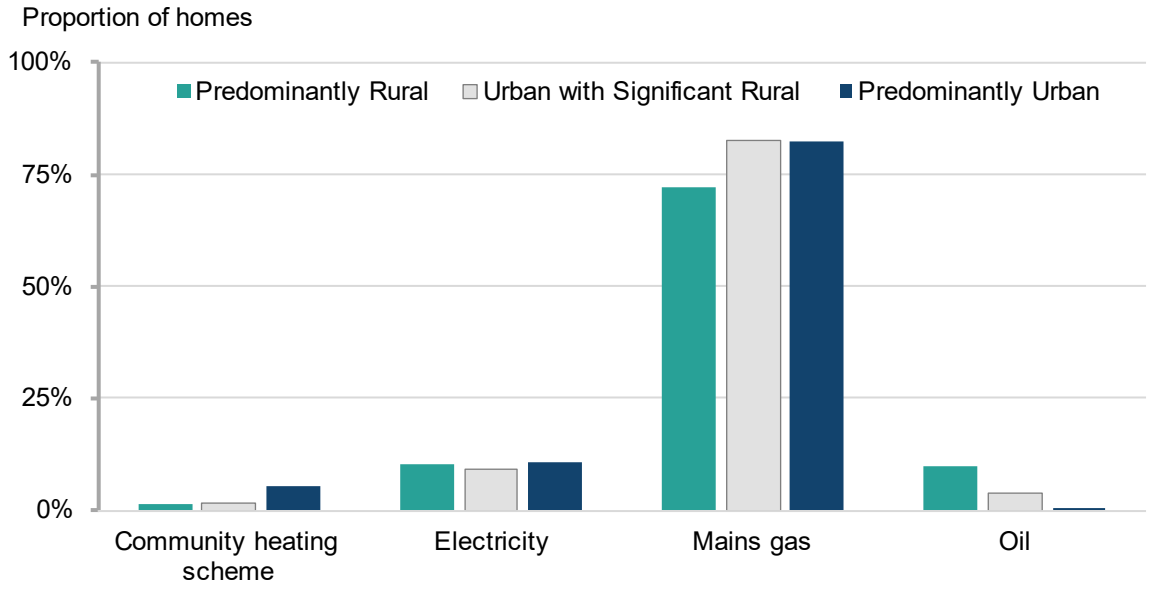
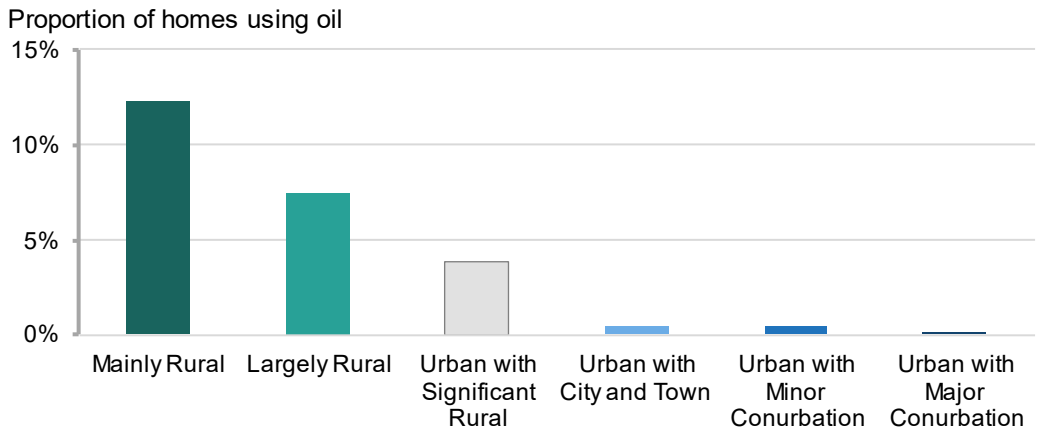


Figure A-9: Bar chart showing the percentage of domestic properties using Oil fuelled central heating by Local Authority Rural-Urban Classification, 2023

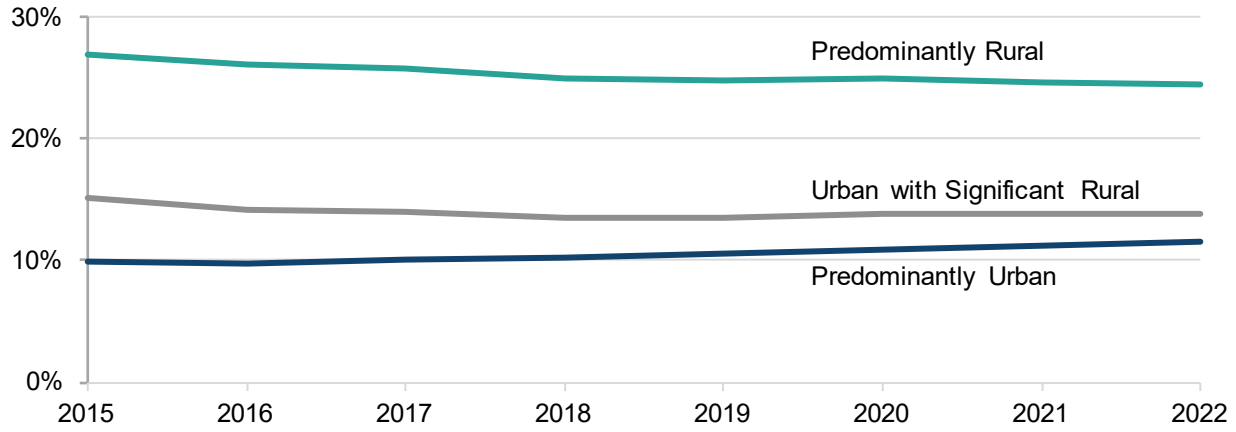
This analysis is based on Energy Performance Certificate (EPC) information up to March 2023. (Note A-12, Note A-17).



Off the gas grid properties

As explained in the previously section, not all households heat their home through central heating with a gas boiler. In 2022 an estimated 3.7 million households did not have a gas network connection, which is 15% of the households in England (Note A-13). In Predominantly Rural areas one in four properties (24.5%) were off the gas grid in 2022 (Figure A-10). This compares to 11.5% in Predominantly Urban areas. The proportion of off-grid properties in Predominantly Rural areas had fallen by 2.4 percentage points over the period 2015 to 2022, whilst for Predominantly Urban areas it rose by 1.6 percentage point over the same period. The value for Predominantly Rural changed by less than 0.1 percentage points between 2021 and 2022.

Figure A-10: Line chart showing the percentage of properties without mains gas supply by broad Local Authority Rural-Urban Classification (2015-2022) (Note A-13)



In absolute terms, one in four properties (25%) off the gas grid means that 1.4 million properties in Predominantly Rural areas are off the gas grid. This figure has remained stable over the period 2015 to 2021 (Table A-1). So, the fall in the proportion of off the grid properties in Predominantly Rural areas is probably because the vast majority of new builds are built within the "larger rural settlements" and come with a gas connection as part of the construction process.

Table A-1: Estimated number (in millions) of properties off the gas grid in England (2015 to 2022) by Local Authority Rural-Urban Classification (Note A-13)

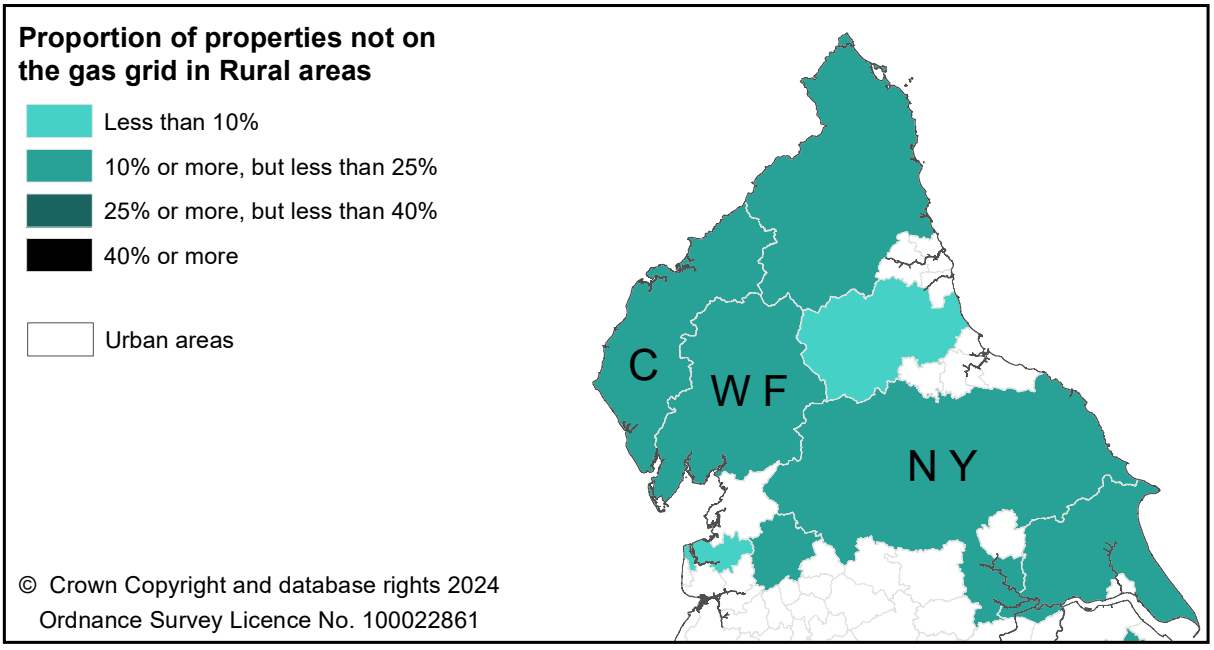
	2015	2016	2017	2018	2019	2020	2021	2022
Predominantly Rural	1.43	1.39	1.39	1.36	1.36	1.39	1.38	1.39
Urban with Significant Rural	0.46	0.44	0.44	0.43	0.44	0.45	0.45	0.46
Predominantly Urban	1.50	1.50	1.56	1.59	1.65	1.73	1.79	1.86
England	3.39	3.34	3.39	3.38	3.45	3.57	3.62	3.71

When DESNZ produced the latest subnational estimates of domestic properties not on the gas grid (Note A-13), unfortunately for our purpose, these new data were produced using the 2023 boundaries (Note A-16) and values were recalculated for all years back to 2015. Note A-16 explains the local authorities that were merged to form 'Cumberland', 'Westmorland and Furness' and 'North Yorkshire'. As shown in Figure A-11 these have become three very large geographical areas. The former authorities than compose Westmorland and Furness' and 'North Yorkshire' had quite different proportions of off-grid properties and not all of them were Predominantly Rural. Merging the areas results in a loss of detail as to where off-grid properties are. For example, for the

new ‘Westmorland and Furness’ area in 2021 the proportion of off-grid properties in Mainly Rural ‘Eden’ and ‘South Lakeland’ was 57% and 22% respectively, but in Urban with Significant Rural ‘Barrow-in-Furness’ it was only 3% average. So, when these areas are merged together as the Largely Rural ‘Westmorland and Furness’ the proportion of off-grid properties for 2021 became 25%. Given that the proportion of off-grid properties is not likely to change dramatically we have decided to retain (and describe) a full map of 2021 data (Figure A-12) with its extra detail instead of presenting a map for 2022 according to the revised boundaries. However, the 2022 data can be found in the Energy data tables.

Figure A-11: Map of the proportion of properties in Predominantly Rural areas of England that are not on the gas grid in 2022 using the 2023 Local Authority boundaries (Note A-13, Note A-16)

Local Authorities classed as Predominantly Urban or Urban with Significant Rural are shown as white areas on the map. The 3 newly created authorities have been labelled on the map as follows: C = Cumberland; W F = Westmorland and Furness; and N Y = North Yorkshire.



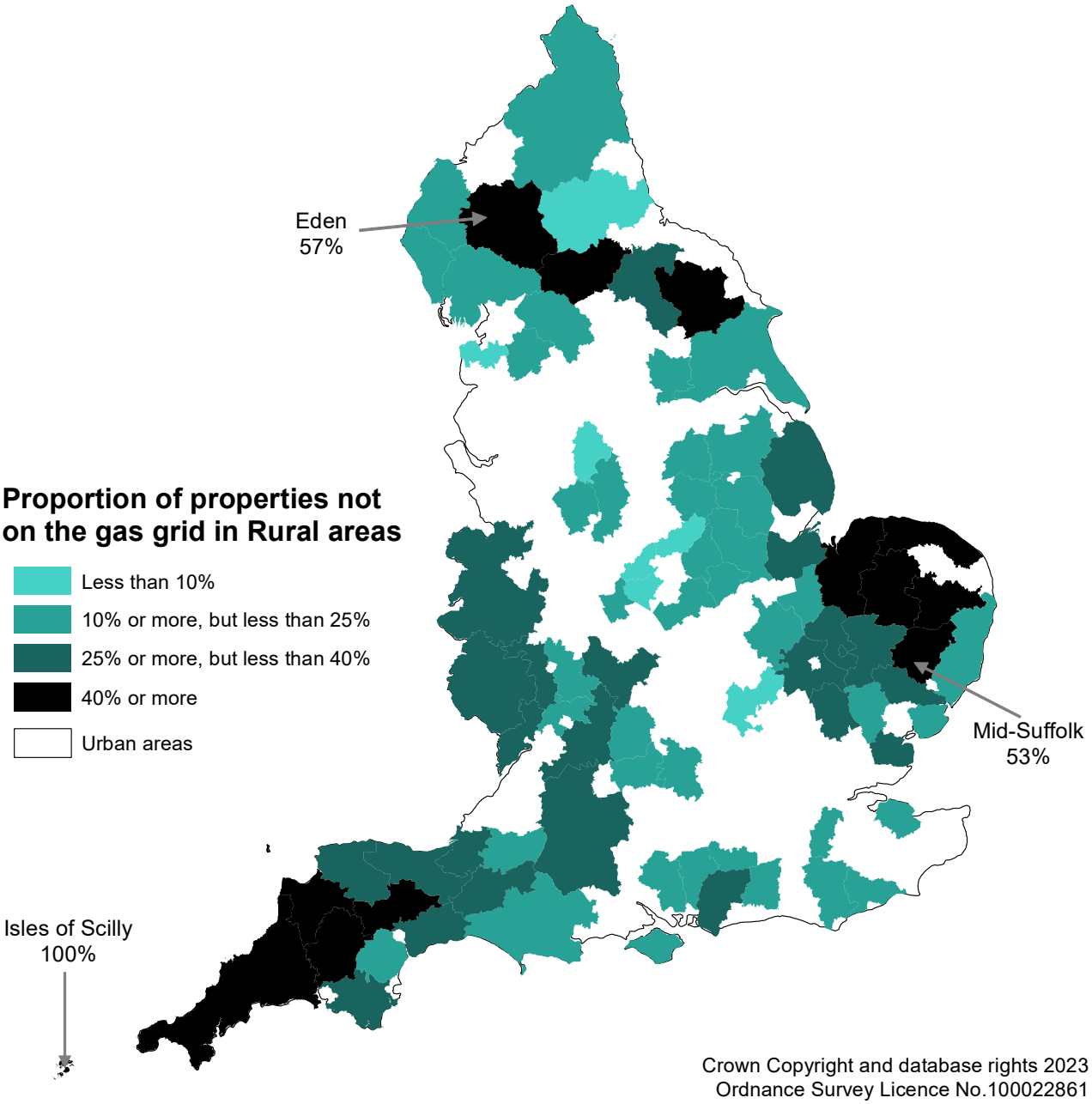
In 2021, there were three Predominantly Rural Local Authorities (Isles of Scilly, Eden, and Mid-Suffolk) where it is estimated that at least half of the domestic properties were not on the gas grid – see Figure A-12. A quarter of Predominantly Rural Local Authorities had at least 35% of domestic properties off the gas grid in 2021. Most of the Local Authorities with a high proportion (greater than 40%) of off the grid properties were located in three clusters: (1) much of Norfolk and parts of Suffolk in the East of England; (2) Devon and Cornwall in the South West; and (3) a band in northern England stretching from Penrith and the North Lakes south eastwards through the Yorkshire Dales National Park and down to the North York Moors National Park (Figure A-12). For comparison, West Berkshire was the only Urban with Significant Rural Local Authority where more than 30% of domestic properties were off the gas grid in 2021.

A Predominantly Urban Local Authority means a Local Authority in which at least 75% of the resident population live in Urban areas. So, it is likely that most of the domestic off the gas grid properties within Predominantly Urban Local Authorities who are using fuels like oil and LPG are within the “rural portion” of these authorities. However, there are also likely to be some properties in Predominantly Urban areas, especially flats and apartments, that are using modern and efficient

electric heating systems and are therefore not on the gas grid. As an example, the Manchester and Salford areas have just over 20% of their properties off the gas grid, but this is because 25% and 29% of their properties respectively are heated by electricity not gas (Table AD2, Energy data tables). Since the off the gas grid estimates are more ambiguous for Predominantly Urban areas, we have opted not to display them on a map.

Figure A-12: Map of the proportion of properties in Predominantly Rural areas that are not on the gas grid in 2021 (Note A-13)

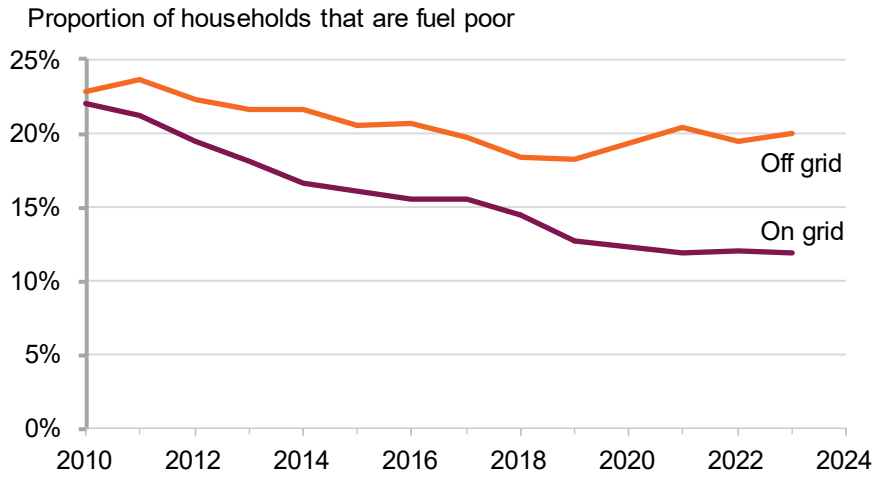
The locations of the 3 Predominantly Rural authorities with highest proportions of off the gas grid properties are shown as annotations. Local Authorities classed as Predominantly Urban or Urban with Significant Rural are shown as white areas on the map. This map uses Local Authorities prior to the reorganisation in April 2023 (Note A-16). This map has not been revised in the 2024 update.



In the DESNZ 2023 Fuel Poverty Statistics publication, there is a set of long-term fuel poverty trend tables. These have been back calculated to 2010 using the LILEE approach (Note A-8). One of these tables considers fuel poverty according to whether or not the property is connected to the gas grid.

Back in 2010 the proportion of fuel poor households was similar for on-grid (22%) and off-grid (23%) properties. As Figure A-12 shows the proportion of on-grid households that are fuel poor has declined at a much faster rate the proportion of off-grid households who are fuel poor. In fact, in recent years the proportion of off-grid households that are fuel poor has been rising after falling to 18% in 2018 and 2019. In 2023, 20% of off-grid households were fuel poor compared to only 12% of on-grid households.

Figure A-13: Line chart showing the proportion of on and off-grid households that are fuel poor (2011 to 2023)
All figures are based on the Low Income Low Energy Efficiency (LILEE) approach (Note A-8).

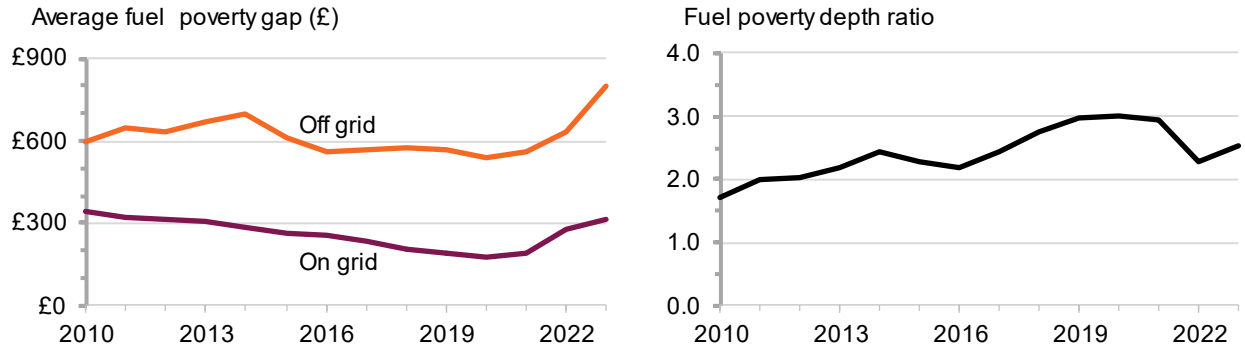


As well as there being a greater proportion of off-grid households who are fuel poor, the depth of the fuel poverty for those who are fuel poor is also greater when the household is off the grid rather than on it (Figure A-14 – left-hand chart). Back in 2010 the average fuel poverty gap in real terms (after accounting for inflation, Note A-8) was £346 for on-grid properties and £598 for off-grid properties. As Figure C 11 (left-hand chart) shows the average fuel poverty gap for on-grid properties dropped year-on-year every year between 2010 and 2020 before rising between 2021 and 2023. By contrast for off-grid properties the average fuel poverty rose during the first part of the 2010s hitting £700 in 2014, before falling to £536 in 2020. In the last 2 years there has been a dramatic increase in the average fuel poverty gap for off-grid households, with the figure rising to £629 in 2022 and then to £801 in in 2023. For off-grid households the average fuel poverty gap rose by £172 between 2022 and 2023, but for on-grid households the rise in the average fuel poverty gap was only £38.

A fuel poverty depth ratio can be calculated between the average fuel poverty gap for two related categories such as off and on-grid properties. Figure A-14 (right-hand chart) shows that in 2010 the average fuel poverty for those who are fuel poor was 1.7 times deeper for off the grid households than for those on the grid. This disparity has grown since 2010. Even before the 2022/2023 cost of living crisis the depth of fuel poverty amongst off-grid households was 3 times that of on-grid households over the period 2019 to 2021. Currently fuel poverty is 2.5 times deeper for off the grid properties that for those on the grid.

Figure A-14: Line charts showing the average fuel poverty gap for those on and off-grid households that are fuel poor (2011 to 2023) and a comparison of the depth of fuel poverty in on and off-grid areas

The left-hand chart shows the average fuel poverty gap (£) for those on and off-grid households that are fuel poor. This average fuel poverty gap is in 'real terms'. The right-hand chart shows fuel poverty depth ratio by comparing the average fuel poverty gaps from the left-hand chart. All figures are based on the Low Income Low Energy Efficiency (LILEE) approach (Note A-8).



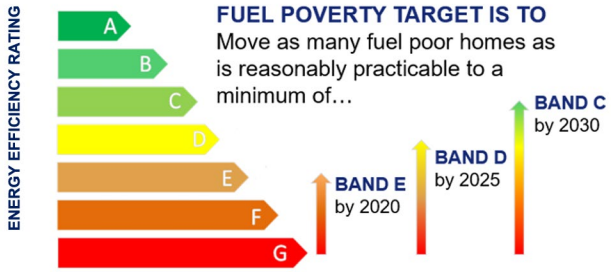
Fuel Poverty explanatory notes

- **Note A-1**

The statutory fuel poverty target was set in December 2014, binding successive Governments to the following:

> The fuel poverty target is to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency rating of Band C, by 2030.

This target was retained in Sustainable Warmth, the updated Fuel Poverty Strategy for England, published in February 2021. This figure taken directly from the latest Fuel Poverty statistics released on 28 February 2023 shows the 2030 target and the intermediate targets.



- **Note A-2**

The 'Low Income High Costs' (LIHC) defined a household as fuel poor if: (a) the amount they would need to spend to keep their home at "an adequate standard of warmth" is above the national median level and (b) if they spent that amount, their leftover income would be below the official poverty line. LIHC was the first measure to introduce the concept of the fuel poverty gap. More information on LIHC can be found in the Fuel poverty methodology handbook 2020: Low Income High Costs (LIHC) (originally published by BEIS).

- **Note A-3**

Traditionally there has been a lag in the publication of the Fuel Poverty statics such that the publication came more than a year after the data collection. For example, the data relating to Fuel Poverty in 2019 was published in March 2021.

In the latest Fuel Poverty statistics released on 15 February 2024, DESNZ gave headline figures as projections for 2022. They are designed to represent the period between April 2022 and March 2024 inclusive. This is a significant change made for the 2023 annual report to provide more timely estimates of

fuel poverty in detail. The 2023 projection is considered to be less uncertain than the 2024 projection since it is based more on observed changes to energy efficiency installations, income changes and announced energy prices.

- **Note A-4**

The Fuel Poverty Energy Efficiency Rating (FPEER) uses a modified version of the standard Energy Efficiency Rating which takes into account policies that directly affect the cost of energy. In recent years this has included the rebate provided by Warm Home Discount. The FPEER methodology deducts such rebates from the overall modelled costs produced under the SAP system. The FPEER methodology generates a rating between 1 and 100, which is then translated into an energy efficiency Band from G (lowest) to A (highest) as follows:

Fuel poverty Energy Efficiency Rating	Band
1 to 20	G
21 to 38	F
39 to 54	E
55 to 68	D
69 to 80	C
81 to 91	B
92 +	A

Note that the RPEER methodology rating will be higher than the standard rating if the household receives additional support. The standard rating methodology is used in the Energy Performance Certificates sections of this report (Sections B and C).

- **Note A-5**

Fuel poverty in England is currently measured using the Low Income Low Energy Efficiency (LILEE) methodology. According to this methodology a household is fuel poor if:

  - it is living in a property with an energy efficiency rating of band D, E, F or G as determined by the most up-to-date Fuel Poverty Energy Efficiency Rating (FPEER) Methodology - this is depicted by the horizontal threshold in Figure A-1; and
  - its disposable income (income after housing costs (AHC) and energy costs) would be below the poverty line as depicted by the vertical sloping threshold in Figure A-1.

There are therefore three key elements (drivers) in determining whether a household is fuel poor: (1) household income; (2) household energy efficiency; and (3) fuel prices. Increased energy efficiency, higher incomes and lower energy prices would each have a positive impact on a fuel poor household. The LILEE fuel poverty indicator sets an absolute energy efficiency threshold making it easier to identify the impact of changes in energy efficiency. The relative nature of the income threshold means it is harder to see the impact of changes in income and the contribution of prices since this requires an assessment of how household incomes and fuel costs change relative to the median income.

It is important to note that **LILEE is not based on actual fuel costs**. The Government is interested in the amount of energy households need to consume to have a warm, well-lit home, with hot water for everyday use, and the running of appliances. Fuel poverty is therefore measured based on required fuel costs of the energy efficiency of the home rather than actual spending. An equivalisation factor is applied to reflect the different levels of energy required depending on the number of people living in the property.

The Income element of LILEE is defined as equivalised income after housing costs, tax and National Insurance. Equivalisation reflects that households have different spending requirements depending on the number and age of people living in the property.

Under the LILEE indicator there is no exact point on the income axis, for a given FPEER rating, where the household would be classed as Low Income since this threshold is measured using income minus fuel costs. The sloping dashed line Figure A-1 marks a line of best fit between households classed as Low Income and

High Income and shows the impact of higher fuel costs in Low Energy Efficiency households. The variation in fuel costs for a given FPEER is due to factors including property size, household size, occupancy pattern. The depth of fuel poverty is measured by the fuel poverty gap. The fuel poverty gap is the reduction in fuel costs needed for a household to not be in fuel poverty. This is either the change in required fuel costs associated with increasing the energy efficiency of a fuel poor household to a Fuel Poverty Energy Efficiency Rating (FPEER) of at least 69 (band C threshold) or reducing the costs sufficiently to meet the income threshold.
More information on the Fuel Poverty Energy Efficiency Rating (FPEER) and Low Income Low Energy Efficiency (LILEE) can be found in the Fuel Poverty Methodology Handbook (originally published by BEIS).

- **Note A-6**

An analysis of housing stock by property age and type can be found in Statistical Digest of Rural England:2 – Housing.
This report contains information on the number and proportion of pre-1919 houses in rural and urban areas as well as the number of (mid and end) terraced properties. This analysis is based on the English Housing Survey (EHS) which does not define rurality according to the RUC, it uses a looser definition based on an in-situ assessment (see the Husing report for more details). Therefore, where this data source has been used in this section, we refer to rural and urban instead of Rural and Urban to denote that these are not using the strict RUC definition.

- **Note A-7**

Energy Saving Trust blog March 2019: Why outside the grid does not mean outside of help.

- **Note A-8**

After switching to the LILEE methodology DESNZ / BEIS back calculated fuel poverty figures to 2010 using the LILEE approach to generate a consistent time series for a selection of variables. These long-term fuel poverty trend tables are updated annually as part of the Fuel Poverty Statistics publication. Table 5 of the long-term trends publication contains a breakdown for properties on and off the gas grid. In this document all the estimates of the fuel poverty gap are in 'real terms', which means that they take account of inflation. These estimates were produced by DESNZ using the Gross Domestic Product (GDP) deflators consistent with the Office for Budget Responsibility estimates November 2023.

- **Note A-9**

Annual fuel poverty statistics report 2024 (2022 and 2023 data) sections 3.1.2 to 3.1.5 cover fuel poverty by wall type, dwelling type, floor area and property age.

- **Note A-10**

Fuel poverty source data: DESNZ fuel poverty statistics: www.gov.uk/government/collections/fuel-poverty-statistics

- **Note A-11**

Energy Performance Certificate (EPC) are described in more detail in Section B Energy Performance Certificates: average Energy Efficiency Score and Section C Energy Performance Certificates: achieving energy efficiency category C.

- **Note A-12**

The Office for National Statistics (ONS) publish Energy Efficiency of Housing at Local Authority level on an annual basis for financial years. This section uses data for the financial year ending March 2023.
The source data for this ONS publication is Department for Levelling up, Housing and Communities – Energy Performance Certificate data on Open Data Communities and Valuation Office Agency - Property Attributes data (https://epc.opendatacommunities.org/).
There was 22 Local Authorities where the proportion of properties using oil was supressed in the source data and they were therefore excluded from our analysis. All of them were Predominantly Urban Local Authorities and the Local Authorities excluded can be determined from worksheet AD in the Energy data tables.

- **Note A-13**

DESNZ produce subnational estimates of domestic properties not on the gas grid, Great Britain. In their latest publication the data is for 2015 – 2022 (https://www.gov.uk/government/statistics/sub-national-estimates-of-households-not-connected-to-the-gas-network). Unfortunately, for our purpose, this new data has been produced using the 2023 boundaries (Note A-16) and recalculated for all years back to 2015. This is unfortunate because the areas merged together in Cumbria and North Yorkshire have quite different proportions of off grid properties and merging removes a lot of detail as to where the off-grid properties are.

- **Note A-14**

Tables showing the data behind Figure A-3, Figure A-6 and Figure A-7 are available in the Energy data tables.

- **Note A-15**

DESNZ produce sub-regional fuel poverty data as Experimental Statistics and their latest publication released on 23 April 2023 was for 2021 data and uses the 2023 Local Authority boundaries. It is not possible to update Figure A-4 or Figure A-5 until DESNZ have published newer sub-regional level data.
The sub-regional Experimental Statistics complement the National Statistics on fuel poverty, by estimating the number and proportion of fuel poor households at smaller geographical levels, for example, Local Authority (LA) level. However the sub-regional statistics do not report on the average fuel poverty gap. This latest publication is the third year that sub-regional breakdowns have been produced based on the LILEE indicator.
They are Official Statistics, produced in compliance with the Code of Practice for Statistics and will be undergoing an evaluation process prior to being assessed as National Statistics.

- **Note A-16**

New Local Authorities came into operation in April 2023. These changes relate to 3 parts of England: (1) North Yorkshire, (2) Cumbria and (3) Somerset. This reduced the total number of Local Authorities from 309 down to 296.

1. A new unitary authority called North Yorkshire replaced the 7 existing districts of Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby. We have provisionally classified this single North Yorkshire UA as Predominantly Rural.
2. The 6 districts within Cumbria were abolished and replaced with 2 new unitary authorities. Allerdale, Carlisle and Copeland have been merged to form Cumberland and Barrow-in-Furness, Eden and South Lakeland have been merged to form Westmorland and Furness. We have provisionally classified Cumberland and Westmorland and Furness as Predominantly Rural.
3. The districts of Mendip, Sedgemoor, Somerset West and Taunton, and South Somerset have been merged to form a new unitary authority known as Somerset. We have provisionally classified this single Somerset UA as Predominantly Rural.

Note that the fuel type analysis based on the Energy Efficiency of Housing publication uses the pre April 2023 boundaries.

- **Note A-17**

There is no mains gas on the Scilly Isles.

B. Energy Performance Certificates: average Energy Efficiency Score

Whether the property is a house or a flat and the age of the property are far more important factors in determining its energy efficiency than its level of rurality; in both Predominantly Rural and Predominantly Urban areas the average energy efficiency of homes is improving.

Summary

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let; the higher the Energy Efficiency Score the more efficient the building. Low Income Households can only be in fuel poverty if the Fuel Poverty Energy Efficiency Rating of their home is band D or below (an Energy Efficiency Score less than 69).

In 2024 the average Energy Efficiency Score differed little between homes in Predominantly Rural areas (67.7) and homes in Predominantly Urban areas outside of London (68.0). Both scores are equivalent to the top end of an Energy Efficiency Rating (EER) band D, but in London the average score (69.6) was equivalent to the bottom end of Energy Efficiency Rating (EER) band C, i.e slightly more energy efficient, on average, in London.

On average, older dwellings have a lower average Energy Efficiency rating in both Predominantly Rural and Predominantly Urban areas outside of London. In 2024, pre-1930 properties in Predominantly Rural areas had an average median Energy Efficiency Score of 54.9, whilst modern homes (2012 onwards) in Predominantly Rural areas had an average Energy Efficiency Score of 83.7. Pre-1930s properties in Predominantly Rural areas had an average Energy Efficiency Rating five points lower than for pre 1930s properties in Predominantly Urban areas outside of London.

In 2024 Flats and maisonettes had the highest average median Energy Efficiency Score of all domestic property types and scored the same in both Predominantly Rural (73.3) and Predominantly Urban areas outside of London. Flats and maisonettes had an average Energy Efficiency Rating one band higher than Terraced, Detached and Semi-detached properties. In Predominantly Rural areas, on average, a new Detached property had an Energy Efficiency Score 22 points higher than the average for existing Detached properties.

In 2024 in both Predominantly Rural and Predominantly Urban areas outside of London, in terms of tenure, the lowest average Energy Efficiency Score was for Owner-occupied properties and the highest was for Social rented properties.

Half of the Predominantly Rural Local Authorities had average Energy Efficiency Scores that were within one point of the England median Energy Efficiency Score of 68. Half of Predominantly Rural Local Authorities had an average Energy Efficiency Score of 56 or less for pre-1930s properties but only six of 175 Predominantly Urban Local Authorities (about 3%) had an average Energy Efficiency Score of 56 or less for pre-1930s properties.

Energy Performance Certificates and ratings

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let. The Energy Efficiency Score shows the energy efficiency of a building at the time of its EPC assessment. The higher the score, the more energy efficient a building is. An Energy Efficiency Rating band from A to G can also be used to interpret this score, where A is very energy efficient, and G is very energy inefficient (Table B-1). Low-income households can only be in fuel poverty if the Energy Efficiency Rating of the home, as defined by the latest Fuel Poverty Energy Efficiency methodology, is band D or below (Note B-2, Note B-3). Note B-5 contains more details about EPCs.

Table B-1: Lookup table to aid interpretation of energy efficiency scores

Energy Efficiency Score	Energy Efficiency Rating band
More than 91	A
81 to 91	B
69 to 80	C
55 to 68	D
39 to 54	E
21 to 38	F
1 to 20	G

This data does not reflect all dwellings in England, because not every dwelling has an EPC. Table 1a of Percentage of dwellings covered by an Energy Performance Certificate, England and Wales shows the percentage of dwellings covered by an Energy Performance Certificate since records began, in England and Wales, as at 31 March 2024. Overall, in England almost 70% of domestic properties are covered by valid EPCs. In general, the coverage is higher for:

- newer properties (93% coverage of post 2012 properties) than older ones (60% of pre 1930s properties);
- rented properties (70% for Social rent) than Owner-occupied (56%); and
- Flats and maisonettes (85% coverage) than houses (62% coverage for Detached properties).

Average energy efficiency

The ONS publish Energy Efficiency of Housing on an annual basis (see Note B-4 and Note B-5). The most recent edition was published in October 2024.

Figure B-1 is a horizontal bar chart showing average Energy Efficiency Score by Local Authority Rural-Urban Classification in 2021, 2022, 2023 and 2024. In 2024, there was little difference between the average Energy Efficiency Score of homes in Predominantly Rural areas (67.7) and homes in Predominantly Urban areas (68.3). As shown on Figure B-1, the average Energy Efficiency Score was higher in London than in other areas (69.6). The average Energy Efficiency Score was 68.0 for Predominantly Urban areas outside of London. In both Predominantly Rural and Predominantly Urban areas outside of London this average Energy Efficiency Score equates to an Energy Efficiency Rating of D, whereas in London the average Energy Efficiency Score equates to an Energy Efficiency rating of C (Table B-1). From this point forward in the analysis for

this chapter London has been separated out from the other Predominantly Urban areas when the averages are calculated.

In all Rural-Urban-Classification areas shown on Figure B-1 the average energy efficiency increased marginally year-on-year between 2021 and 2024. In Predominantly Rural areas the average Energy Efficiency Score has gone up by 3.0 points and in Predominantly Urban areas outside of London the average Energy Efficiency Score has gone up by 2.2 points. The increase in average Energy Efficiency Score has reduced the score gap between Predominantly Rural and Predominantly Urban areas outside of London from 1.2 points to 0.4 points.

Figure B-1: A horizontal bar chart showing average Energy Efficiency Score by Local Authority Rural-Urban Classification in 2021, 2022, 2023 and 2024 (Note B-4, Note B-9)
London is presented separately and is not included in the Predominantly Urban category.

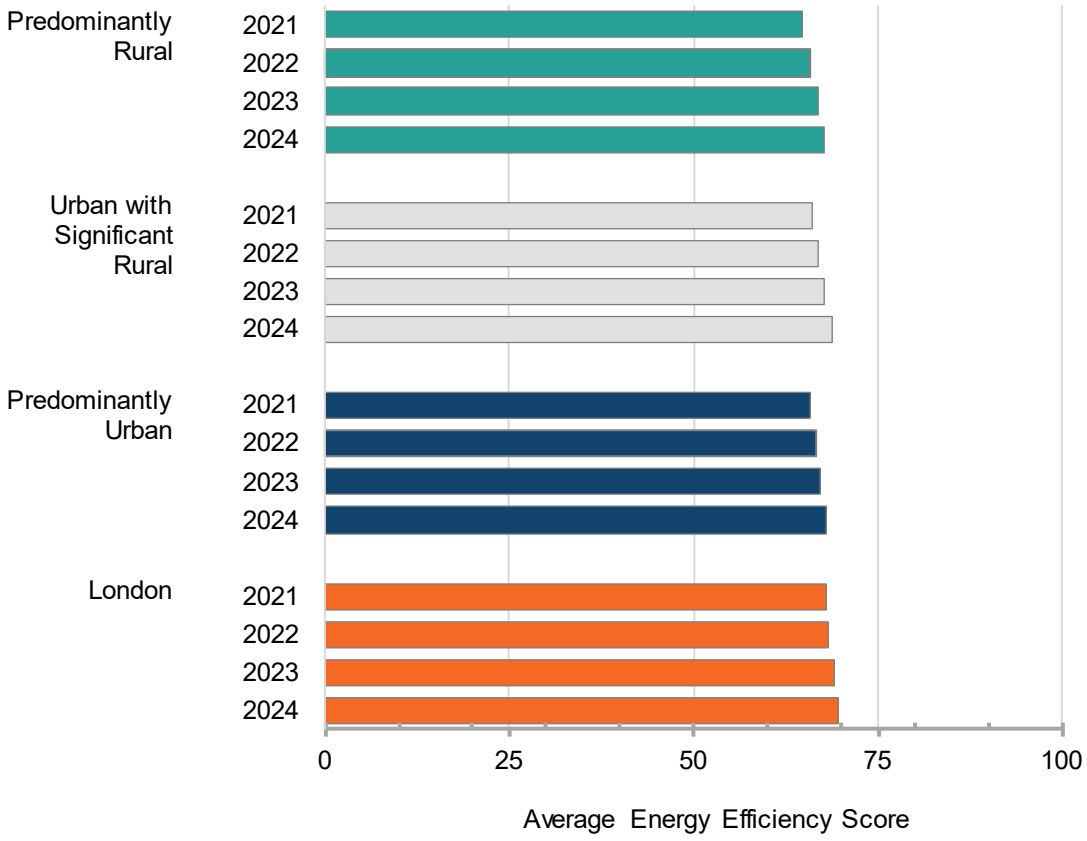
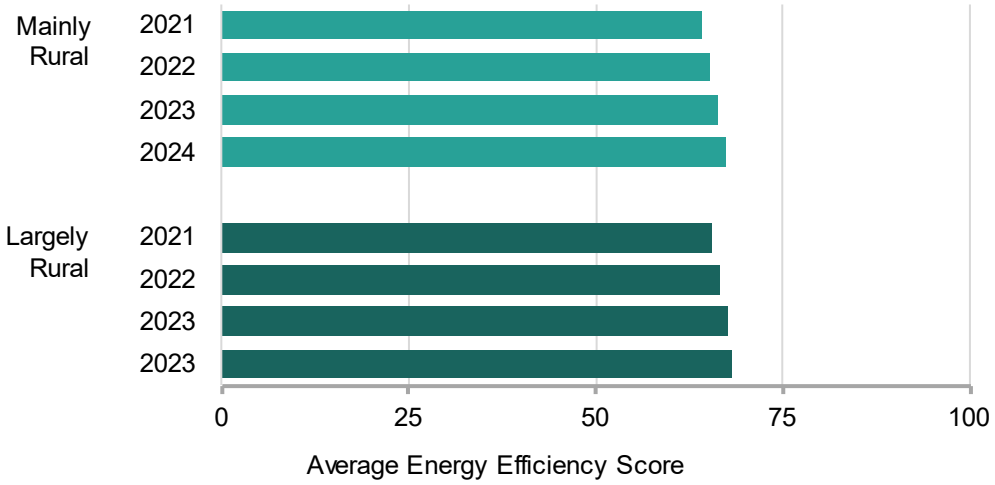


Figure B-2 is a horizontal bar chart showing average Energy Efficiency Score for Mainly Rural and Largely Rural areas in 2021, 2022, 2023 and 2024. This chart shows that homes in Mainly Rural areas have an average Energy Efficiency Score that is slightly lower than for homes in Largely Rural areas, so the more Rural an area the lower the average Energy Efficiency Score. In 2024 the average Energy Efficiency Score was 68.0 in Largely Rural areas and 67.2 in Mainly Rural areas. The average Energy Efficiency Score increased year-on-year between 2021 and 2024 in both Mainly Rural and Largely Rural areas. This increase in score was larger in Mainly Rural areas at 3.2 points than in largely Rural areas at 2.6 points.

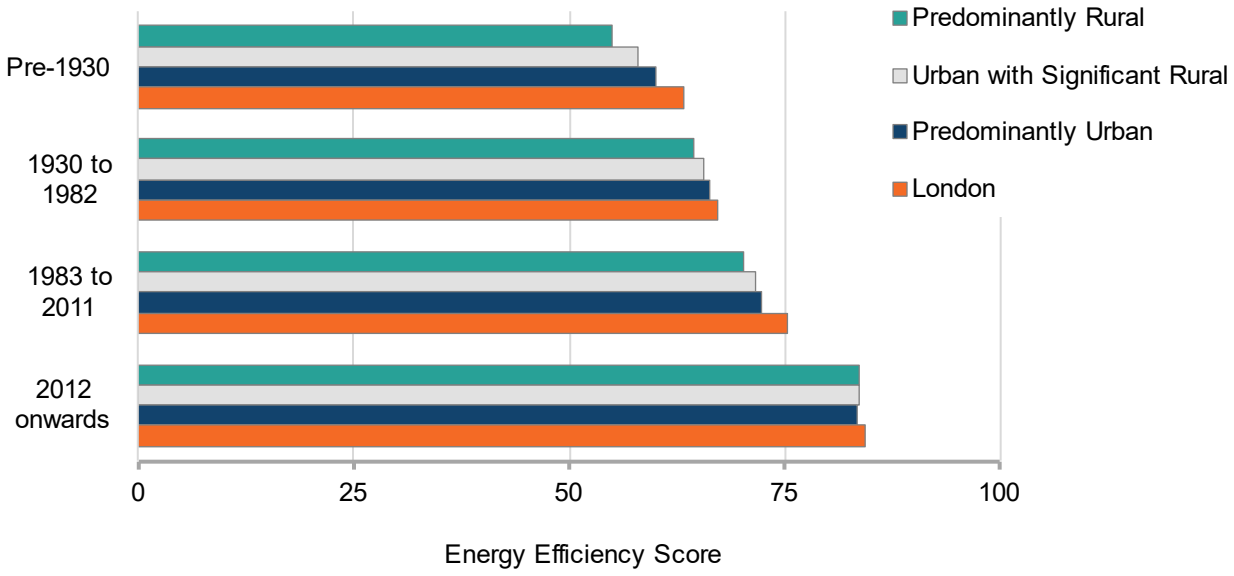
Figure B-2: A horizontal bar chart showing average Energy Efficiency Score for Rural areas by Rural-Urban Classification in 2021, 2022, 2023 and 2024 (Note B-4, Note B-9)



Average Energy Efficiency Scores by housing age

There are several factors that can influence the Energy Efficiency Rating of homes. One of the most important factors is the age of the dwelling. Figure B-3 is a horizontal bar chart showing average Energy Efficiency Score by property age band and Local Authority Rural Urban Classification in 2024. This chart shows that on average, older dwellings had a lower average Energy Efficiency Scores. It also shows that (a) the homes in Predominantly Rural areas had the lowest average Energy Efficiency Scores for all age bands other than 2012 onwards and (b) London areas had the highest average Energy Efficiency Scores for all property age bands.

Figure B-3: Horizontal bar chart showing average Energy Efficiency Score by property age band and Local Authority Rural Urban Classification in 2024 (Note B-4, Note B-9)
The legend is presented in the same order and orientation as the cluster of bars. London is presented separately and is not included in the Predominantly Urban category.



The following bullets describe the information visualised in Figure B-3 in more detail.

- For pre-1930 properties in Predominantly Rural areas the average median Energy Efficiency Score in 2024 was 54.9, whist in Predominantly Urban areas outside of London it was higher at 60.1. In London the 2024 Energy Efficiency Score for pre-1930 properties was 63.2. The score for Predominantly Rural areas is on the boundary of Energy Efficiency ratings D and E, whereas in Predominantly Urban areas outside of London the score equates to a mid-level Energy Efficiency rating D.
- For properties built between 1930 and 1982 the average Energy Efficiency Score equated to an Energy Efficiency rating of D. In 2024 the average Energy Efficiency Score for 1930 to 1982 homes was 64.3 in Predominantly Rural areas and 66.2 in Predominantly Urban areas outside of London.
- In 2024 the average Energy Efficiency Score for homes built between 1983 and 2011 was 70.3 in Predominantly Rural areas, 72.2 in Predominantly Urban areas outside of London and 75.4 in London. In terms of Energy Efficiency Ratings this equates to a low-level C in Predominantly Rural areas and a mid-level C in London.
- For modern homes (2012 onwards) there is little difference in the average Energy Efficiency Score across Rural-Urban Classification categories, at around 84.0 and this equated to an Energy Efficiency Rating of a mid-level B.

In the March 2021 dataset the ONS used different property age bands and it was possible to distinguish between pre-1900 and 1900 to 1929 homes. For pre-1900 homes in Predominantly Rural areas the 2021 median Energy Efficiency Rating was only 47.6 (and this compares to 54.6 in Predominantly Urban areas outside of London and 60.0 in London).

Differences in average energy efficiency scores are shown in Table B-2 as the difference between the average Energy Efficiency scores in Predominantly Urban and Predominantly Rural areas outside of London - effectively the difference in the size of the Predominantly Rural and Predominantly Urban bars on Figure B-3.

Table B-2: The Energy Efficiency Score (EES) in Predominantly Rural areas, Predominantly Urban areas outside of London and difference by property age band in 2024 (Note B-4, Note B-9)

The difference is shown as the average EES in Predominantly Rural areas minus the average EES in Predominantly Urban (excluding London) areas. Properties built from 2012 are not included in the table because the scores are so similar in all Rural-Urban Classification area.

Property age	Pre-1930	1930 to 1982	1983 to 2011
Predominantly Rural EES	54.9	64.3	70.3
Predominantly Urban (excluding London) EES	60.1	66.2	72.2
Difference	**-5.2**	**-1.8**	**-1.9**

For pre-1930 properties the difference was -5.2 Energy Efficiency points. This is broadly equivalent to half the size of an Energy Efficiency Rating category band. Whilst for properties built between 1930 and 1982 and those built between 1983 to 2011, the difference between Predominantly Rural and Predominantly Urban areas outside of London was -1.8 and -1.9 Energy Efficiency points respectively. This is equivalent to a fifth of an Energy Efficiency Rating category band.

For properties of all ages, the average Energy Efficiency Score increased between 2023 and 2024 in both Predominantly Rural and Predominantly Urban areas outside of London (Table B-3 shows

the 2023 Energy Efficiency Scores (EES), but the differences between Predominantly Rural and Predominantly Urban areas remained about the same.

Table B-3: The Energy Efficiency Score (EES) in Predominantly Rural areas, Predominantly Urban areas outside of London and the difference by property age band in 2023 (Note B-4, Note B-9)

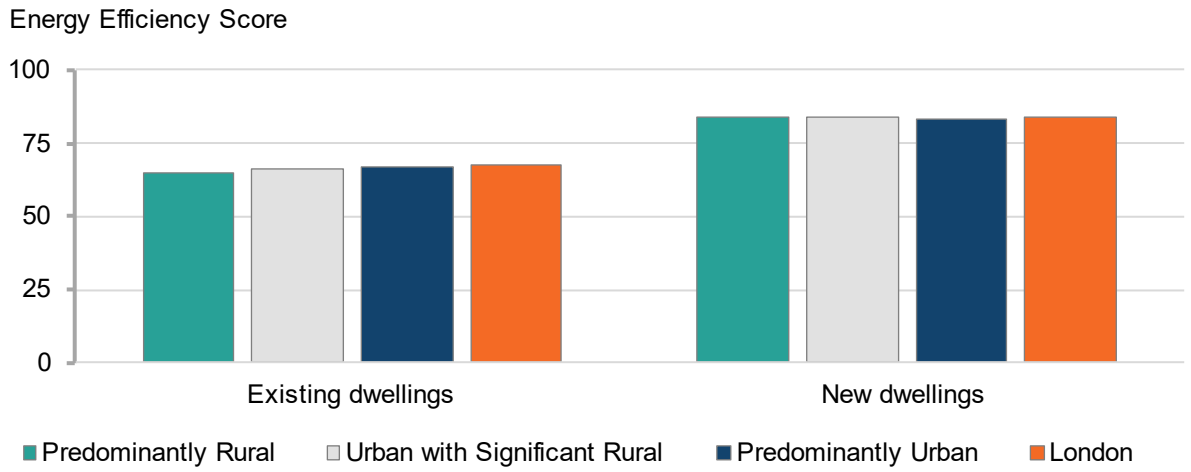
The difference is shown as the average EES in Predominantly Rural areas minus the average EES in Predominantly Urban (excluding London) areas. Properties built from 2012 are not included in the table because the scores are so similar across all four Rural-Urban Classification categories.

Property age	Pre-1930	1930 to 1982	1983 to 2011
Predominantly Rural EES	54.2	63.8	69.9
Predominantly Urban (excluding London) EES	59.2	65.5	71.8
Difference	**-5.0**	**-1.8**	**-1.9**

To simplify the picture, we can split properties into new dwellings and existing dwellings, noting that any property that has undergone a conversion to change its use is considered to be a new property from an EPC perspective (Note B-6). The bar chart in Figure B-4 shows that new dwellings had a higher Energy Efficiency Score than existing dwellings.

Figure B-4: Bar chart showing average Energy Efficiency Score for existing dwellings and new dwellings by property age band and Local Authority Rural Urban Classification in 2024 (Note B-4, Note B-9)

The legend is presented in the same order and orientation as the cluster of columns. London is presented separately and is not included in the Predominantly Urban category.

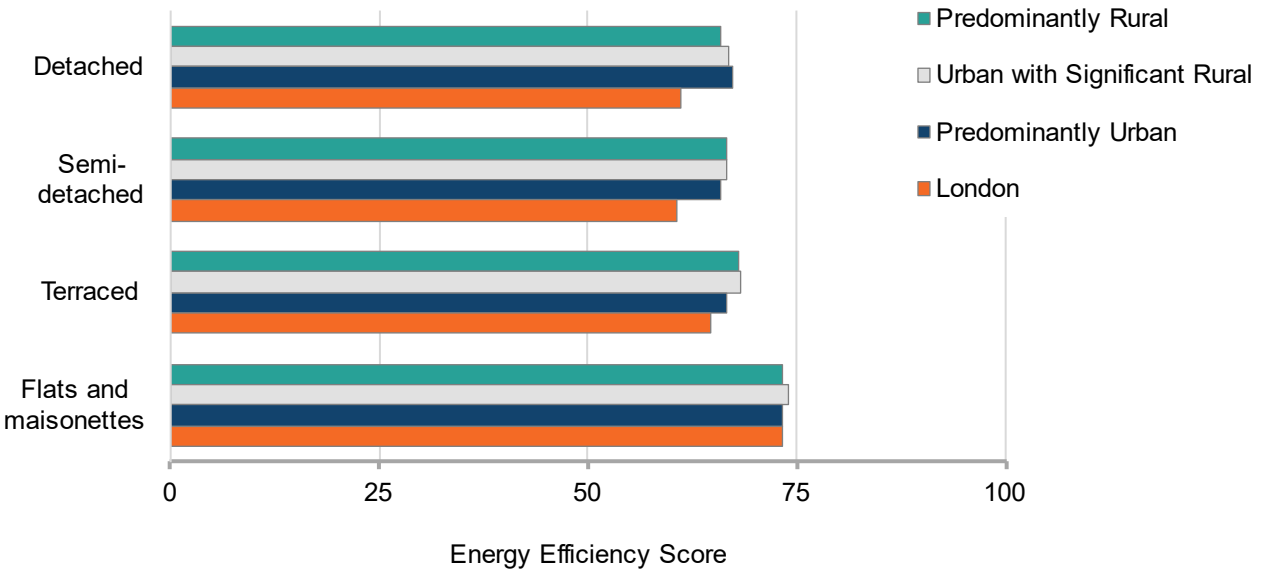


For new homes there is little difference in the average Energy Efficiency Score across Rural-Urban Classification categories. It was around 84.0 in all cases and this equated to an Energy Efficiency Rating of a mid-level B. However, for existing buildings, the average Energy Efficiency Score of 64.9 in Predominantly Rural areas was 1.7 points lower than the average Energy Efficiency Score of 66.6 in Predominantly Urban areas outside of London. Whilst in London the average Energy Efficiency Score was marginally higher than other Predominantly Urban areas at 67.4 due to the prevalence of flats in London which as explained in the next section have a higher average Energy Efficiency Score than houses.

Average Energy Efficiency Scores by housing type

In addition to the age of the property, housing type is also an important factor in determining the Energy Efficiency Score of the dwelling. Figure B-5 is a horizontal bar chart showing average Energy Efficiency Score by property type and Local Authority Rural-Urban Classification in 2024 and it shows that Flats and maisonettes had the highest average median Energy Efficiency Score of all domestic property types. The chart also shows that there was little or no variation between the average median Energy Efficiency Score in Predominantly Rural areas (73.3) and in Predominantly Urban areas, either within London (73.2) or outside of London (73.3). In all cases the scores for Flats and Maisonettes equated to an Energy Efficiency Rating of C.

Figure B-5: Horizontal bar chart showing average Energy Efficiency Score by property type and Local Authority Rural-Urban Classification in 2024 (Note B-4, Note B-7, Note B-9)
The legend is presented in the same order and orientation as the cluster of bars. London is presented separately and is not included in the Predominantly Urban category.



For the other property types shown on Figure B-5 there was variation in average Energy Efficiency Scores between Rural-Urban Classification categories and the ranking of which area type had the highest average score varied between property types. The following bullets describe the variation for these other property types.

- In Predominantly Rural areas, Terraced houses had the second highest average median Energy Efficiency Score in 2024 (68.0). This equated to the top of Energy Efficiency category D. In Predominantly Urban areas outside of London the average median score was lower at 66.6 and within London it was lower still at 64.7. In Predominantly Urban areas, and specifically in London, Terraced properties were, on average, further away from achieving the Energy Efficiency rating C target than in Predominantly Rural areas.
- In Predominantly Rural areas, Detached houses had the lowest average median Energy Efficiency Score in 2024 (66.0). In Predominantly Urban areas outside of London, Detached houses had the second highest average median Energy Efficiency Score in 2024 (67.2). In London, Detached houses had a much lower average median Energy Efficiency Score in 2024 (61.2) than in other areas. Within London there are some very large Detached properties but

there are proportionally fewer Detached properties than elsewhere, therefore a large property with a low score has greater potential to influence the average score in London than elsewhere.

- In Predominantly Rural areas, the average Energy Efficiency Score in 2024 for Semi-detached properties (66.7) was lower than for Terraced and higher than for Detached properties. However, in Predominantly Urban areas, both within and outside of London, the average median Energy Efficiency Score in 2024 was lower for Semi-detached properties than it was for Detached properties. These Semi-detached average scores were 65.9 in Predominantly Urban areas outside of London and 60.5 within London.

The difference between Predominantly Rural and Predominantly Urban areas by property type is shown in Table B-4. The difference is positive for Terraced and Semi-detached properties and negative for Detached properties indicating that on average the Energy Efficiency Score of homes in Predominantly Rural areas is lower than in Predominantly Urban areas for Detached properties but higher for Semi-detached and Terraced properties. For all three property types the difference is around +/- 1.0 points which, for Detached and Semi-detached properties is much smaller than the difference between London and other areas (Figure B-5).

Table B-4: The Energy Efficiency Score (EES) in Predominantly Rural areas, Predominantly Urban areas outside of London and the difference by property type in 2024 (Note B-4, Note B-7, Note B-9)

The difference is shown as the average EES in Predominantly Rural areas minus the average EES in Predominantly Urban (excluding London) areas. Flats and maisonettes are not included in the table because the scores are so similar across all four Rural-Urban Classification categories.

Property type	Detached	Semi-detached	Terraced
Predominantly Rural EES	66.0	66.7	68.0
Predominantly Urban (excluding London) EES	67.2	65.9	66.6
Difference: Rural-Urban (excluding London)	**-1.2**	**-0.8**	**-1.4**

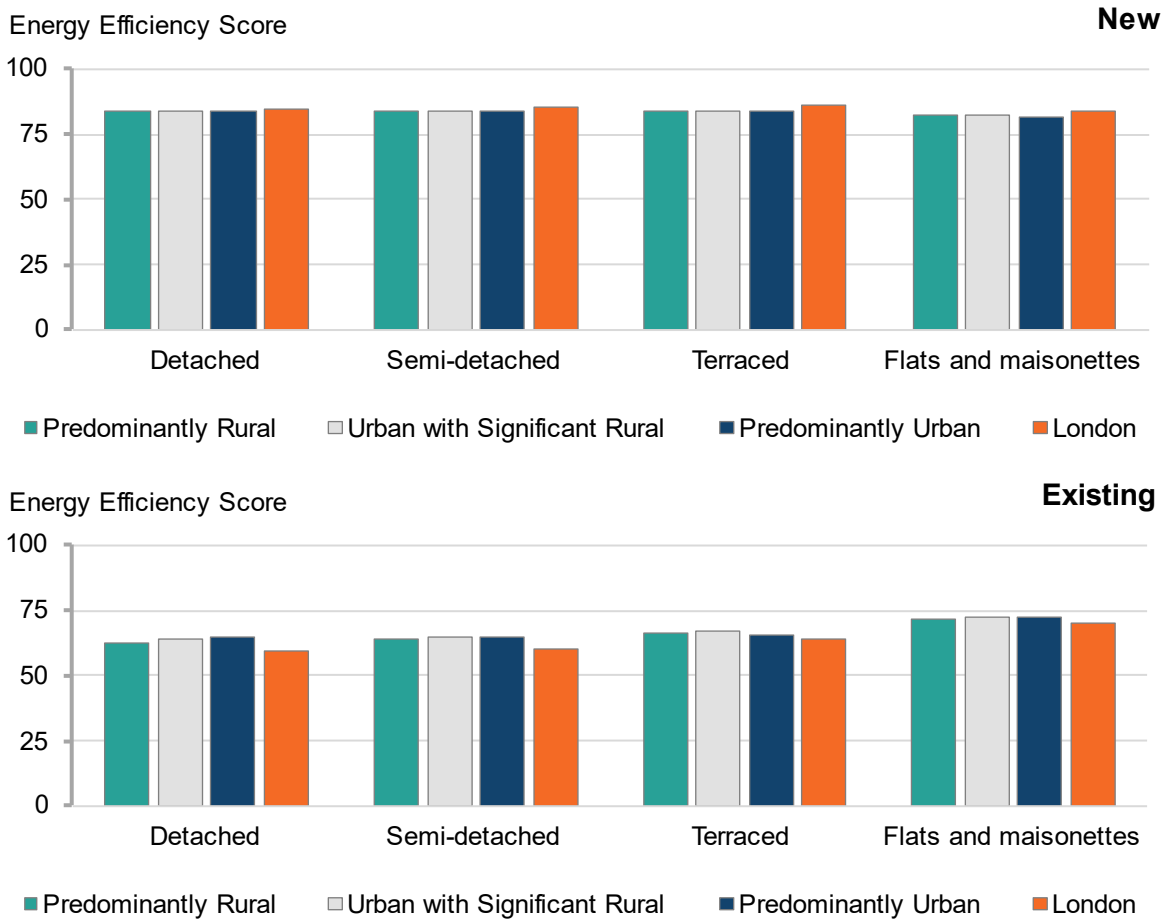
It is possible to consider the Energy Efficiency Scores of new and existing dwellings (Note B-6) by property type separately. The top chart of Figure B-6 shows that for new properties the average Energy Efficiency Score was at least 82 for all property types in each of the four Rural-Urban Classification area types. This means that for all types of new property the average Energy Efficiency rating is at least B. In Predominantly Rural areas and Predominantly Urban areas outside of London the average Energy Efficiency Score was around 84 for Detached, Semi-detached and Terraced properties and for new Flats and maisonettes it was around 82. In other words, for new properties, irrespective of their type, the average Energy Efficiency Scores in Predominantly Rural and Predominantly Urban areas outside of London differed by less than 0.9 points. In London the average Energy Efficiency Scores for new properties were higher than elsewhere for most property types and was around 84 for Detached (the same as other Predominantly Urban areas), 86 for Terraced and Semi-detached and 84 for Flats and maisonettes.

The bottom bar chart of Figure B-6 shows the average Energy Efficiency Score for existing properties by property type. Flats and maisonettes had the highest Energy Efficiency Score in both Predominantly Rural and Predominantly Urban areas and the average scores were 71.4 in Predominantly Rural areas and 72.0 in Predominantly Urban areas outside of London. Whilst in

London the average Energy Efficiency Score for existing Flats and maisonettes was just 70.3. In all cases these scores equated to an Energy Efficiency rating of C.

The lowest average Energy Efficiency Scores were for existing Detached properties at 62.0 in Predominantly Rural areas, and 64.5 in Predominantly Urban areas outside of London and 59.4 in London. All of these scores Equated to an Energy Efficiency category D. For existing Semi-detached and Terraced properties, the average Energy Efficiency Scores differed by less than one point between Predominantly Rural areas and Predominantly Urban areas outside of London.

Figure B-6: Bar chart showing average Energy Efficiency Score for new (top chart) and existing (bottom chart) properties by property type and Local Authority Rural-Urban Classification in 2024 (Note B-4, Note B-6, Note B-7, Note B-9)
The legend is presented in the same order and orientation as the cluster of columns. London is presented separately and is not included in the Predominantly Urban category.



When the two charts of Figure B-6 are considered together, it shows that for all property types the average Energy Efficiency Scores in London were lower than in other areas for existing properties but higher for new properties. The fact that London had higher average Energy Efficiency Scores overall (Figure B-1) reflects the fact that, relative to the other Rural-Urban Classification areas, London has (a) the highest proportion of Flats and maisonettes and (b) a high proportion of new properties.

As seen in Figure B-6, rurality is a much less important factor on the average Energy Efficiency Score than whether or not the building being assessed is a new one or an existing one (Note B-6). As Table B-5 shows, in Predominantly Rural areas on average an existing Detached property had

an Energy Efficiency Score 22 points lower than the average for a new property. In Energy Efficiency rating terms this is a difference of an Energy Efficiency D rating to an Energy Efficiency B rating. The same rating difference was also seen for Semi-detached and Terraced properties, but the absolute difference in the average Energy Efficiency Score was smaller (-19.6 for Semi-detached and -17.6 for Terraced). Similarly large differences in average Energy Efficiency Scores were also seen in Predominantly Urban areas outside of London (Table B-5). The greater average Energy Efficiency Scores for existing Flats and maisonettes means that there was less scope for improvement and therefore the rating jump was only from an Energy Efficiency C rating to an Energy Efficiency B rating. In absolute terms the average Energy Efficiency Score was 11 points lower for existing properties compared to new properties in Predominantly Rural areas and 10 points higher in Predominantly Urban areas outside of London.

Table B-5: The difference in the average Energy Efficiency Scores for new and existing properties by property type and Local Authority Rural-Urban Classification in 2024 (Note B-4, Note B-6, Note B-7, Note B-9)

The differences are shown as the average EES for existing properties minus the average EES for new properties. As new properties are more efficient these are all shown as negative differences. London is presented separately and is not included in the Predominantly Urban category.

Rural-Urban Classification	Detached	Semi-detached	Terraced	Flats and maisonettes
Predominantly Rural	-21.9	-19.6	-17.6	-11.0
Urban with Significant Rural	-20.5	-19.2	-17.0	-10.0
Predominantly Urban	-19.7	-19.3	-18.3	-9.5
London	-25.0	-25.5	-21.7	-13.8

Average Energy Efficiency Score by tenure

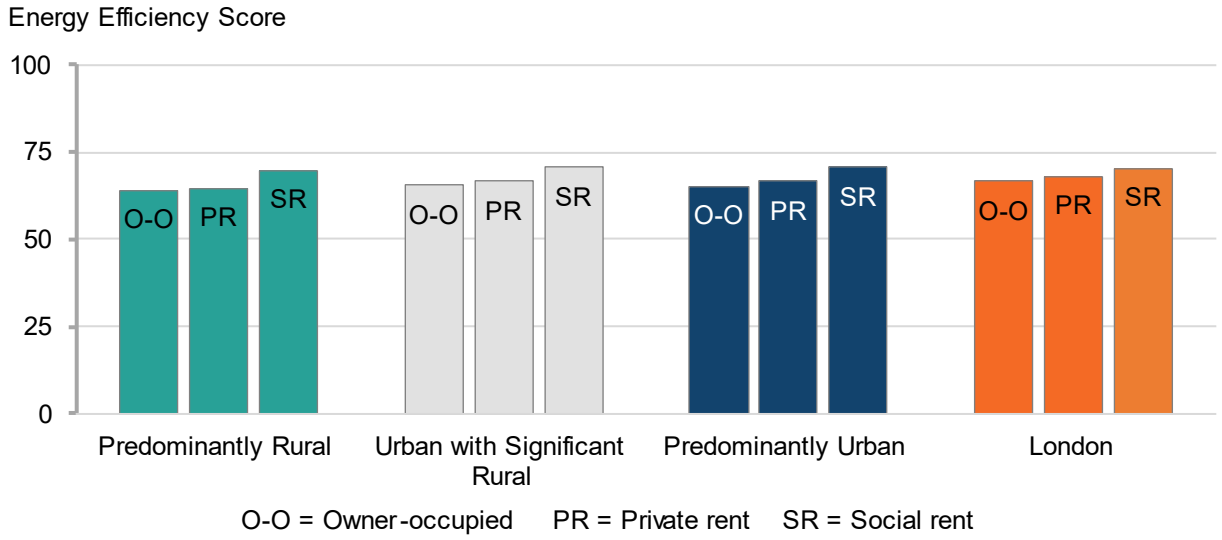
The ONS dataset also includes Energy Efficiency Ratings for Owner-occupied and rented properties. Figure B-7 is a bar chart showing average Energy Efficiency Score by property tenure and Local Authority Rural Urban Classification in 2024 and it shows that in all areas, Owner-occupied properties tended to have the lowest average Energy Efficiency Score and Social rented properties tend to have the highest Energy Efficiency Score.

For Social rented properties in 2024, the average Energy Efficiency Score equates to the bottom end of an Energy Efficiency C rating for all four Rural Urban Classification categories shown on Figure B-7. In Predominantly Rural areas the average median Energy Efficiency Score for Social rented properties was 69.8, one point lower than the score of 70.8 for Predominantly Urban areas outside of London. For Social rented properties, the average Energy Efficiency Score of 70.5 in London was similar to the average score for Predominantly Urban areas outside of London.

For Owner-occupied and Private rented properties in 2024 the average Energy Efficiency Scores equated to an Energy Efficiency D rating for all for four Rural Urban Classification categories shown on Figure B-7. In Predominantly Rural areas the average Energy Efficiency Scores for Owner-occupied and Private rented properties were 64.2 and 64.6 respectively. This is a mid-level Energy Efficiency D rating, the same as for Owner-occupied homes in Predominantly Urban areas outside of London which had average Energy Efficiency Scores of 65.2.

Figure B-7: Bar chart showing average Energy Efficiency Score by property tenure and Local Authority Rural Urban Classification in 2024 (Note B-4, Note B-8, Note B-9)

The clusters of columns are ordered as follows for each Rural-Urban Classification category: Owner-occupied (O-O), Private rent (PR) and Social rent (SR). London is presented separately and is not included in the Predominantly Urban category.



The different in EES between Predominantly Rural and Predominantly Urban areas for the Private rented sector is more than double the size of the difference for Owner occupied or Social rented houses (Table B-6). For Private rented properties the average Energy Efficiency Score was 64.6 in Predominantly Rural areas and 66.7 in Predominantly Urban areas outside of London; i.e. a difference of 2.1.

Table B-6: The Energy Efficiency Score (EES) in Predominantly Rural areas, Predominantly Urban areas outside of London and the difference by property tenure in 2024 (Note B-4, Note B-8, Note B-9)

The difference is shown as the average EES in Predominantly Rural areas minus the average EES in Predominantly Urban (excluding London) areas.

Property type	Detached	Semi-detached	Terraced
Predominantly Rural EES	64.2	64.6	69.8
Predominantly Urban (excluding London) EES	65.2	66.7	70.8
Difference: Rural-Urban (excluding London)	**-1.0**	**-2.1**	**-1.0**

Average Energy Efficiency Score distributions

Amongst Predominantly Rural authorities the median Energy Efficiency Score was 68, the lower quartile score was 67 and the upper quartile score was 69. In Predominantly Urban (including London) areas the median, lower and upper quartile values were all the same as in Predominantly Rural areas. So, there was not a great deal of variation in average Energy efficiency scores across most Local Authorities in either Predominantly Rural or Predominantly Urban areas.

Considering pre-1930s houses, in Predominantly Rural areas the median Energy Efficiency Score was 50 or less in five Local Authorities and only two Predominantly Rural Local Authorities had a

median Energy Efficiency Score of at least 60, High Peak in Derbyshire and County Durham (Table BC1 in the Energy supplementary data tables).

Table B-7 shows the distribution statistics for pre-1930's homes in Predominantly Rural areas. The median value of 56 means that half of Predominantly Rural Local Authorities had a median Energy Efficiency Score of 56 or lower; however, only six of 175 Predominantly Urban Local Authorities (about 3%) had a median Energy Efficiency Score of 56 or less. The median value for pre-1930s properties in Predominantly Urban areas was 60, which means that in half of Predominantly Urban areas, the median Energy Efficiency Score was at least 60. The upper quartile value for pre-1930s properties in Predominantly Rural areas was 57, which means that 75% of Predominantly Rural areas had a median Energy Efficiency Score of 57 or lower. Whereas in Predominantly Urban areas the lower quartile value for pre-1930s properties was 59 (Table B-8) meaning that 75% of the Local Authorities had a median Energy efficiency score of at least 59.

Overall, 115 of the 175 Predominantly Urban Local Authorities (66%) that had a median Energy Efficiency Score for its pre-1930s properties of at least 60. So, two in every three Predominantly Urban areas had a median Energy Efficiency Score for pre-1930s properties of at least 60, but in Predominantly Rural areas it was two in 75 areas (less than 3%) with a median Energy Efficiency of at least 60 for pre-1930s properties

Table B-7: Energy Efficiency Score (EES) distribution statistics across the 75 Predominantly Rural Local Authorities for Pre-1930s properties in 2024 (Note B-4)

Distribution statistic	EES
Minimum	34
Lower quartile	53
Median	56
Upper quartile	57
Maximum	61

Table B-8: Energy Efficiency Score (EES) distribution statistics across the 175 Predominantly Urban Local Authorities Pre-1930s properties in 2024 (Note B-4)

Distribution statistic	EES
Minimum	55
Lower quartile	59
Median	60
Upper quartile	62
Maximum	68

In 2024, for Detached properties in Predominantly Rural areas the median Energy Efficiency Scores were largely between 61 (North Norfolk, West Devon) and 72 (North West Leicestershire, Tewkesbury), with the Scilly Isles a clear outlier with a score of 43. Discounting the Isles of Scilly, due to it's small sample size, leads to range of 11 points between the highest and lowest scoring Authorities. The range of average Energy Efficiency Scores for Detached properties is wider in Predominantly Urban areas than it was for Predominantly Rural areas and stretches from 56 (Lambeth, Lewisham) to 82 (Newcastle upon Tyne, Middlesbrough, Knowsley).

Comparing the data in Table B-9 and Table B-10 shows that for detached properties the central portion of the distribution had very similar scores in both Predominantly Rural and Predominantly Urban areas. The differences are at the upper and lower ends of the distributions.

- Overall, 18 Predominantly Urban areas had a median Energy Efficiency Score for Detached properties of 60 or less and all bar one of these (Southend) was a London Borough. So, there were 18 Predominantly Urban areas where on average Detached properties had a lower Energy Efficiency Score than in the Predominantly Rural area on mainland England with the lowest Energy Efficiency Score (61).

- At the other end of the spectrum the 10 Predominantly Urban areas with the highest median Energy Efficiency Score for Detached properties scored at least 73. Six of these 10 areas were in the North East with a further two in the North West. All of these top 10 Predominantly Urban areas had a higher median Energy Efficiency Score than the highest median Energy Efficiency Score for Predominantly Rural areas (72).

Table B-9: Energy Efficiency Score (EES) distribution statistics across the 75 Predominantly Rural Local Authorities for Detached properties in 2024 (Note B-4)

Distribution statistic	EES
Minimum	43
Lower quartile	65
Median	66
Upper quartile	68
Maximum	72

Table B-10: Energy Efficiency Score (EES) distribution statistics across the 175 Predominantly Urban Local Authorities Detached properties in 2024 (Note B-4)

Distribution statistic	EES
Minimum	56
Lower quartile	64
Median	66
Upper quartile	68
Maximum	82

Overall, looking at Energy Efficiency distributions has shown that the characteristics of the property are more important for determining its energy efficiency than where it is geographically, or even its rurality. For example, the Predominantly Rural areas with the lowest median Energy Efficiency Scores for 1983 to 2011 properties (North Norfolk and Malden with 68) still had higher median score Energy Efficiency Scores than the highest scoring areas for either pre-1930s properties (County Durham with a median score of 61) or 1930 to 1982 properties (High Peak, Northumberland, County Durham and Winchester all had median scores of 67).

EPCs: average Energy Efficiency Score explanatory notes

- **Note B-1**

Tables showing the data in Section B are available in the Energy data tables.

- **Note B-2**

Fuel poverty or being fuel poor is where a household is living in a property with a Fuel Poverty Energy Efficiency Rating (FPEER) of band D or below in a home that cannot be kept warm at reasonable cost without bringing their residual income (after housing and energy costs) below the poverty threshold. As explained in Section A Fuel poverty, Fuel Poverty in England is defined using the Low Income Low Energy Efficiency approach.
Figure 2.2 in the Annual fuel poverty statistics report: 2023 graphically displays how fuel poor households are defined.

- **Note B-3**

The FPEER uses a modified version of the standard Energy Efficiency Rating which considers policies that directly affect the cost of energy. In recent years this has included the rebate provided by the Warm Home Discount. The FPEER methodology deducts such rebates from the overall modelled costs produced under the Standard Assessment Procedure (SAP) system. This gives an energy efficiency rating (again from 1-100), which will be higher than the standard rating if the household receives additional support. This modified rating is also translated to a band (A to G) on the same bases as the original system displayed in Table B-1. The document Fuel poverty methodology handbook 2023: Low Income Low Energy Efficiency (LILEE) gives further details.

- **Note B-4**

The Office for National Statistics (ONS) publish Energy Efficiency of Housing at Local Authority level on an annual basis for financial years. This section primarily uses the Median energy efficiency score, England and Wales dataset for the financial year ending March 2024, and the March 2023 data is available from the same place. Where 2021 or 2022 data has been used it is available from the dataset called Energy efficiency of Housing, England and Wales, local authority districts.
The source data for this ONS publication is Department for Levelling up, Housing and Communities – Energy Performance Certificate data on Open Data Communities and Valuation Office Agency - Property Attributes data (https://epc.opendatacommunities.org/).

- **Note B-5**

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let and it is valid for 10 years. There can be multiple EPC lodgements for the same dwelling, but only the latest lodgement is analysed to avoid double counting dwellings. Analysis includes the latest EPC lodgements for a 10-year period, from Q2 2014 to Q1 2024. So this data does not reflect all dwellings in England, because not every dwelling has an EPC.
EPCs are based on data about a building's energy features (like the building materials used, heating systems and insulation, for example), which are collected by an accredited energy assessor and are entered into a government-approved software to generate the EPC.
The median energy efficiency scores are calculated based on the energy efficiency scores at the time the EPC lodgement was assessed. This means that these statistics do not necessarily reflect energy efficiency improvements as the majority of alterations don't require a new EPC to be generated.

- **Note B-6**

Statistics for **new properties** were generated using data from new dwelling EPC records, which include new builds, conversions and change of use. Statistics for **existing properties** were generated using the latest EPC lodgement available for a property, within the existing dwellings records. An existing dwelling may have undergone several EPC assessments for different reasons (for example, due to a marketed sale, for a green deal assessment, or following the implementation of the changes suggested in a green deal assessment). New and existing dwellings are assessed using slightly different methodologies.

- **Note B-7**

ONS break down houses (including bungalows and park homes) into Detached, Semi-detached and Terraced property types and group Flats and maisonettes together as the final property type.

- **Note B-8**

Tenure is more likely to change over time in comparison to other housing variables. The tenure is that given at the time of the EPC assessment. It is less likely to have tenure data for newly-built dwellings because they have just been constructed and do not yet have a tenure.

- **Note B-9**

New Local Authorities came into operation in April 2023. These changes relate to three parts of England: (1) North Yorkshire, (2) Cumbria and (3) Somerset. This reduced the total number of Local Authorities from 309 down to 296.

1. A new unitary authority called North Yorkshire replaced the seven existing districts of Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby. We have classified this single North Yorkshire UA as Predominantly Rural.
2. The six districts within Cumbria were abolished and replaced with two new unitary authorities. Allerdale, Carlisle and Copeland have been merged to form Cumberland and Barrow-in-Furness, Eden and South Lakeland have been merged to form Westmorland and Furness. We have classified Cumberland and Westmorland and Furness as Predominantly Rural.

3. The districts of Mendip, Sedgemoor, Somerset West and Taunton, and South Somerset have been merged to form a new unitary authority known as Somerset. We have classified this single Somerset UA as Predominantly Rural.

C. Energy Performance Certificates: achieving energy efficiency category C

For pre-2012 properties in Predominantly Rural areas proportionally fewer reach an Energy Performance Certificate (EPC) rating of C or better than in Predominantly Urban or London areas.

Summary

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let; the higher the Energy Efficiency Score, and consequently the higher the EPC category, the more efficient the building. Low Income Households can only be in fuel poverty if the Fuel Poverty Energy Efficiency Rating of their home is category D or below.

In 2024 in Predominantly Rural areas, 48.0% of the domestic properties had an EPC rating of C or better, whilst in Predominantly Urban outside of London areas it was 48.5% of properties. The corresponding values in 2021 were 38.9% and 40.8%. The gap has therefore narrowed between properties in Predominantly Rural and Predominantly Urban areas over this four-year period. The Vale of White Horse was the Predominantly Rural area with the highest proportion of properties with an EPC rating of at least C, 62.8%, and at the other end of the scale the Staffordshire Moorlands (29.8%) was the Predominantly Rural area with lowest proportion of domestic properties with C or above.

With the exception of the post-2011 properties, there was a smaller proportion of properties in Predominantly Rural areas with an EPC rating of at least C than in Predominantly Urban or London areas. For pre-1930 properties in Predominantly Rural areas only 11.5% of them had an EPC rating of C or better compared to 17.0% of pre-1930 properties in Predominantly Urban areas outside of London. There were only four Predominantly Rural areas where more than 17% of the pre-1930 properties had an EPC rating of at least category C, whereas in Predominantly Urban areas there were four areas where more than 40% of the pre-1930 properties had an EPC rating of at least category C.

In 2024, 69% of Flats and maisonettes in Predominantly Rural areas had an EPC rating of C or better compared to 43% of Detached properties. The proportion of Detached homes and Flats and maisonettes with an EPC rating of at least category C was similar in Predominantly Rural and Predominantly Urban areas outside of London. However, for Semi-detached and Terraced properties the proportion with an EPC rating of at least category C was around six percentage points lower in Predominantly Rural areas than in Predominantly Urban areas outside of London. In terms of tenure, in 2024 the Social rented sector offered the highest proportion of domestic properties with an EPC rating of at least category C in both Predominantly Rural (59%) and Predominantly Urban areas outside of London (65%). The Owner-occupied sector offered the lowest proportion of domestic properties with an EPC rating of at least category C.

Minimum energy efficiency of Category C and the link to fuel poverty

Fuel Poverty is discussed in detail in Section 0 Fuel poverty including a full explanation of how fuel poverty is defined alongside statistics showing the proportion of fuel poor households and the depth of their fuel poverty (known as the fuel poverty gap). The key thing is that there are two aspects that define whether a household can be fuel poor: (1) the household income and (2) the energy efficiency of their home.

Low Income Households can only be in fuel poverty if the Fuel Poverty Energy Efficiency Rating (FPEER) of their home is band D or below (Note C-1). Section B explains how Energy Efficiency Scores map to Energy Efficiency Ratings using Table B-1.

The 2014 fuel poverty target for England set an objective to ensure that as many fuel poor households as reasonably practicable achieved a minimum Fuel Poverty Energy Efficiency Rating (FPEER) of band C by 2030 (Note C-2). It is therefore relevant to consider what proportion of homes already have an Energy Efficiency Rating of at least 69 (the minimum for category C) and whether there is any difference in the proportions between Rural and Urban areas. In other words, the properties that have energy efficiencies high enough that low-income households would not be regarded as living in fuel poverty (Note C-3).

Section C primarily uses the Energy Performance Certificate (EPC) Band C or above, England and Wales dataset for the financial year ending March 2024 (Note C-4). As was explained in Energy Performance Certificates and ratings this dataset does not offer coverage of all English dwellings.

Progress towards achieving all homes having a minimum energy efficiency of Category C

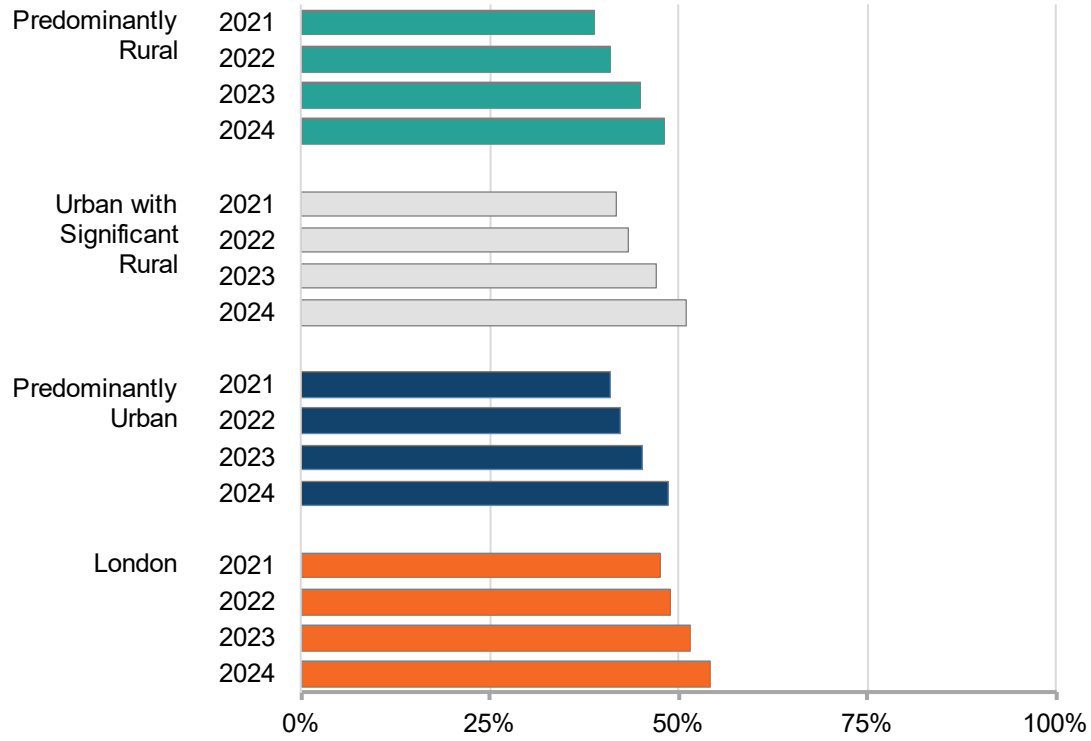
In 2024 in Predominantly Rural areas 48.0% of the domestic properties had an EPC rating of C or better, whilst in Predominantly Urban areas it was 49.6% of properties. These values have increased from 38.9% and 42.1% respectively in 2021. As Figure C-1 shows, in both 2023 and 2024 more that 50% of the homes in London had an EPC rating of C or better. This value is influenced by the higher proportion of Flats in London than elsewhere. Once London is separated from the Predominantly Urban category the proportion of the domestic properties that had an EPC rating of C or better is reduced by one percentage point to 48.5%, which makes it similar to the 48% for Predominantly Rural areas.

Figure C-1 is a bar chart that shows the year-on-year improvements in the proportion of domestic properties that had an EPC rating of C or better in all Rural-Urban Classification area types. The proportion of domestic properties with an EPC rating of C or better has risen faster in Predominantly Rural areas than in Predominantly Urban areas. The gap between the proportion of homes with an EPC rating of C or above in Predominantly Rural areas and the proportion in Predominantly Urban areas outside of London was 1.9 percentage points in 2021 and in 2024 it was down to 0.5 percentage points; having been just 0.2 percentage points in 2023.

The Vale of White Horse was the Predominantly Rural area with the highest proportion of properties with an EPC rating of at least C, 62.8%, and there were 12 Predominantly Rural Local Authorities with at least 55% of their domestic properties at EPC category C or above (Note C-5). At the other end of the scale six Predominantly Rural areas had less than 40% of their domestic properties at EPC category C or above. The Isles of Scilly (12.3%) and Staffordshire Moorlands

(29.8%) were the only Predominantly Rural areas where less than 30% of the domestic properties were EPC category C or above.

Figure C-1: A horizontal bar chart showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by Local Authority Rural-Urban Classification in 2021, 2022, 2023 and 2024 (Note C-4, Note C-8)
London is presented separately and is not included in the Predominantly Urban category.



The Vale of White Horse was the Predominantly Rural area with the highest proportion of properties with an EPC rating of at least C, 62.8%, and there were 12 Predominantly Rural Local Authorities with at least 55% of their domestic properties at EPC category C or above (Note C-5). At the other end of the scale six Predominantly Rural areas had less than 40% of their domestic properties at EPC category C or above. The Isles of Scilly (12.3%) and Staffordshire Moorlands (29.8%) were the only Predominantly Rural areas where less than 30% of the domestic properties were EPC category C or above.

For comparison there were 14 Predominantly Urban areas where less than 40% of the domestic properties were at least EPC category C and the lowest was Pendle (28.9%). At the upper end of the distribution, 40 Predominantly Urban areas had at least 55% of their properties at EPC category C or above of which seven had at least 65% of their properties at EPC category C or above.

Table C-1 shows that the proportion of domestic properties with Energy Performance Certificate (EPC) ratings of C or better has increased in both Mainly Rural and Largely Rural areas. The proportion of domestic properties with Energy Performance Certificate (EPC) ratings of C was lower each year in Mainly Rural areas (the most Rural) than in Largely Rural areas. However, this proportion has increased more in Mainly Rural areas than in Largely Rural areas over the period 2021. So, in 2024 the proportion of domestic properties with Energy Performance Certificate (EPC)

ratings of C or better was one percentage point lower in Mainly Rural areas compared to two percentage points in 2021.

Table C-1: The percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better in Rural areas in 2021, 2022, 2023 and 2024 (Note C-4, Note C-8)

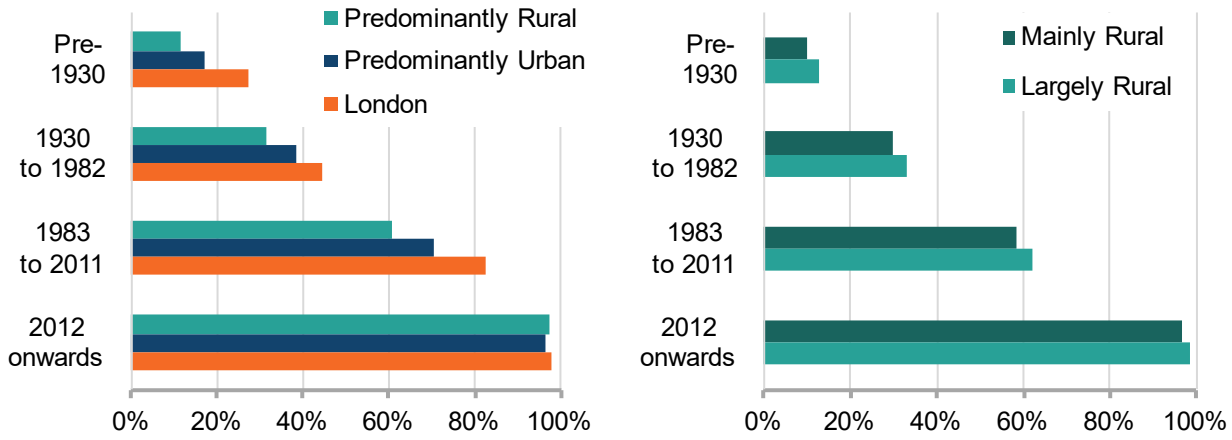
Rural area type	2021	2022	2023	2024
Mainly Rural	37.9	39.8	43.5	47.4
Largely Rural	40.0	42.3	46.2	48.5
Predominantly Rural	**38.9**	**41.0**	**44.8**	**48.0**

Proportion of Category C properties by property age

In Section B it was shown that the average Energy Efficiency Score was lower for older properties, and therefore it should be expected that the newer the property the higher the proportion of homes with an EPC rating of at least C. This is demonstrated by the bar charts in Figure C-2. Figure C-2 (left-hand side chart) also shows that with the exception of newer properties (2012 onwards), there was a smaller proportion of domestic properties in Predominantly Rural areas with an EPC rating of at least C than in Predominantly Urban areas outside of London in 2024. The gap between the estimates was biggest for properties built between 1983 to 2011 (where the difference was 10 percentage points). For all property age bands London had a higher a proportion of properties with an EPC rating of at least C than either Predominantly Rural or Predominantly Urban areas outside of London.

Figure C-2: Horizontal bar charts showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by property age and Rural-Urban Classification in 2024 (Note C-4)

The left-hand chart shows the comparison between Rural and Urban areas. London is presented separately and is not included in the Predominantly Urban category. The right-hand chart shows the comparison within Rural areas. On both charts, the legend is presented in the same order and orientation as the cluster of bars.



For pre-1930 properties in Predominantly Rural areas only 11.5% had an EPC rating of at least C in 2024 compared to 17.0% in Predominantly Urban areas outside of London. There are over a million pre-1930 domestic properties in Predominantly Rural areas (Table A-3, Statistical Digest of

Rural England - Housing). The EPC rating of over 88% of the pre-1930 homes in Predominantly Rural areas is low enough that any low-income households would be at risk of fuel poverty due to rising fuel costs or significant changes in household circumstances that further reduce their household income.

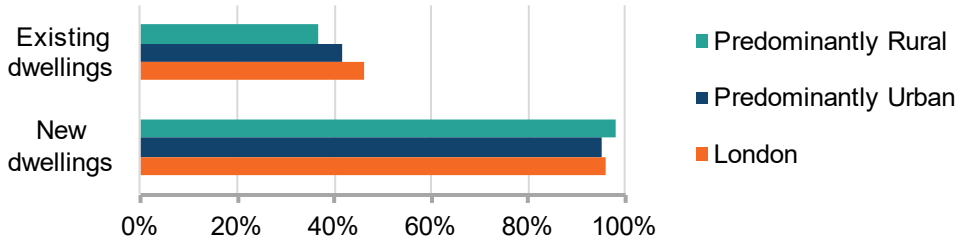
For domestic properties built between 1930 and 1982, 31.6% of them in Predominantly Rural areas had an EPC rating of C or better in 2024 compared to 38.3% in Predominantly Urban areas outside of London. For homes built between 1983 and 2011 Predominantly Rural areas had a lower proportion with an EPC rating of C and above than Predominantly Urban areas with 60.5% compared to 70.5% of those in Predominantly Urban areas outside of London and 82.6% of those within London.

Within Rural areas, the more Rural the area the lower the proportion of homes at EPC rating of C and above. For properties built prior to 2012, the proportion of properties that were at least EPC category C was three to four percentage points lower in Mainly Rural areas than in Largely Rural areas (Figure C-2, right-hand side). In Mainly Rural areas only 9.8% of the pre-1930 properties in had an EPC rating of at least C in 2024 compared to (a) 12.8% of the pre-1930 properties in Largely Rural area and (b) 27.1% of the pre-1930 properties in London. For properties built between 1930 and 1982, less than 30% of them in Mainly Rural areas had an EPC rating of C or better in 2024 compared to 33% of properties of the same age in Largely Rural areas.

Splitting domestic properties into new dwellings and existing dwellings simplifies the picture. Any property that has undergone a conversion to change its use is considered to be a new property from an EPC perspective (Note C-6). Figure C 3 is a bar chart, and it shows that almost all new dwellings are EPC category C or better, including on average 97.9% in Predominantly Rural areas in 2024. This is higher than the 95.2% for Predominantly Urban areas outside of London and the 95.8% within London. Whereas for existing dwellings a smaller proportion had an EPC rating of C or better in 2024 in Predominantly Rural areas than in other area types. For Predominantly Rural areas 36.6% of existing dwellings had an EPC rating of at least category C compared to 41.6% of existing dwellings in Predominantly Urban areas outside of London and 45.9% within London. These are differences of five and over nine percentage points respectively.

Figure C-3: A horizontal bar chart showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C for new and existing dwellings by Rural-Urban Classification in 2024 (Note C-4, Note C-6)

London is presented separately and is not included in the Predominantly Urban category. The legend is presented in the same order and orientation as the cluster of bars.



In three-quarters of Predominantly Rural areas less than 13.0% of the pre-1930 domestic properties had an Energy Efficiency Rating of at least EPC category C (Table C-2). By contrast in three-quarters of Predominantly Urban or London areas more than 13.7% of the pre-1930 domestic properties had an Energy Efficiency Rating of at least category C (Table C-3). In

Predominantly Rural areas there were four areas where less than 7% of the pre-1930 properties were at least EPC category C and at the other end of the spectrum for Predominantly Rural areas there were just four areas where more than 17% of the pre-1930 properties were at least EPC category C.

There were no Predominantly Rural areas where the proportion of pre-1930 properties with an EPC rating of category C exceeded 20%, County Durham had the highest proportion at 19.5% (Table C 2). However, there were 58 Predominantly Urban or London Local Authorities whose proportion of pre-1930 properties with an EPC rating of at least category C was more than 20%. This included 4 areas (all of them London Boroughs) where more than 40% of the pre-1930 properties were at least EPC category C.

Table C-2: Distribution statistics for the proportion of pre-1930 homes with an EPC rating of at least C in Predominantly Rural areas in 2024 (Note C-4)

Distribution statistic	%
Minimum	0.8
Lower quartile	9.7
Median	11.2
Upper quartile	13.0
Maximum	19.5

Table C-3: T Distribution statistics for the proportion of pre-1930 homes with an EPC rating of at least C in Predominantly Urban areas in 2024 (Note C-4)

Predominantly Rural area	%
Minimum	7.1
Lower quartile	13.7
Median	16.7
Upper quartile	22.6
Maximum	49.2

Moving on to the 1930 to 1982 domestic properties, Table C-4 and Table C-5 show that at equivalent points in the distribution (such as the median) the proportion of 1930 to 1982 homes with an EPC rating of at least C is lower in Predominantly Rural areas than in Predominantly Urban areas. A quarter of Predominantly Rural areas had less than 28.4% of 1930 to 1982 properties with an EPC rating of at least category C (Table C-4). Whilst at the top end of the distribution, only a quarter of Predominantly Rural areas had more than 35.7% of 1930 to 1982 properties with an EPC rating of at least category C. By contrast a quarter of Predominantly Urban areas had more than 43.9% of 1930 to 1982 properties with an EPC rating of at least category C

The only Predominantly Rural areas where more than 40% of the 1930 to 1982 properties were at least EPC category C were Winchester and Durham. No Predominantly Rural areas had at least 45% of their 1930 to 1982 domestic properties at EPC category C or above, whereas in Predominantly Urban or London areas 42 Local Authorities had at least 45% of the 1930 to 1982 properties at EPC category C or above.

Table C-4: Distribution statistics for the proportion of 1930 to 1982 homes with an EPC rating of at least C in Predominantly Rural areas in 2024 (Note C-4)

Predominantly Rural area	%
Minimum	16.4
Lower quartile	28.4
Median	31.9
Upper quartile	35.7
Maximum	43.2

Table C-5: Distribution statistics for the proportion of 1930 to 1982 homes with an EPC rating of at least C in Predominantly Urban areas in 2024 (Note C-4)

Predominantly Rural area	%
Minimum	19.1
Lower quartile	34.0
Median	37.5
Upper quartile	43.9
Maximum	62.6

Five Predominantly Rural areas all had less than 52% of their 1983 to 2011 properties with an EPC rating of at least C, but all Predominantly Urban or London areas had at least 52% of their 1983 to 2011 domestic properties at EPC category C or above. At the other end of the scale, five (of 75) Predominantly Rural areas had more than 70% of their 1983 to 2011 properties at EPC category C or above and most of these areas were in the South of England. By contrast 109 (of 175) Predominantly Urban or London areas had more than 70% of their 1983 to 2011 domestic properties with an EPC rating of at least category C. In other words, 7% of Predominantly Rural areas had more than 70% of their 1983 to 2011 domestic properties at EPC category C and above, compared to 62% of Predominantly Urban or London areas having more than 70% of their 1983 to 2011 domestic properties at EPC category C and above.

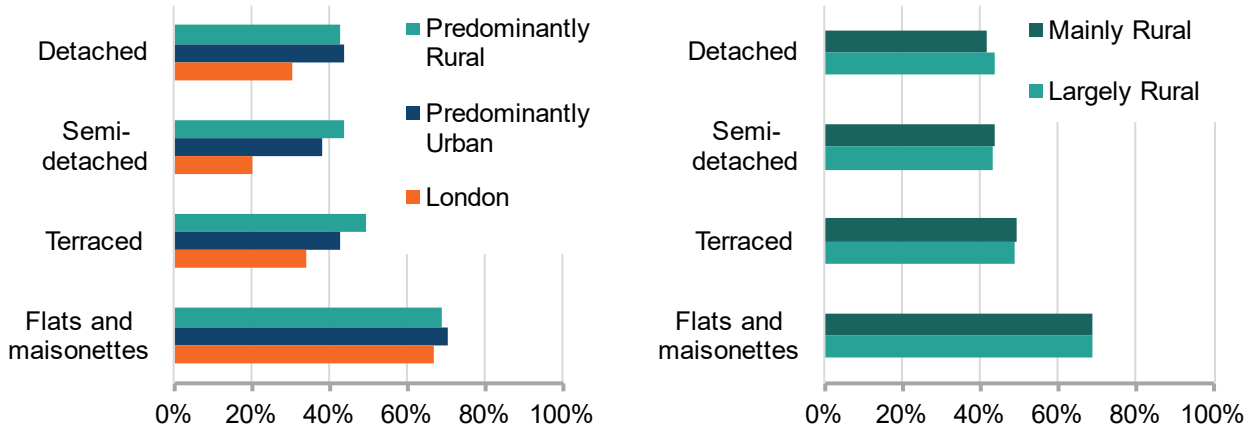
Worksheets CC and CE in the energy supplementary data tables contain tables showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better in 2024 by property age and for new and existing properties, respectively, for every Local Authority.

Proportion of category C properties by property type and tenure

Figure C-4 is a bar chart showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by property type and Rural Urban Classification in 2024. The left-hand chart shows the comparison between Rural and Urban areas and the right-hand chart shows the comparison within Rural areas. Section B showed that, on average, Flats and maisonettes had a higher average Energy Efficiency Score and consequently in 2024 there were proportionally more Flats and maisonettes with an EPC rating of at least C than for any other domestic property type in all 3 area types displayed (Figure C-4, left-hand chart). In Predominantly Rural areas 68.7% of Flats and maisonettes had an EPC rating of at least C compared to 70.4% of Flats and maisonettes in Predominantly Urban areas outside of London and 66.5% of Flats and maisonettes in London.

Figure C-4: Horizontal bar charts showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by property type and Rural-Urban Classification in 2024 (Note C-4, Note C-7)

The left-hand chart shows the comparison between Rural and Urban areas. London is presented separately and is not included in the Predominantly Urban category. The right-hand chart shows the comparison within Rural areas. On both charts, the legend is presented in the same order and orientation as the cluster of bars.



For Semi-detached and Terraced properties, the proportion of properties that are at least EPC category C was higher in Predominantly Rural areas than in Predominantly Urban areas outside of London and much higher than in London. For Terraced houses the proportion of properties with an EPC rating of at least C in 2024 was 49.1% in Predominantly Rural areas, 42.5% in Predominantly Urban areas outside of London and 33.7% in London. For Semi-detached homes the proportion of properties with an EPC rating of at least C in 2024 was 43.5% in Predominantly Rural areas, 38.1% in Predominantly Urban areas outside of London and 20.1% in London. For Terraced homes the proportion of properties with an EPC rating of at least C in 2024 was 5.4 percentage points higher in Predominantly Rural areas than in Predominantly Urban areas outside of London and for Semi-detached home the proportion was 6.6 percentage points higher in Predominantly Rural areas.

For Detached properties the proportion of properties with an EPC rating of at least C in 2024 was 42.9% in Predominantly Rural areas, 43.6% in Predominantly Urban areas outside of London and 30.1% in London. So, the proportion of Detached properties with an EPC rating of at least C in 2024 was 0.8 percentage points lower in Predominantly Rural areas than in Predominantly Urban areas outside of London. This is an important difference given that a large proportion of the Rural housing stock is Detached (Section A - Housing stock: age and type, Statistical Digest of Rural England - Housing).

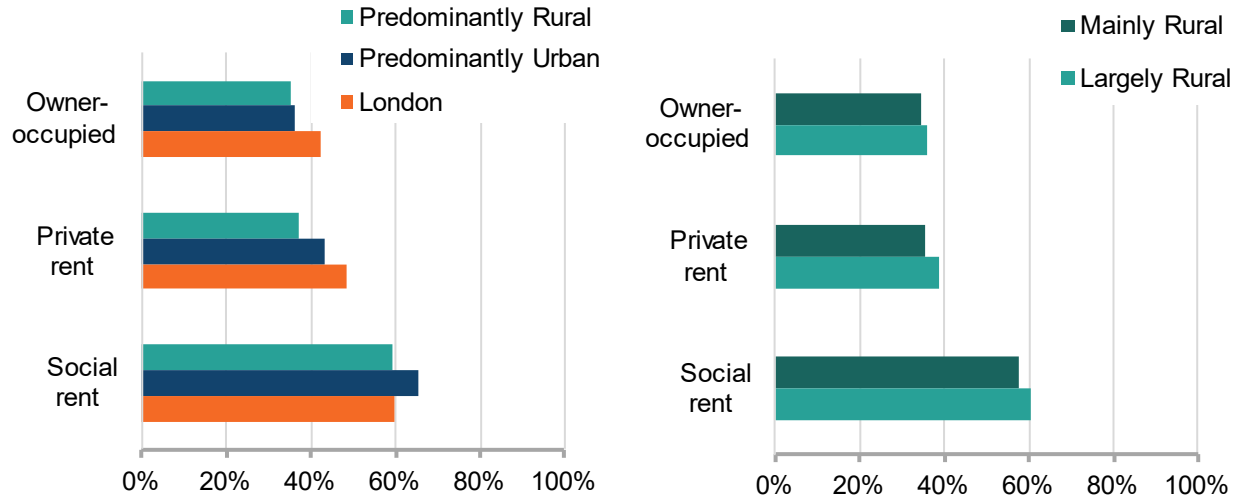
For Detached properties the proportion of properties with an EPC rating of at least C is 2.1 percentage points greater in Largely Rural areas than in Mainly Rural areas (Figure C-4, right-hand chart). For Terraced and Semi-detached homes there is a marginally higher proportion of homes with an EPC rating of at least C in Mainly Rural areas than in Largely Rural areas. The differences were 0.6 and 0.7 percentage points respectively. For Flats there is little difference in the proportion of properties with an EPC rating of at least C between Mainly Rural and Largely Rural areas.

Figure C-5 is a bar chart showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by tenure and Rural Urban Classification in 2024. The left-hand chart shows the comparison between Rural and Urban areas and the right-hand chart shows the comparison within Rural areas. In terms of tenure, in 2024 the Social rented sector offered the highest proportion of domestic properties with an EPC rating of at least category C in Predominantly Rural, Predominantly Urban and London areas (Figure C-5, left-hand chart).

In Predominantly Rural areas, more than half of the Social rented sector properties (59.2%) had an EPC rating of at least C. Whereas for Owner-occupied properties a little over a third (35.5%) had an EPC rating of at least category C in 2024. For both the Private and the Social rented sectors there was a lower proportion of properties with an EPC rating of at least C in Predominantly Rural areas than in Predominantly Urban areas outside of London (Figure C-5, left-hand chart). For both of these rental categories the proportion of properties with an EPC rating of at least C is around six percentage points lower in Predominantly Rural areas than Predominantly Urban areas outside of London. For Privately rented properties, proportion of properties with an EPC rating of at least C was 37.4% in Predominantly Rural areas versus 43.3% in Predominantly Urban areas outside of London. Whilst for Social rent properties the values were 59.2% in Predominantly Rural areas and 65.4% in Predominantly Urban areas. For the Private rented sector, London had the highest proportion of properties with an EPC rating of category C or above (48.7%), but for the Social rent sector the proportion of properties with an EPC rating of category C or above was lower in London (60.0%) than in Predominantly Urban areas outside of London.

Figure C-5: Horizontal bar chart showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better by tenure and Rural Urban Classification in 2024 (Note C-4)

The left-hand chart shows the comparison between Rural and Urban areas. London is presented separately and is not included in the Predominantly Urban category. The right-hand chart shows the comparison within Rural areas. On both charts, the legend is presented in the same order and orientation as the cluster of bars.



Within Rural areas there was a three percentage points lower proportion of properties with an EPC rating of at least C in Mainly Rural areas than in Largely Rural areas for both rented sectors (Figure C-5, right-hand chart). For Owner-occupied homes there was a much smaller difference in the proportion of properties with an EPC rating of at least C in Mainly Rural areas than in Largely Rural areas (1.4 percentage points). The overall differences seen in other areas is retained in both Mainly and Largely Rural areas, the Social rent sector had the highest proportion of properties with an EPC rating of C or better, followed by the Private rental sector, and finally Owner-occupied homes had the lowest proportion of properties with an EPC rating of C or better.

Worksheets CB and CD in the energy supplementary data tables contain tables showing the percentage of domestic properties with Energy Performance Certificate (EPC) ratings of C or better in 2024 by property type and by tenure, respectively, for every Local Authority.

EPCs: achieving energy efficiency Category C explanatory notes

- **Note C-1**

Fuel poverty or being fuel poor is where a household is living in a property with a Fuel Poverty Energy Efficiency Rating (FPEER) of band D or below in a home that cannot be kept warm at reasonable cost without bringing their residual income (after housing and energy costs) below the poverty threshold. As explained in Section A Fuel poverty, Fuel poverty in England is defined using the Low Income Low Energy Efficiency approach.

Figure 2.2 in the Annual fuel poverty statistics report: 2023 graphically displays how fuel poor households are defined.

- **Note C-2**

The statutory fuel poverty target was set in December 2014, binding successive Governments to the following:

The fuel poverty target is to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum Energy Efficiency Rating of Band C, by 2030.
This target was retained in Sustainable Warmth, the updated Fuel Poverty Strategy for England, published in February 2021. There is also an interim "target" in relation to band D and 2025.

- **Note C-3**

The FPEER uses a modified version of the standard Energy Efficiency Rating which considers policies that directly affect the cost of energy. In recent years this has included the rebate provided by the Warm Home Discount. The FPEER methodology deducts such rebates from the overall modelled costs produced under the Standard Assessment Procedure (SAP) system. This gives an energy efficiency rating (again from 1-100), which will be higher than the standard rating if the household receives additional support. This modified rating is also translated to a band (A to G) on the same bases as the original system displayed in Table B-1. The document Fuel poverty methodology handbook 2023: Low Income Low Energy Efficiency (LILEE) gives further details.

- **Note C-4**

The Office for National Statistics (ONS) publish Energy Efficiency of Housing at Local Authority level on an annual basis for financial years. This section primarily uses the Energy Performance Certificate (EPC) Band C or above, England and Wales dataset for the financial year ending March 2024, and the March 2023 data is available from the same page. Where 2021 or 2022 data has been used it is available from the dataset called Energy efficiency of Housing, England and Wales, local authority districts.
The source data for this ONS publication is Department for Levelling up, Housing and Communities – Energy Performance Certificate data on Open Data Communities and Valuation Office Agency - Property Attributes data (https://epc.opendatacommunities.org/).

- **Note C-5**

Tables showing the data in Section C are available in the energy supplementary tables.

- **Note C-6**

Statistics for **new properties** were generated using data from new dwelling EPC records, which include new builds, conversions and change of use. Statistics for **existing properties** were generated using the latest EPC lodgement available for a property, within the existing dwellings records. An existing dwelling may have undergone several EPC assessments for different reasons (for example, due to a marketed sale, for a green deal assessment, or following the implementation of the changes suggested in a green deal assessment). New and existing dwellings are assessed using slightly different methodologies.

- **Note C-7**

ONS break down houses (including bungalows and park homes) into Detached, Semi-detached and Terraced property types and group Flats and maisonettes together as the final property type.

- **Note C-8**

New Local Authorities came into operation in April 2023. These changes relate to 3 parts of England: (1) North Yorkshire, (2) Cumbria and (3) Somerset. This reduced the total number of Local Authorities from 309 down to 296.

1. A new unitary authority called North Yorkshire replaced the seven existing districts of Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby. We have classified this single North Yorkshire UA as Predominantly Rural.
2. The six districts within Cumbria were abolished and replaced with two new unitary authorities. Allerdale, Carlisle and Copeland have been merged to form Cumberland and Barrow-in-Furness, Eden and South Lakeland have been merged to form Westmorland and Furness. We have classified Cumberland and Westmorland and Furness as Predominantly Rural.
3. The districts of Mendip, Sedgemoor, Somerset West and Taunton, and South Somerset have been merged to form a new unitary authority known as Somerset. We have classified this single Somerset UA as Predominantly Rural.

D. Energy Costs

The lower energy efficiency of older and / or detached houses means that their modelled energy costs are higher than new properties or flats in both Rural and Urban areas.

Summary

Since 2007, an Energy Performance Certificate (EPC) is required when a building is constructed, sold, or let. Standardised costs are generated as part of the EPC process. **This analysis uses these standardised cost and not actual real world costs data from energy suppliers. Data presented here are for 2021 and does not reflect subsequent changes in energy costs.**

In 2021 dwellings in Predominantly Rural areas were estimated to have an average median energy cost of £815 per year. This was £95 per year more than the £725 for dwellings in Predominantly Urban areas. In Predominantly Rural areas, the estimated average median energy cost was £430 per year for new properties and more than double that for existing properties (£900 per year).

Flats and maisonettes had the lowest modelled energy costs in both Predominantly Rural (£470 per year) and Predominantly Urban (£480 per year) areas. Detached housing had the highest estimated energy costs at £1,085 per year in Predominantly Rural areas and £1,100 per year in Predominantly Urban areas.

For Owner-occupied and private rented properties, the average median energy cost was £110 per week higher in Predominantly Rural areas than in Predominantly Urban areas in 2021. In Predominantly Rural areas an Owner-occupied home was modelled to cost £975 per year compared to £865 in a Predominantly Urban area. For Social rented properties the cost was £615 per year in Predominantly Rural areas and £570 in Predominantly Rural areas – a difference of only £45 per year.

Theoretical rather than actual energy costs

Since 2007, an Energy Performance Certificate (EPC) is required when a building is constructed, sold or let (Note D-1). The ONS use information from EPCs for their Energy Efficiency of Housing publication (Note D-2). In the March 2021 dataset, the ONS also included information on the median estimated energy cost for domestic properties.

As part of the EPC data the estimated energy cost (sum of estimated lighting, heating and hot water costs) are generated. These are based on standardised assumptions about how residents will use the property (such as number of occupants, heating patterns and lighting and hot water usage). This is to make properties directly comparable to each other for prospective buyers or tenants, so it does not reflect how residents actually use the property.

This analysis is therefore based upon these standardised costs not actual real world costs data from energy suppliers. The source data used for this analysis precedes increased energy costs that started to take effect in late 2021.

Energy cost: New versus existing properties

The ONS data includes energy cost estimates for new and existing properties. Statistics for new properties were generated using data from new dwelling EPC records, which include new builds, conversions and change of use. Statistics for existing properties were generated using the latest EPC lodgement available for a property, within the existing dwellings records.

Dwellings in Predominantly Rural Local Authorities were estimated to have an average median energy cost of £815 per year (Table D-1). This was £95 per year more than the estimated average median energy cost for dwellings in Predominantly Urban Local Authorities.

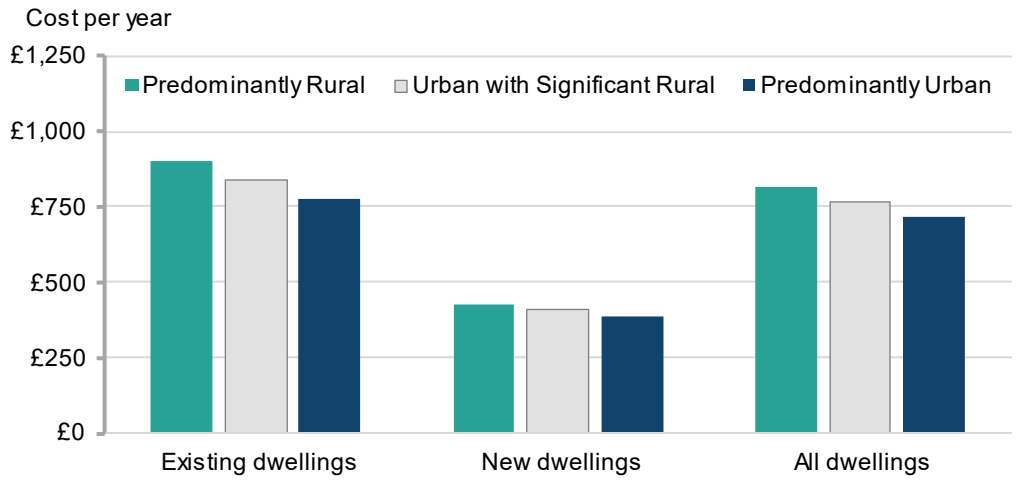
Table D-1: Estimated average median energy cost (£ per year) for dwellings in England split by the Local Authority Rural-Urban Classification as of March 2021 (Note D-6)
Based on standardised assumptions about how residents will use the property rather than actual usage costs.

	2021
Predominantly Rural	£815
Urban with Significant Rural	£765
Predominantly Urban	£720
England	**£750**

Newer properties are typically more energy efficient than older ones (Figure B-5). Therefore, the estimated average median energy cost for new dwellings was much lower than for existing properties (Figure D-1). This was the case in both Rural and Urban areas. In Predominantly Rural areas, the estimated average median energy cost for new properties was less than half of the cost for existing properties.

The estimated average median energy cost was higher in Predominantly Rural areas than in Predominantly Urban areas for both new properties and existing properties. For new properties the estimated average median energy cost in Predominantly Rural areas was £430 per year and for existing properties it was £900 per year. This makes the estimated average median energy cost in Predominantly Rural areas 11% more than in Predominantly Urban areas for new properties and 16% more for existing properties.

Figure D-1: Bar chart showing the estimated average median energy cost (£ per year) for new, existing and all dwellings in England split by broad Local Authority Rural-Urban Classification as of March 2021 (Note D-1, Note D-2, Note D-3)
The legend is presented in the same order as the clusters of columns.



Energy cost: Housing type

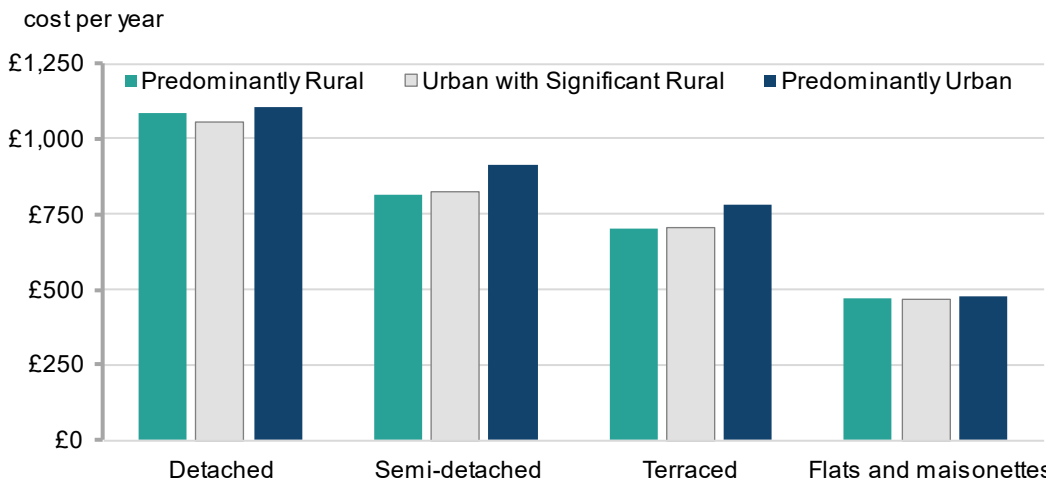
Flats and maisonettes are typically more energy efficient than other property types (Table B-4); so, they end up with the lowest modelled energy costs across the four main dwelling types (Figure D-2). In 2021 the estimated energy cost for Flats and maisonettes varied little between Predominantly Rural (£470 per year) and Predominantly Urban (£480 per year) areas. Detached housing has the highest estimated energy costs. The estimated cost was marginally lower in Predominantly Rural areas (£1,085 per year) than in Predominantly Urban areas (£1,100 per year). The higher energy cost for Detached properties was a reflection of these properties often being bigger and typically having more occupants, rather than Detached houses being less energy efficient. Energy costs for Semi-detached and Terraced houses in Predominantly Rural areas were estimated to be £100 per year and £75 per year cheaper than Semi-detached and Terraced houses (respectively) in Predominantly Urban areas.

It might seem counter intuitive that estimated average energy costs were lower in Predominantly Rural areas for each of the four housing types and yet the average energy costs across all dwellings were higher in Predominantly Rural areas. However in 2020, Flats made up only 7% of the Rural housing stock compared to 26% of the Urban housing stock; whilst Detached properties made up 49% of the Rural housing stock compared to only 16% of the Urban housing stock (Statistical Digest of Rural England: 2 –Housing).

In generating the overall Rural and Urban estimates in Table D-1, this analysis used source data that was the median energy cost for properties within each Local Authority. The median is the middle value when the dataset is ordered sequentially. When this is done for an Urban area, the cost is likely to be representative of the cost associated with a Terraced house since Flats and Terraced homes combined account for more than 50% of the Urban housing stock and a typical Terraced property has a higher theoretical energy cost than a typical Flat. Whereas in a Rural area, where around three in four properties were Detached or Semi-detached in 2020 (Statistical Digest of Rural England: 2 –Housing), this median value is more likely to be representative of the cost associated with a Semi-detached house. Thus, when looking at England level average median

energy cost estimates for Rural and Urban areas the average cost was higher overall for Rural areas despite the energy costs in Rural areas being lower for each of the housing types when analysed separately.

Figure D-2: Bar chart showing the estimated average median energy cost (£ per year) for different property types split by broad Local Authority Rural-Urban Classification as of March 2021 (Note D-1, Note D-2, Note D-4)
The legend is presented in the same order as the clusters of columns.



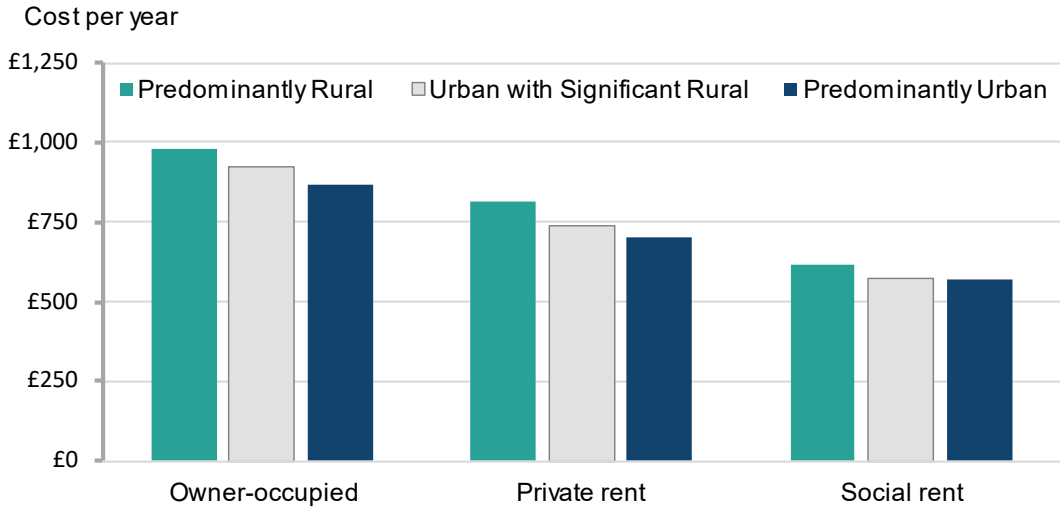
Energy cost: Housing tenure

Irrespective of whether the property was Owner-occupied or rented the average median energy cost was higher in Predominantly Rural areas than in Predominantly Urban areas in 2021 (Figure D-3). For both Owner-occupied and Privately rented properties the average median energy cost was £110 per year more in Predominantly Rural areas than in Predominantly Urban areas. For Social rented properties the gap was much smaller, the average median energy cost for a social rent property was only £45 per year more in a Predominantly Rural area than in a Predominantly Urban area.

In all 3 broad Rural-Urban categories, Social rented properties had the lowest average median energy cost and Owner-occupied had the highest in 2021 (Figure D-3). In Predominantly Rural areas the average median energy cost for Owner-occupied properties was £360 more than for Social rent properties. When analysed in Statistical Digest of Rural England: 2 –Housing, Social rent properties had a higher average energy efficiency rating than other property types and are often smaller than Owner-occupied properties; so, they end up with the lowest modelled energy costs. A rental agreement will have a minimum term, which can be as little as 6 months. Some but not all agreements will be extended beyond this initial period. This means that the turnover of occupants can be greater in rental properties than in owner occupied properties. Thus, a Private rental property is likely to have had more EPC assessments than an Owner-occupied property meaning that home improvements have more chance of being captured within the EPC data. These then reduce the projected energy costs for the improved properties.

Figure D-3: Bar chart showing the estimated average median energy cost (£ per year) for property tenures split by broad Local Authority Rural-Urban Classification as of March 2021 (Note D-1, Note D-2)

The legend is presented in the same order as the clusters of columns.



Energy Costs explanatory notes

- **Note D-1**

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let and it is valid for 10 years. There can be multiple EPC lodgements for the same dwelling, but only the latest lodgement is analysed to avoid double counting dwellings.

EPCs are based on data about a building's energy features (for example the building materials used, heating systems and insulation), which are collected by an accredited energy assessor and are entered into a government-approved software to generate the EPC.

The median energy efficiency scores are calculated based on the energy efficiency scores at the time the EPC lodgement was assessed. This means that these statistics do not necessarily reflect energy efficiency improvements as the majority of alterations don't require a new EPC to be generated. Energy costs will therefore also be reflective of the point at which the EPC assessment was made.

Energy Performance Certificate (EPC) are described in more detail in Energy Performance Certificates and ratings within section B.

- **Note D-2**

The source data for this ONS publication is Department for Levelling up, Housing and Communities – Energy Performance Certificate data on Open Data Communities and Valuation Office Agency - Property Attributes data (https://epc.opendatacommunities.org/).

- **Note D-3**

The category "New dwellings" includes: new builds, conversions and change of use properties.

- **Note D-4**

ONS break down houses (including bungalows and park homes) into Detached, Semi-detached, and Terraced property types, and group Flats and maisonettes together as the final property type.

- **Note D-5**

An analysis of housing stock by property age and type can be found in Statistical Digest of Rural England: 2 –Housing.

- **Note D-6**

All monetary figures presented in the section have been rounded to the nearest £5.

- **Note D-7**

Tables showing additional data and the data behind the figures in this section are available in the Communities and Households data tables.

E. Energy Consumption

Average domestic electricity consumption is higher in Predominantly Rural areas than Predominantly Urban areas, but the reverse is true for domestic gas consumption.

Summary

Energy consumption will be affected by a number of factors including differences in the sizes and types of properties and premises in rural and urban areas.

Rural domestic electricity consumption is higher than Urban domestic consumption. In 2022, the average median domestic electricity consumption was 2,700 kWh per meter in Predominantly Rural areas and 2,500 kWh per meter in Predominantly Urban areas. When compared to consumption in 2015, the 2022 average median domestic electricity consumption was 800 kWh per meter (23%) lower in Predominantly Rural areas and 700 kWh per meter (21%) lower in Predominantly Urban areas.

In 2022, the average median non-domestic electricity consumption was lower in Predominantly Rural areas than in Predominantly Urban areas and stood at 7,000 kWh per meter in Predominantly Rural areas and 7,300 kWh per meter in Predominantly Urban areas. When compared to consumption in 2015, the 2022 average median non-domestic electricity consumption was 2,100 kWh per meter (23%) lower in Predominantly Rural areas and 2,600 kWh per meter (26%) lower in Predominantly Urban areas.

Domestic gas consumption was changed little in both Predominantly Rural and Predominantly Urban areas between 2015 and 2020 at around 12,000 kWh per meter, but has dropped markedly since 2020. In 2022 in Predominantly Rural areas average median domestic gas consumption was 9,500 kWh per meter, a drop of 2,500 kWh per meter (21.2%) from 2020. In Predominantly Urban areas it was 9,800 kWh per meter, a drop of 2,400 kWh per meter (19.9%) from 2020. Since 2017 domestic gas consumption has been lower in Predominantly Rural areas than in Predominantly Urban areas.

Average median gas consumption for non-domestic premises in 2022 stood at 143,000 kWh per non-domestic meter in Predominantly Rural areas and 152,000 kWh per non-domestic meter in Predominantly Urban areas. These values correspond to an increase in average median gas consumption for non-domestic premises since 2020 of 3.4% in in Predominantly Rural areas and 1.3% in Predominantly Urban areas.

The Department for Energy Security and Net Zero produce local authority level gas and energy consumption data based on meter level data. A third party collects and aggregates the data from gas and electricity suppliers. Note that the gas data is weather corrected to allow for comparisons over time.

Energy consumption data

The Department for Energy Security & Net Zero (DESNZ) produce National Statistics on gas and electricity consumption annually.

Sub-national electricity consumption data is available for all of the Local Authorities in Great Britain for the period 2005 to 2022 in their most recent publication from January 2024. The electricity figures are based on meter level electricity consumption data provided by data aggregators (who compile this data on behalf of electricity suppliers).

Sub-national gas consumption data is available for all of the Local Authorities in Great Britain for the period 2005 to 2022 in their most recent publication from January 2024. These figures are based on meter level gas consumption data provided by Xoserve (who compile meter level data from gas shippers, who in turn receive the data from gas suppliers). Xoserve provide annualised estimates of consumption for all gas meters. These estimates are weather-corrected to enable better comparisons over time (Note E-5).

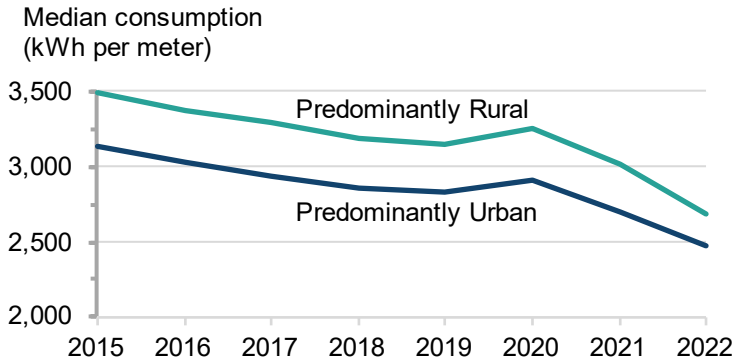
In the January 2024 publication DESNZ switched to using the Local Authority boundaries that came into effect from April 2023. Note E-10 describes these boundary changes. In this report we have recalculated figures for the period 2015 to 2021 so that we can present a consistent time-series comparable with the data for 2022. The data for the period 2015 to 2021 will therefore differ from those previously published.

Electricity consumption: Domestic

Electricity data is divided between domestic and non-domestic categories according to the meter's profile class (Note E-4). This section addresses domestic consumption.

The proportion of total domestic electricity consumption assigned to Predominantly Rural Local Authorities remained at 25% across the period 2015 to 2022 (Note E-1). Figure E-1 is a line chart showing that the average median domestic electricity consumption in Predominantly Rural areas is higher than in Predominantly Urban areas and that the general trend over the period 2015 to 2022 was one of falling consumption. This reflects the larger properties and greater proportion of older and detached properties in Predominantly Rural areas.

Figure E-1: Line chart showing the estimated average median domestic electricity consumption (kWh per meter) by broad Local Authority Rural-Urban Classification 2015 to 2022 (Note E-2)
Note that the scale on the y-axis differs between this chart and Figure E-2.



Over the period from 2015 to 2019 electricity consumption declined year-on-year in both Predominantly Rural and Urban areas. In 2020 when COVID-19 pandemic hit the UK and people were forced to stay at home, median electricity consumption went up in both Predominantly Rural and Predominantly Urban areas. For Predominantly Rural areas the average median domestic electricity consumption went up by 110 kWh per meter, whilst for Predominantly Urban areas the absolute increase was smaller (90 kWh per meter). In percentage terms this is a 3% increase in domestic electricity consumption in both Predominantly Rural and Predominantly Urban areas. With the stay-at-home restrictions largely removed the average median domestic electricity consumption reduced again in 2021 by 8% (250 kWh per meter) in Predominantly Rural areas and 7% (210 kWh per meter) in Predominantly Urban areas.

In 2022, the average median domestic electricity consumption was 2,690 kWh per meter in Predominantly Rural areas and 2,470 kWh per meter in Predominantly Urban areas. This difference in average median domestic consumption between Predominantly Rural and Predominantly Urban areas of 220 kWh per meter was the smallest difference recorded over the period 2015 to 2022. In Predominantly Rural areas this is a fall of 320 kWh per meter (or 11%) compared to 2021 whilst in Predominantly Urban areas the fall over the same period was smaller at 230 kWh per meter (or 9%). In both cases these are probably reflecting a consumer response to energy prices, their energy usage and ways to save energy.

Domestic electricity consumption has reduced by slightly more in Predominantly Rural areas than in Predominantly Urban area. When compared to consumption in 2015, the 2022 average median domestic electricity consumption was 810 kWh per meter lower in Predominantly Rural areas and 670 kWh per meter lower in Predominantly Urban areas. This equates to a reduction in consumption over the period 2015 to 2022 of 23% in Predominantly Rural areas and a 21% reduction in Predominantly Urban areas.

Electricity consumption: Non-Domestic

Electricity data is divided between domestic and non-domestic categories according to the meter's profile class (Note E-4). This section addresses non-domestic consumption.

Figure E-2 is a line chart showing that average median non-domestic electricity consumption was lower in Predominantly Rural areas than in Predominantly Urban areas for every year between 2015 and 2022 except for 2020 when COVID-19 disrupted typical consumption patterns.

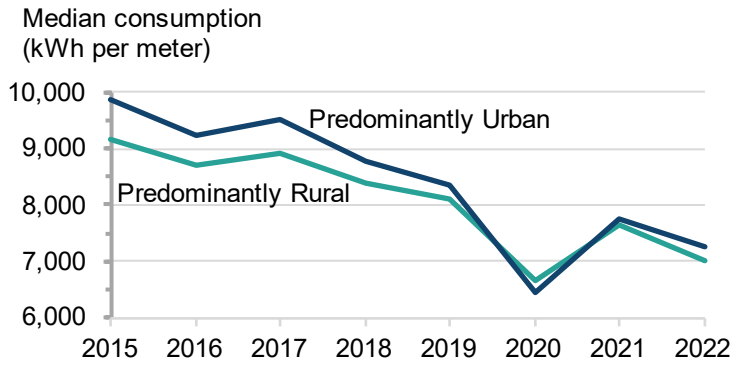
In 2015, the average median non-domestic electricity consumption was 9,150 kWh per meter in Predominantly Rural areas and 9,860 kWh per meter in Predominantly Urban areas. With the exception of 2017, when there was a modest rise, the average median non-domestic electricity consumption fell year on year between 2015 and 2019 in both Predominantly Rural and Predominantly Urban areas, but it fell at a faster rate in Predominantly Urban areas. In 2019, the average median non-domestic electricity consumption was 8,090 kWh per meter in Predominantly Rural areas and 8,370 kWh per meter in Predominantly Urban areas. Average median non-domestic electricity consumption was 12% lower in Predominantly Rural areas in 2019 than in 2015, whilst in Predominantly Urban areas it was 15% lower in 2019 than in 2015.

In 2020, when stay-at-home orders led to the closure of many non-domestic premises for a period of time to combat the spread of COVID-19, the average median non-domestic electricity consumption fell by 1,440 kWh per meter in Predominantly Rural areas and by 1,940 kWh per

meter in Predominantly Urban areas. In percentage terms this was a fall in consumption of 18% in Predominantly Rural areas and a fall of 23% in Predominantly Urban areas relative to 2019 average median consumption levels. This sharper fall in Predominantly Urban areas led to a higher average median non-domestic electricity consumption in Predominantly Rural areas (6,650 kWh per meter) than in Predominantly Urban areas (6,430 kWh per meter). Whilst average median non-domestic electricity consumption rose again in 2021, it only rose by 1,010 kWh per meter to 7,650 kWh per meter in Predominantly Rural areas and by 1,320 kWh to 7,750 kWh per meter in Predominantly Urban areas. This 2021 average median non-domestic consumption was therefore 440 kWh per meter (5%) lower than the 2019 pre-Covid-19 average median non-domestic consumption in Predominantly Rural areas; whilst in Predominantly Urban areas the 2021 consumption was 620 kWh per meter (7%) lower.

Figure E-2: Line chart showing the estimated average median non-domestic electricity consumption (kWh per meter) by broad Local Authority Rural-Urban Classification 2015 to 2022 (Note E-2)

Note that the scale on the y-axis differs between this chart and Figure E-1.



In 2022 average median non-domestic electricity consumption in Predominantly Rural areas fell by 640 kWh per meter (8%) compared the 2021 consumption levels. The fall was larger than the one seen for average median non-domestic electricity consumption in Predominantly Urban areas which fell by 490 kWh per meter (6%).

In 2022, the total non-domestic electricity consumption in Predominantly Rural Local Authorities was 29,800 GWh (Note E-2), which is 3,500 GWh (10%) lower than in 2015 (Table E-1). In Predominantly Urban Local Authorities the total non-domestic electricity consumption fell by 13,400 GWh (14%) over the same period and stood at 83,600 GWh in 2022. In 2015 Predominantly Rural Local Authority areas accounted for 22.2% of total non-domestic electricity consumption; in 2022 their share had risen to 22.8%. Overall, Predominantly Rural Local Authority areas made up a smaller proportion of non-domestic electricity consumption than they did of domestic electricity consumption.

Table E-1: Total non-domestic electricity consumption (GWh) in England split by the Local Authority Rural-Urban Classification (2015 to 2022)

	2015	2016	2017	2018	2019	2020	2021	2022
Predominantly Rural	33,300	31,800	32,800	32,700	31,800	28,600	30,100	29,800
Predominantly Urban	97,000	92,800	94,100	94,000	91,600	79,200	83,100	83,600

Gas consumption: Domestic

Gas data is divided between domestic and non-domestic categories according to the gas consumption relative to an industry standard cut-off value, thereby risking some small non-domestic premises being miss-classified (Note E-8).

Figure E-3 is a line chart that shows that Predominantly Rural Local Authority areas account for a larger proportion of non-domestic gas consumption than they do for domestic gas consumption. This is the reverse of the situation seen for electricity. The reason for this difference is likely to be because there are many more domestic properties in Predominantly Rural areas that are off the gas grid than properties that do not have mains electricity and rely on solutions like stand-alone generators. The proportion of total domestic gas consumption assigned to Predominantly Rural Local Authorities remained between 19.2% and 19.5% across the period 2015 to 2022 as shown on Figure E-3.

Figure E-3: Line chart showing the proportion of total Gas consumption in both the domestic and non-domestic markets accounted for by Predominantly Rural Local Authorities, 2015 to 2022 (Note E-2)

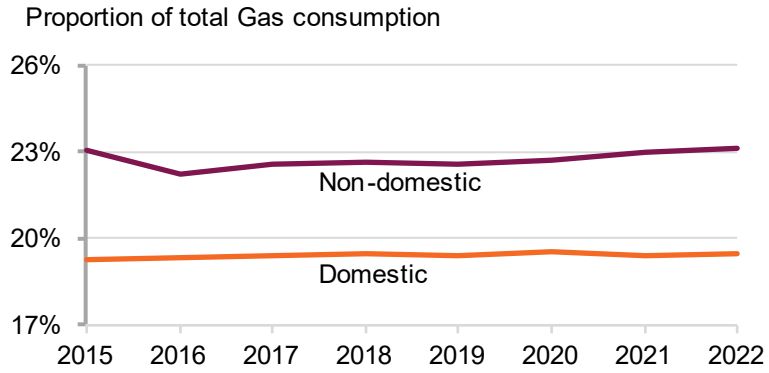


Figure E-4 is a line chart showing the average median domestic gas consumption over the period 2015 to 2022, it shows that gas consumption remained around 12,000 kWh per meter in both Predominantly Rural and Predominantly Urban areas over the period 2015 to 2020. Consumption then fell sharply over the period 2020 to 2022 in both Predominantly Rural and Predominantly Urban areas.

The following bullets describe the information presented in Figure E-4 in more detail.

- In 2015 and 2016 the average median domestic gas consumption was around 11,900 kWh per meter and the consumption was marginally higher in Predominantly Rural areas than in Predominantly Urban areas.
- In 2017 the average median domestic gas consumption increased to 12,100 kWh per meter and was very similar in Predominantly Rural and Predominantly Urban areas.
- From 2018 onwards the average median domestic gas consumption was lower in Predominantly Rural areas than in Predominantly Urban areas. Over the period 2018 to 2020 the gap between the average median domestic gas consumption in Predominantly Rural and Predominantly Urban areas widened as consumption grew less in Predominantly Rural areas that in Predominantly Urban areas. Over this 3-year period the average median domestic gas consumption in Predominantly Rural areas increased from 11,800 kWh per

meter to 12,000 kWh per meter, whilst in Predominantly Urban areas the increase was from 11,900 kWh per meter to 12,200 kWh per meter.

- Between 2019 and 2020 this average median gas consumption rose by 170 kWh per meter in Predominantly Rural areas and by 200 kWh per meter in Predominantly Urban areas. The stay-at-home measures in spring 2020 used to combat the spread of COVID-19 will have contributed to this increased consumption. However, with households often starting to reduce the amount they use their central heating as spring progresses, a larger contribution to this increase probably came from the second wave of restrictions in November and December 2020.
- Average median domestic gas consumption fell dramatically in 2021 and in 2022 in both Predominantly Rural and Predominantly Urban areas. In Predominantly Rural areas it fell by 900 kWh per meter in 2021 and by a further 1,600 kWh per meter in 2022. Overall, this is a drop in consumption across the two years of 2,500 kWh per meter (21.2%). By comparison, in Predominantly Urban areas the drop was slightly smaller in 2021 and slightly larger in 2022 leading to an overall drop of in consumption in Predominantly Urban areas of 2,400 kWh per meter (19.9%).
- These drops over the period 2020 to 2022 left average median domestic gas consumption at less than 10,000 kWh per meter, it was 9,500 kWh per meter in Predominantly Rural areas and 9,800 kWh per meter in Predominantly Urban areas. This decline in consumption reflects a customer reaction to rising energy prices and being more cautious about when to use their central heating because of the rising cost of doing so.

Figure E-4: Line chart showing the estimated average median domestic gas consumption (kWh per meter) by broad Local Authority Rural-Urban Classification 2015 to 2022 (Note E-2, Note E-6)

Note that the scale on the y-axis differs between this chart and Figure E-5.

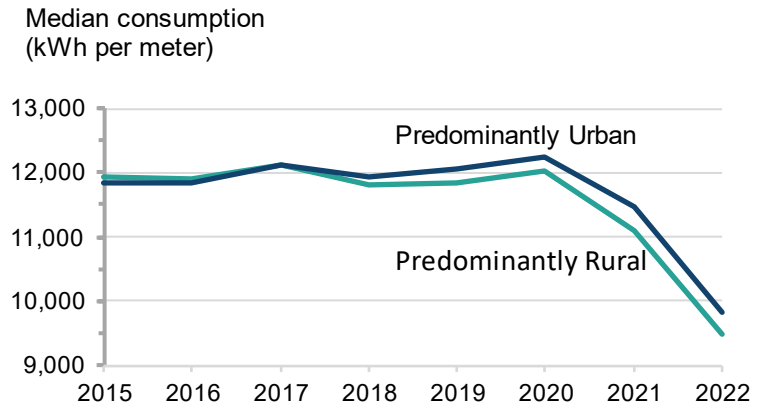
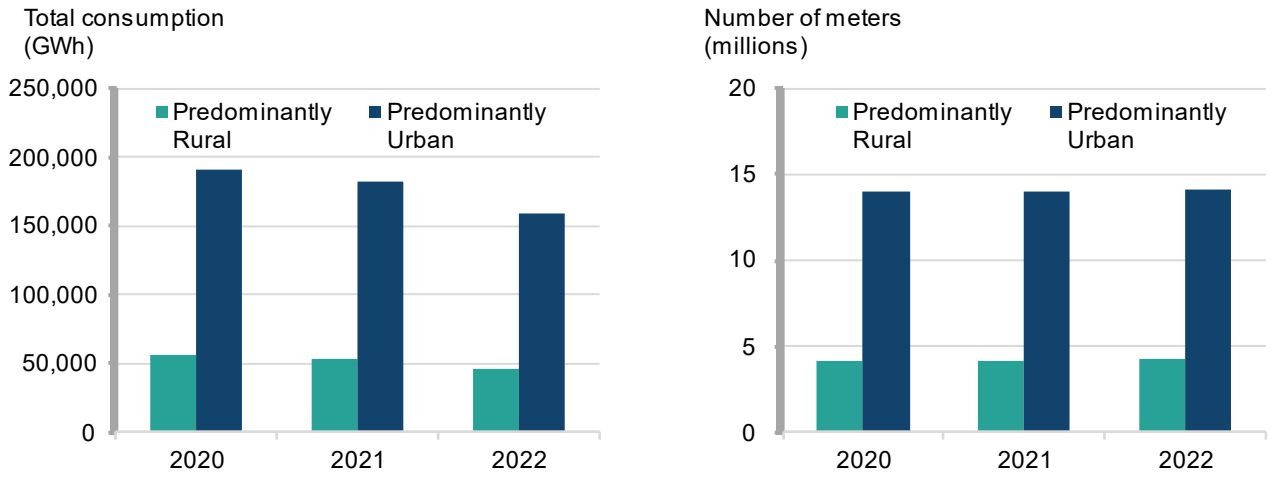


Figure E-5 is a pair of bar charts showing the total domestic gas consumption on the left-hand chart and the total number of gas meters contributing to this consumption on the right-hand chart.

The left-hand chart of Figure E-5 shows that in Predominantly Rural areas the total domestic gas consumption fell from 55,900 GWh across the 75 Predominantly Rural Local Authorities in 2020 to 46,300 GWh in 2022. This is a fall of 17% in the total consumption across this 2-year period. Total consumption also fell by 17% across the 175 Predominantly Urban Local Authorities and stood at 159,500 GWh in 2022.

Figure E-5: Bar charts showing the estimated total domestic gas consumption (GWh) and the number of domestic gas meters in Predominantly Rural and Predominantly Urban areas in 2020, 2021 and 2022 (Note E-2, Note E-6)

The legend is presented in the same order as the clusters of columns. The left-hand chart shows total consumption, and the right-hand chart shows number of meters. Note that the scale is different on the two charts.



The right-hand chart of Figure E-5 shows that there are around 4 million domestic gas meters in Predominantly Rural areas and 14 million domestic gas meters in Predominantly Urban areas. The numbers of gas meters in Predominantly Rural areas rose by 3% (111,500 meters) over the period 2020 to 2022 and in Predominantly Urban areas the number of domestic gas meters increased by 1% (124,300 meters).

In every Local Authority (Note E-3) the total domestic gas consumption decreased between 2020 and 2022. With the exception of three London Local Authorities (Kensington and Chelsea, City of London and Westminster), the total domestic gas consumption decreased by at least 10% between 2020 and 2022.There were nine Local Authorities where the total consumption fell by at least 20%, only one of these Local Authorities was in a Predominantly Rural area (Staffordshire Moorlands).

Gas consumption: Non-domestic

Gas data is divided between domestic and non-domestic categories according to the gas consumption relative to an industry standard cut-off value, thereby risking some small non-domestic premises being miss-classified (Note E-8).

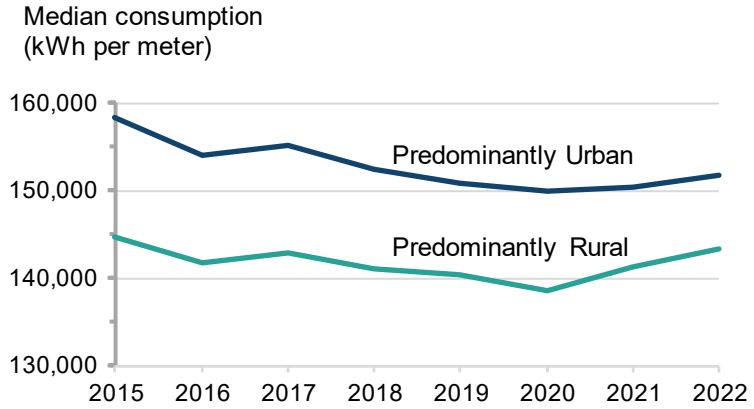
Figure E-3 is a line chart that also showed the proportion of total non-domestic gas consumption assigned to Predominantly Rural Local Authorities over the 2015 to 2022 period. Predominantly Rural Local Authority areas accounted for 23.1% of consumption in 2015 and then the proportion fell to 22.2% in 2016. For the next 4 years the proportion of non-domestic consumption accounted for by Predominantly Rural Local Authority areas averaged 22.6%, but since 2020 this proportion has climbed and in 2022 stood at 23.2%.

Figure E-6 is a line chart showing that average median non-domestic gas consumption over the period 2015 to 2022 was lower in Predominantly Rural areas than in Predominantly Urban areas. It also shows that the general trend was for falling average median non-domestic gas consumption between 2015 and 2020 followed by rising consumption after 2020.

The following bullets describe the information presented in Figure E-4 in more detail.

- In 2015 the average median non-domestic gas consumption was 145,800 kWh per meter in Predominantly Rural areas and 158,300 in Predominantly Urban areas.
- Between 2015 and 2020 the average median non-domestic gas consumption in Predominantly Rural areas fell by 6,300 kWh per meter (4.3%). Over the same period the average median non-domestic gas consumption in Predominantly Urban areas fell by 8,400 kWh per meter (5.3%). This left the average median non-domestic gas consumption in 2020 at 138,500 kWh per meter in Predominantly Rural areas and 149,900 in Predominantly Urban areas.
- Between 2020 and 2022 the average median non-domestic gas consumption in Predominantly Rural areas increased by 4,800 kWh per meter (3.4%). Over the same period the average median non-domestic gas consumption in Predominantly Urban areas increased by 2,000 kWh per meter (1.3%). This left the average median non-domestic gas consumption in 2022 at 143,300 kWh per meter in Predominantly Rural areas and 151,900 in Predominantly Urban areas.
- The larger increase in average median non-domestic gas consumption in Predominantly Rural areas than in Predominantly Urban areas means that in Predominantly Rural areas the average median non-domestic gas consumption in 2022 was just 1.0% (1,500 kWh per meter) lower than in 2015. Whereas in Predominantly Urban areas the average median non-domestic gas consumption in 2022 was 4.1% (6,400 kWh per meter) lower than in 2015.

Figure E-6: Line chart showing the estimated average median non-domestic gas consumption (kWh per meter) by broad Local Authority Rural-Urban Classification 2015 to 2022 (Note E-2, Note E-6)
Note that the scale on the y-axis differs between this chart and Figure E-4.



This increase in average median non-domestic gas consumption comes despite the increase in the cost of gas over the 2020 to 2022 period. However, the total non-domestic gas consumption across all 75 Predominantly Rural Local Authorities fell from 34,200 GWh in 2015 to 33,000 GWh in 2022, a fall of 3.6%. Similarly total non-domestic gas consumption across all 75 Predominantly Rural Local Authorities was 3.1% lower in 2022 than it was in 2020.

Energy Consumption explanatory notes

- **Note E-1**

Tables showing additional data and the data behind the figures in this section are available in the Energy data tables.

- **Note E-2**

The figures for median electricity or gas consumption per meter point are presented in kilowatt hours (kWh). The figures for total gas consumption are presented in gigawatt hours (GWh). 1GWh = 1 million kWh. Median electricity consumption figures in the commentary have been rounded to the nearest 10 kWh per meter. Annual median gas consumption figures have been rounded to 100 kWh per meter, while year to year changes in gas consumption have been rounded to the nearest 10 kWh per meter.

- **Note E-3**

There is no mains gas on the Scilly Isles.

- **Note E-4**

Electricity consumption figures are based on meter level electricity consumption data provided by data aggregators (who compile this data behalf of electricity suppliers).
Electricity data is divided between domestic and non-domestic categories according to the meter's profile class. Domestic consumption is based on Non-Half Hourly (NHH) meters with profiles 1 and 2 (these are the standard domestic and economy 7 tariffs respectively). Non-domestic consumption is based on NHH meters with profiles 3 to 8 and all Half Hourly meters. In addition, profile 1 and 2 meters are re-allocated to the non-domestic sector if their annual consumption is greater than 100,000 kWh; or if their annual consumption is greater than 50,000 kWh and the address information for meter suggests that it is non-domestic.
The electricity consumption years used in these statistics cover two slightly different periods. Half-hourly data (higher-consuming non-domestic meters) covers consumption over the calendar year (January to December). For non-half hourly data (domestic and the vast majority non-domestic meters) the electricity years cover the months February to January (for example the 2022 electricity year was February 2022 to January 2023).
For more information about these electricity consumption statistics, see Section 3 of the BEIS / DESNZ guidance note: Sub-national methodology and guidance 2024

- **Note E-5**

These estimates used in this analysis are weather-corrected. This means that the effect of differences in weather conditions between years has been removed to provide more like for like comparisons over time. A non-weather corrected version of these statistics is also published for the years 2015 and 2022 and can be found at: Regional and local authority gas consumption statistics

- **Note E-6**

The gas consumption years used in this analysis are as follows:

Year	Gas Year
2015	October 2014 – September 2015
2016	mid-July 2016 – mid-July 2017
2017	mid-June 2017 – mid-June 2018
2018	mid-May 2018 – mid-May 2019
2019	mid-May 2019 – mid-May 2020
2020	mid-May 2020 – mid-May 2021
2021	mid-May 2021 – mid-May 2022
2022	mid-May 2022 – mid-May 2023

- **Note E-7**

BEIS / DESNZ built a new processing system for producing the 2021 subnational gas consumption statistics and for producing the 2022 subnational electricity consumption statistics. They therefore revised their gas consumption statistics for the years 2015 to 2020 in 2021 and the electricity consumption statistics for the years 2015 to 2021 in 2022. We therefore use data from 2015 onwards to ensure we are using consistent data. For this latest analysis have recalculated all of the Predominantly Rural and Predominantly Urban figures from 2015 onwards to account for the boundary changed discussed in Note E-10.

- **Note E-8**

BEIS / DESNZ gas consumption figures are based on meter level gas consumption data provided by Xoserve (who compile meter level data from gas shippers, who in turn receive the data from gas suppliers). Xoserve provide annualised estimates of consumption (AQs) for all gas meters. Xoserve provide the AQs on a weather corrected basis by a process which accounts for regional temperatures and wind speed and incorporates trends.

The gas meters are classified as being domestic or non-domestic according to their (weather-corrected) gas consumption. Those with an annual consumption less than the industry cut-off of 73,200 are classified as domestic and the rest are classified as non-domestic. This means that some small industrial and commercial consumers will be classified as domestic.

For more information about these gas consumption statistics, see Section 2 of the BEIS / DESNZ guidance note: Sub-national methodology and guidance 2024.

- **Note E-9**

Where a Local Authority area contains one or more major power station or other large industrial consumer the consumption of these sites has not been included in the meter level gas consumption data due to complexities in their billing arrangements.

- **Note E-10**

New Local Authorities came into operation in April 2023. These changes relate to 3 parts of England: (1) North Yorkshire, (2) Cumbria and (3) Somerset. This reduced the total number of Local Authorities from 309 down to 296.

4. A new unitary authority called North Yorkshire replaced the 7 existing districts of Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby. We have provisionally classified this single North Yorkshire UA as Predominantly Rural.
5. The 6 districts within Cumbria were abolished and replaced with 2 new unitary authorities. Allerdale, Carlisle and Copeland have been merged to form Cumberland and Barrow-in-Furness, Eden and South Lakeland have been merged to form Westmorland and Furness. We have provisionally classified Cumberland and Westmorland and Furness as Predominantly Rural.
6. The districts of Mendip, Sedgemoor, Somerset West and Taunton, and South Somerset have been merged to form a new unitary authority known as Somerset. We have provisionally classified this single Somerset UA as Predominantly Rural.

F. Estimated Carbon dioxide (CO_2) emissions from domestic properties

Factors such as whether a home is a flat or a house, whether it is Owner-occupied or Socially rented and whether or not it is a new house are far more important to determining the CO_2 emissions from the property than whether it is in a Predominantly Rural or Predominantly Urban area.

Summary

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let. As part of the EPC process an estimate of CO_2 emissions from the property is made based on standardised assumptions about how residents will use the property.

Across all homes the estimated average median CO_2 emissions as at March 2023 was 3.4 tonnes/year in Predominantly Rural areas and 3.1 tonnes/year in Predominantly Urban areas. In both Predominantly Rural and Predominantly Urban areas, on average new homes emit at least 2 tonnes/year less CO_2 than existing homes. An existing dwelling in either Predominantly Rural or Predominantly Urban areas, on average, emits 2.7 times the CO_2 of a new dwelling. Average median CO_2 emissions were higher for homes in Predominantly Rural areas than for those in Predominantly Urban areas for both Existing dwellings (15% higher) and New dwellings (16% higher), in part reflecting differences in the types of dwellings and the age of dwellings found in Predominantly Rural and Predominantly Urban areas. Within Predominantly Rural areas, the more Rural the area the higher the CO_2 emissions for existing dwellings.

In both Predominantly Rural and Predominantly Urban areas CO_2 emissions were highest from Detached properties followed by Semi-detached, then Terraced and finally Flats and maisonettes. For Flats and maisonettes, the average median CO_2 emissions were similar in Predominantly Rural and Predominantly Urban areas at 2 tonnes/year. Whereas for all 3 house types, the average median CO_2 emissions were between 4% and 15% lower in Predominantly Rural areas than in Predominantly Urban areas. The 10 Local Authorities with the highest median CO_2 emissions for Detached and Semi-detached properties were in London. These Local Authorities with high median CO_2 emissions help make the average median emissions in Predominantly Rural areas lower than Predominantly Urban area for Detached and Semi-detached homes. Once London Authorities are removed, the average median CO_2 emissions for Detached properties are 6% higher in Predominantly Rural areas than for Detached properties in Predominantly Urban areas outside of London. In Predominantly Rural areas, on average, a Detached home emits 1.5 times the CO_2 of a Terraced home.

For all 3 types of tenure, median CO_2 emissions were higher in Predominantly Rural areas than in Predominantly Urban areas. There was a hierarchy for each area type such that median CO_2 emissions were highest for Owner-occupied homes followed by Private rented homes and then Social rented homes had the lowest CO_2 emissions. For Social rented homes the median emissions were 0.2 tonnes/year more in Predominantly Rural areas than in Predominantly Urban areas, but for Owner-occupied and Private rented homes this emissions difference was bigger at 0.5 tonnes/year.

Approach for estimating Carbon dioxide (CO_2) emissions from domestic properties

The ONS publish Energy Efficiency of Housing on an annual basis (see Note F-2 and Note F-3). The most recent edition was published in November 2023. An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let. As part of the EPC process an estimate of CO_2 emissions from the property is made. These estimated **CO_2 emissions are based on standardised assumptions about how residents will use the property.** These assumptions include things such as the number of occupants, heating and lighting patterns and hot water usage. They are done this way to make properties directly comparable to each other for prospective buyers or tenants. These estimates therefore do not reflect how residents actually use the property.

This emissions data does not reflect all dwellings in England, because not every dwelling has an EPC. Table 4a of Median energy efficiency score, England and Wales shows the percentage of dwellings covered by an Energy Performance Certificate since records began, in England and Wales, as at 31 March 2023. Overall, in England around two-thirds of domestic properties are covered by EPCs. In general, the coverage is higher for:

- newer properties (95% coverage of post 2012 properties) than older ones;
- rented properties than Owner-occupied; and
- flats and maisonettes (83% coverage) than houses (60% coverage for detached properties).

The source data tables offer a median CO_2 emissions for each Local Authority for the given property characteristic being analysed. For example, a median CO_2 emissions value for all of the Detached properties in each Local Authority. When producing the overall estimates for Predominantly Rural and Predominantly Urban areas we take the mean as a simple unweighted average of these median values. **So strictly speaking when these overall estimates are presented, they are average median CO_2 emissions; although to simplify the commentary they will often be referred to as just median CO_2 emissions or average CO_2 emissions**.

Median Carbon Dioxide (CO_2) emissions for New and Existing homes

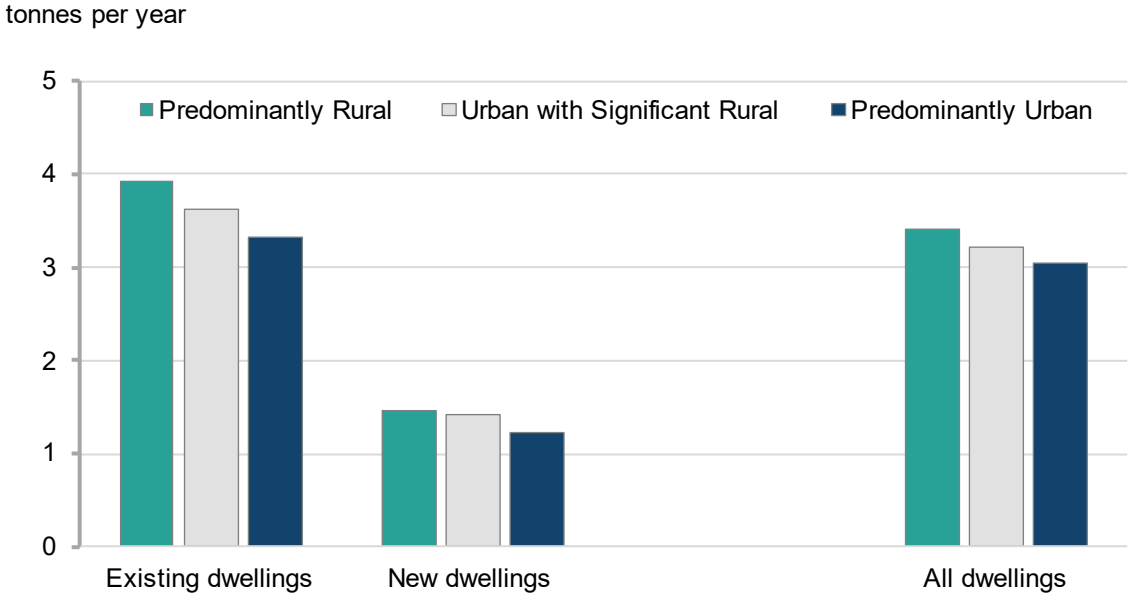
As discussed in Energy Performance Certificates: average Energy Efficiency Score, the average energy efficiency of homes in Predominantly Rural areas was marginally lower than for homes in Predominantly Urban areas (66.8 compared to 67.5). This leads to estimated median CO_2 emissions as at March 2023 of 3.4 tonnes/year in Predominantly Rural areas and 3.1 tonnes/year in Predominantly Urban areas (Figure F-1). So, the median emissions were 0.4 tonnes/year (or 11%) more in Predominantly Rural areas than in Predominantly Urban areas. Given that Section B showed that the Energy Efficiency Rating is quite different for New dwellings (Note F-4) compared to Existing dwellings it is interesting to see how this translates through to CO_2 emissions.

Figure F-1 is a bar chart that shows the median CO_2 emissions for New dwellings, Existing dwellings and All dwellings by Local Authority Rural-Urban Classification in 2023. Figure F-1 shows that median CO_2 emissions are higher for homes in Predominantly Rural areas than for those in Predominantly Urban areas for both Existing dwellings and New Dwellings. It also shows that estimated emissions are much lower for New Dwellings and, when measured in absolute terms,

the difference between the average emissions in Predominantly Rural and Predominantly Urban areas is smaller for new homes than for existing homes. Average emissions for homes in Urban with Significant Rural regions are between those for Predominantly Rural and Predominantly Urban areas.

Figure F-1: Bar chart showing median CO_2 emissions for New, Existing and All dwellings by Local Authority Rural-Urban Classification in 2023 (Note F-2, Note F-3, Note F-4)

The legend is presented in the same order and orientation as the cluster of columns.



The following set of bullets provide more detailed findings from Figure F-1.

- For new homes, the estimated median CO_2 emissions as at March 2023 was 1.5 tonnes/year in Predominantly Rural areas and 1.2 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.2 tonnes/year (or 16%) more in Predominantly Rural areas than in Predominantly Urban areas.
- For existing homes, the estimated median CO_2 emissions as at March 2023 was 3.9 tonnes/year in Predominantly Rural areas and 3.3 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.6 tonnes/year (or 15%) more in Predominantly Rural areas than in Predominantly Urban areas.
- In both Predominantly Rural and Predominantly Urban areas, on average, new homes emit at least 2 tonnes/year less CO_2 than existing homes. An existing dwelling in either Predominantly Rural or Predominantly Urban areas, on average, emits 2.7 times the CO_2 of a new dwelling.

Figure F-2 is a bar chart that shows the median CO_2 emissions for New dwellings, Existing dwellings and All dwellings in Mainly Rural and Largely Rural areas. It shows that the more rural the area the higher the CO_2 emissions for both New dwellings and existing dwellings. In the most rural areas (Mainly Rural) the median CO_2 emissions were 4.1 tonnes/year for existing homes and 1.5 tonnes/year for new homes. These emissions were 0.4 tonnes/year more than the 3.7 tonnes/year that was estimated for existing homes in Largely Rural areas. An existing dwelling in Mainly Rural areas, on average, emits 2.8 times the CO_2 of a new dwelling in these areas.

Figure F-2: Bar chart showing median CO_2 emissions for New, Existing and All dwellings in Mainly Rural and Largely Rural Local Authorities in 2023 (Note F-2, Note F-3, Note F-4)

The legend is presented in the same order and orientation as the cluster of columns.

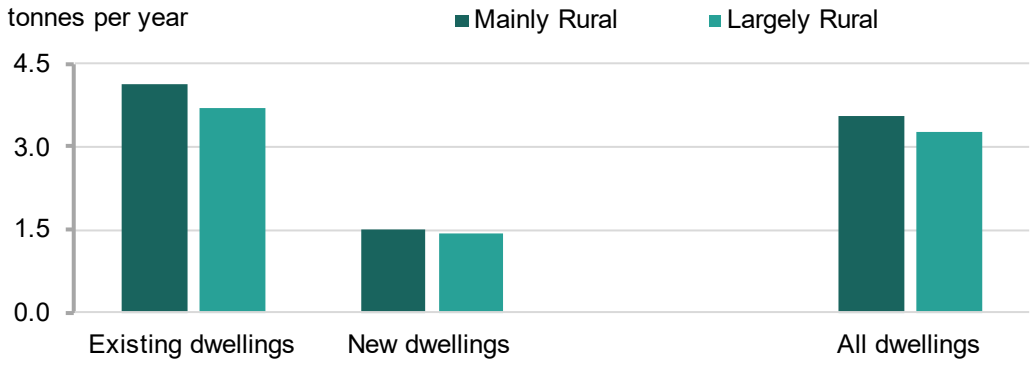
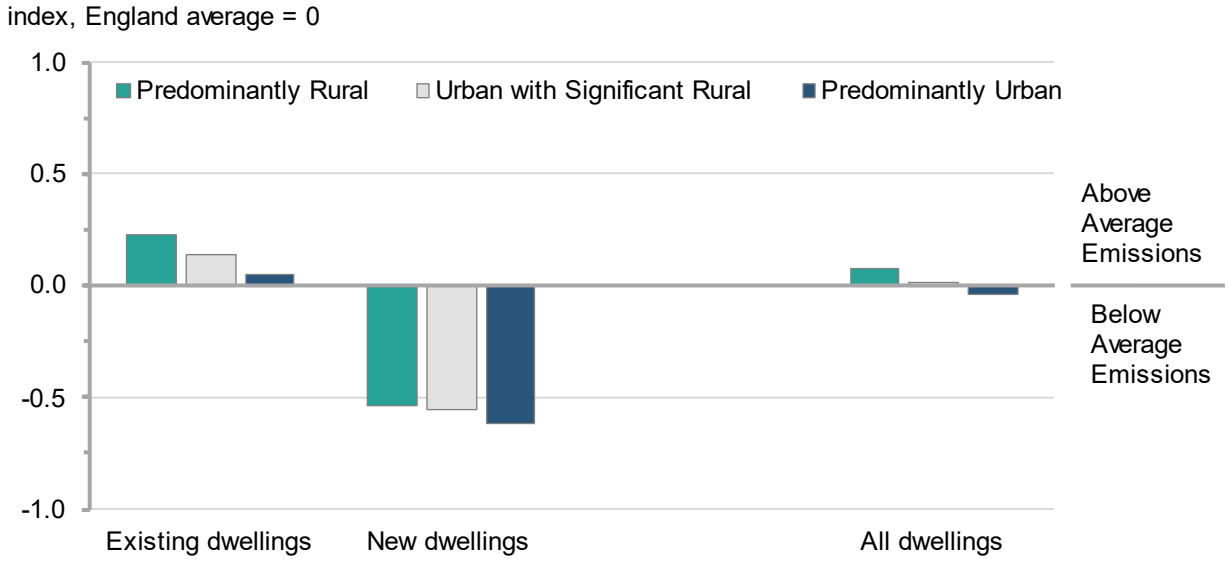


Figure F-3 is a bar chart showing indexed median CO_2 emissions for New dwellings, Existing dwellings and All dwellings by Local Authority Rural-Urban Classification in 2023. Overall homes in Predominantly Rural areas had average CO_2 emissions that were above the England average but in Predominantly Urban areas homes had average CO_2 emissions that were below the England average. The CO_2 emissions for New Dwellings were well below the England average (index = 0 on Figure F-3) with index values of less than -0.5 for all settlement types. This means that New dwellings had less than half of the average emissions in England. This was the case in both Predominantly Rural and Predominantly Urban areas. For the existing homes in Predominantly Rural areas the index value was 0.2, so their average CO_2 emissions were 20% higher than the England average CO_2 emissions. By contrast in Predominantly Urban areas the average CO_2 emissions from existing homes was just 5% higher than the England average CO_2 emissions.

Figure F-3: Bar chart showing indexed median CO_2 emissions for New dwellings, Existing dwellings and All dwellings by Local Authority Rural-Urban Classification in 2023 (Note F-2, Note F-3, Note F-4)

The legend is presented in the same order and orientation as the cluster of columns. Data has been indexed against the overall England average emissions such that bars below the horizontal axis represent below average emissions and bars above the horizontal axis represent above average emissions.



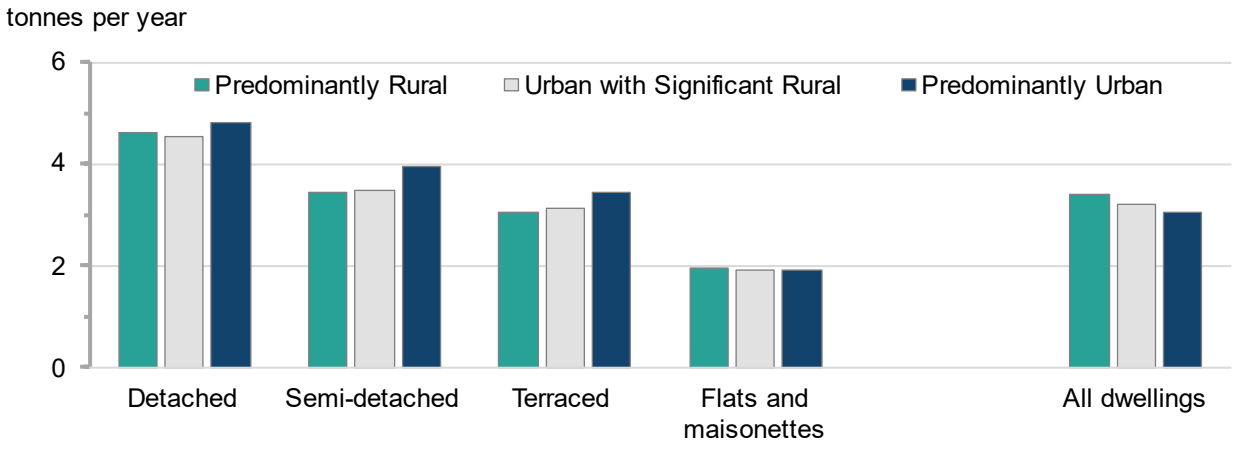
Median Carbon Dioxide (CO_2) emissions by housing type

As discussed in Energy Performance Certificates: average Energy Efficiency Score, Flats and maisonettes had a much higher average energy efficiency score than any other housing type. This led to estimated median CO_2 emissions as at March 2023 that were lower for Flats and maisonettes than for either Detached, Semi-detached or Terraced housing within all area types of the Broad Rural Urban Classification (Figure F-4).

Figure F-4 is a bar chart that shows the median CO_2 emissions by housing type and Local Authority Rural-Urban Classification in 2023. Figure F-4 shows a hierarchy such that CO_2 emissions were highest from Detached properties followed by Semi-detached, then Terraced and finally Flats and maisonettes. This pattern holds for Predominantly Rural, Predominantly Urban and Urban with Significant Rural areas. For Flats and maisonettes, the average CO_2 emissions were similar in all 3 area types. Whereas for all 3 house types, the average CO_2 emissions were lower in Predominantly Rural areas than in Predominantly Urban areas. The set of bullets below the chart provide more detailed findings.

Figure F-4: Bar chart showing median CO_2 emissions by housing type and Local Authority Rural-Urban Classification in 2023 (Note F-2, Note F-3, Note F-5)

The legend is presented in the same order and orientation as the cluster of columns



- For Detached homes, the estimated median CO_2 emissions as at March 2023 was 4.6 tonnes/year in Predominantly Rural areas and 4.8 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.2 tonnes/year (or 4%) less in Predominantly Rural areas than in Predominantly Urban areas.
- For Semi-detached homes, the estimated median CO_2 emissions as at March 2023 was 3.4 tonnes/year in Predominantly Rural areas and 3.9 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.5 tonnes/year (or 15%) less in Predominantly Rural areas than in Predominantly Urban areas.
- For Terraced homes, the estimated median CO_2 emissions as at March 2023 was 3.1 tonnes/year in Predominantly Rural areas and 3.5 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.4 tonnes/year (or 13%) less in Predominantly Rural areas than in Predominantly Urban areas.
- For Flats and maisonettes, the estimated median CO_2 emissions as at March 2023 was 2.0 tonnes/year in Predominantly Rural areas and 1.9 tonnes/year in Predominantly Urban areas.

So, the median emissions were less than 0.1 tonnes/year (or 1%) more in Predominantly Rural areas than in Predominantly Urban areas.

- The difference between the estimated median CO_2 emissions for a Detached home and a Flat or maisonette was slightly smaller in Predominantly Rural areas (2.7 tonnes/year) than in Predominantly Urban areas (2.9 tonnes/year). A Detached home in Predominantly Rural areas, on average, emits 2.4 times the CO_2 of a Flat or maisonette. In Predominantly Urban areas this ratio is 2.5 times the CO_2 emitted.
- When all dwellings are considered the estimated median CO_2 emissions were higher in Predominantly Rural areas than in Predominantly Urban areas despite them being lower for all 3 types of house and similar for Flats and maisonettes. This can be explained by considering the composition of the housing stock in Predominantly Rural and Predominantly Urban areas. Predominantly Rural areas have a much higher proportion of Detached homes and a lower proportion of Flats and maisonettes than Predominantly Urban areas. The higher median CO_2 emissions for these Detached properties therefore raises the estimated median CO_2 emissions in Predominantly Rural areas relative to Predominantly Urban areas when all properties are considered.

Figure F-5 is a bar chart that shows the median CO_2 emissions by property type in Mainly Rural and Largely Rural areas. It shows that the more rural the area the higher the CO_2 emissions for all 3 house types, but the average emissions for Flats and maisonettes are similar in Mainly Rural and Largely Rural areas. In the most rural areas (Mainly Rural) the median CO_2 emissions were 4.8 tonnes/year for Detached homes, 3.5 tonnes/year for Semi-detached and 3.2 tonnes per year for Terraced homes. When compared to homes in Largely Rural areas, these emissions were 0.4 tonnes/year more for Detached homes and 0.2 tonnes/year more for both Semi-detached and Terraced homes. In Predominantly Rural areas, on average, a Detached home emits 1.5 times the CO_2 of a Terraced home.

Figure F-5: Bar chart showing median CO_2 emissions by property type in Mainly Rural and Largely Rural Local Authorities in 2023 (Note F-2, Note F-3, Note F-5)
The legend is presented in the same order and orientation as the cluster of columns.

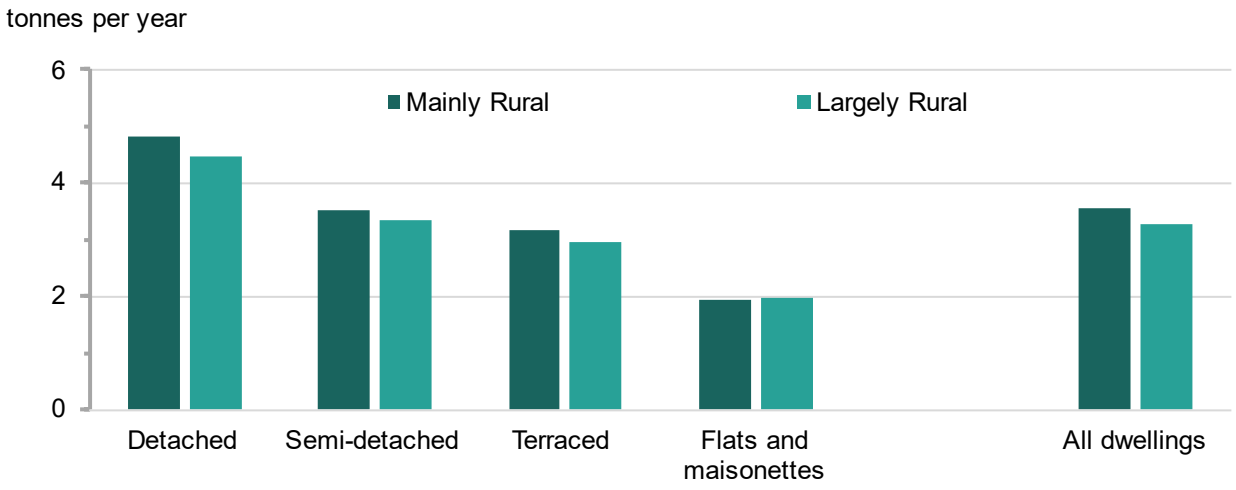
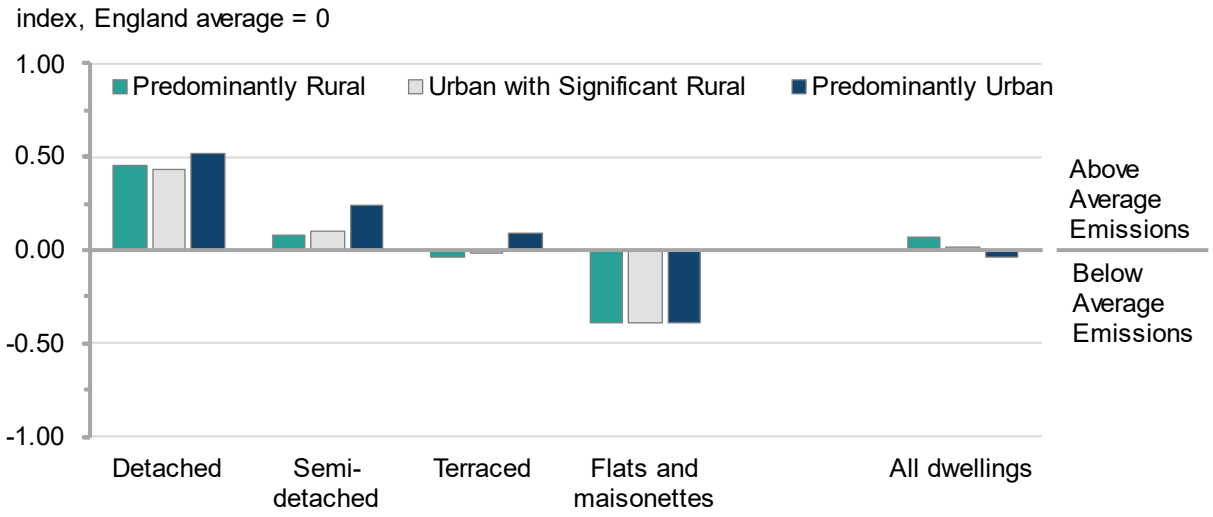


Figure F-6 is a bar chart showing indexed median CO_2 emissions by property type and Local Authority Rural-Urban Classification in 2023. It shows that median CO_2 emissions are well above average for Detached and well below average for Flats and maisonettes. Detached homes in both Predominantly Rural and Predominantly Urban areas had average CO_2 emissions that were

around 50% higher than the England average (their index value on Figure F-6 is around 0.5). Flats and maisonettes in all three broad RUC areas had average CO_2 emissions that were equivalent to 60% of the England average CO_2 emissions (their index value on Figure F-6 is -0.4). Terraced homes and Semi-detached homes in Predominantly Rural areas had average CO_2 emissions that were within 10% of the England average, but Semi-detached homes in Predominantly Urban areas had average CO_2 emissions that were 25% higher than the England average.

Figure F-6: Bar chart showing indexed median CO_2 emissions by property type and Local Authority Rural-Urban Classification in 2023 (Note F-2, Note F-3, Note F-5)

The legend is presented in the same order and orientation as the cluster of columns. Data has been indexed against the overall England average emissions such that bars below the horizontal axis represent below average emissions and bars above the horizontal axis represent above average emissions.



Lower CO_2 emissions from all 3 house types in Predominantly Rural areas than in Predominantly Urban areas was contrary to expectations and therefore required further investigation to understand this finding. This additional analysis (Note F-8) showed that there was a smaller spread between the Local Authority with the lowest median CO_2 emissions and the one with the highest median CO_2 emissions in Predominantly Rural areas than in Predominantly Urban areas for all property types. Some Predominantly Urban Local Authorities had much higher median CO_2 emissions and this raises the overall Predominantly Urban average emissions for each of the 3 house types. As an example of this effect, the median CO_2 emissions for “Kensington and Chelsea” were 19.0 tonnes per year for Detached properties, almost 4 times the median CO_2 emissions for Detached properties in Predominantly Urban areas. The large size of the properties in “Kensington and Chelsea” is a large contributing factor to these high emissions.

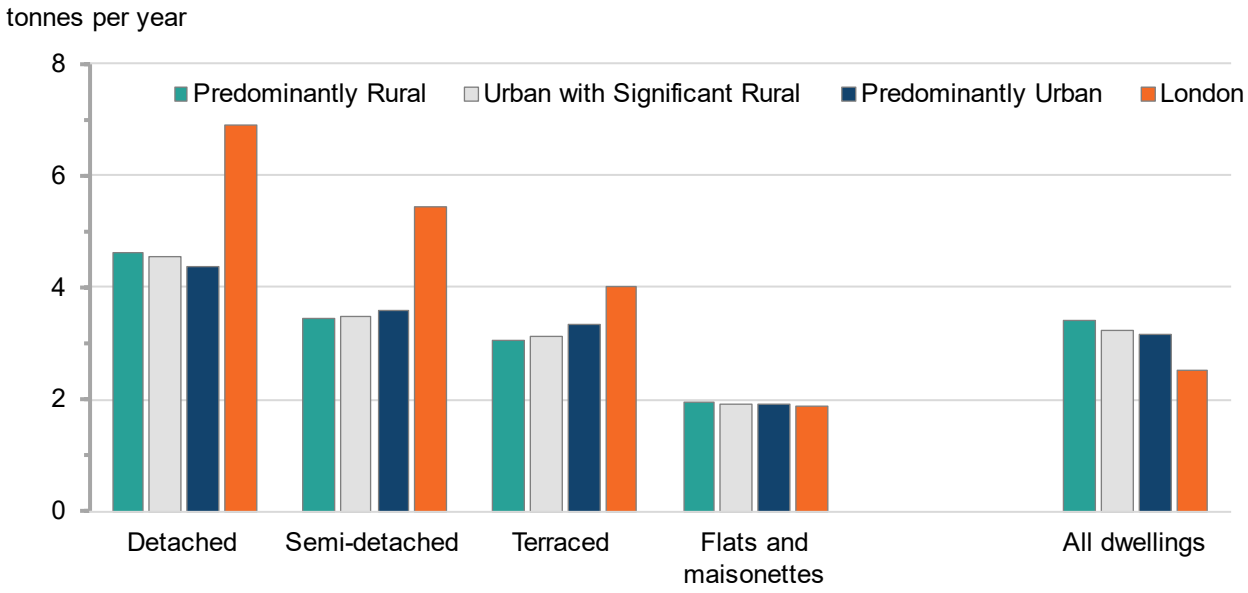
“Eden” with 6.7 tonnes/year had the highest median CO_2 emissions in Predominantly Rural areas for Detached properties. As mentioned in Fuel types used for central heating, Eden is one of 8 Predominantly Rural Local Authorities where more than 20% of the dwellings used oil as their main fuel type. A higher proportions of properties using oil for heating can, but does not automatically, lead to higher average CO_2 emissions. For example, Mid Suffolk has a higher proportion of homes using oil than Eden but lower median CO_2 emissions. So, oil use is just one of the factors that has the potential to increase CO_2 emissions, along with size of the property, number of occupants, the energy efficiency of the property and so on.

Given the high CO_2 emission values for London Local Authorities, the estimated emissions by property type were recalculated after separating London out from the other Predominantly Urban areas and are presented as a bar chart in Figure F-8. The hierarchy previously seen where CO_2 emissions were highest from Detached properties followed by Semi-detached, then Terraced and finally Flats and maisonettes remains. For Flats and maisonettes, the average CO_2 emissions were similar in all 4 area types. Whereas for all 3 house types, the average CO_2 emissions were much higher in London than in the other area types. Outside of London average CO_2 emissions showed little variation and differed by 0.3 tonnes per year or less between area types.

When all home types are considered the more rural the area the higher the median CO_2 emissions. This situation occurs because the proportion of Detached homes is bigger, and the proportion of flats is smaller in Predominantly Rural areas than in Predominantly Urban areas and particularly in London (Note F-7). Therefore, the point at which the median value in the full distribution is reached in Predominantly Rural areas is more likely to be representative of the emissions of a Detached home.

Figure F-7: Bar chart showing median CO_2 emissions by housing type and Local Authority Rural-Urban Classification, with London separated from other Predominantly Urban areas, in 2023 ((Note F-2, Note F-3, Note F-5)

The legend is presented in the same order and orientation as the cluster of columns



The following set of bullets below the chart provide more detailed findings.

- For Detached homes, the estimated median CO_2 emissions as at March 2023 was 4.6 tonnes/year in Predominantly Rural areas and 4.4 tonnes/year in Predominantly Urban areas outside of London. So, the median emissions were 0.3 tonnes/year (or 6%) more in Predominantly Rural areas than in Predominantly Urban areas outside of London.
- For Semi-detached homes, the estimated median CO_2 emissions as at March 2023 was 3.4 tonnes/year in Predominantly Rural areas and 3.6 tonnes/year in Predominantly Urban areas outside of London. So, the median emissions were 0.1 tonnes/year (or 4%) less in Predominantly Rural areas than in Predominantly Urban areas outside of London.

- For Terraced homes, the estimated median CO_2 emissions as at March 2023 was 3.1 tonnes/year in Predominantly Rural areas and 3.3 tonnes/year in Predominantly Urban areas outside of London. So, the median emissions were 0.3 tonnes/year (or 9%) less in Predominantly Rural areas than in Predominantly Urban areas outside of London.
- For Flats and maisonettes, the estimated median CO_2 emissions as at March 2023 was 2.0 tonnes/year in Predominantly Rural areas and 1.9 tonnes/year in Predominantly Urban areas outside of London. So, the median emissions were less than 0.1 tonnes/year (or 1%) more in Predominantly Rural areas than in Predominantly Urban areas outside of London.
- For houses, the difference between the estimated median CO_2 emissions in Predominantly Rural areas and London increased from London being 1 tonne per year more for Terraced, to 2 tonnes per year more for Semi-detached and to 2.3 tonnes per year more for Detached homes.
- For all homes the estimated median CO_2 emissions as at March 2023 was 3.4 tonnes/year in Predominantly Rural areas, 3.2 tonnes/year in Predominantly Urban areas outside of London and 2.5 tonnes/year in London. So, the median emissions were 0.2 tonnes/year (or 7%) more in Predominantly Rural areas than in Predominantly Urban areas outside of London and 0.9 tonnes/year (or 26%) more than in London.

Median Carbon Dioxide (CO_2) emissions by home tenure

As discussed in Energy Performance Certificates: average Energy Efficiency Score the average energy efficiency of homes in the Social rent sector is higher than for either Owner-occupied or Private rented homes. For Social rented properties the average Energy Efficiency Score equates to a C rating in both Predominantly Urban and Predominantly Rural areas, whilst for Owner-occupied and Private rented the average score equates to a D rating. This leads to an estimated median CO_2 emissions as at March 2023 that is lower for Social rent properties than for either Owner-occupied or Private rented homes for all 3 area types within the Broad Rural Urban Classification (Figure F-4).

Figure F-9 is a bar chart showing median CO_2 emissions by tenure and Local Authority Rural-Urban Classification in 2023 and it shows that for all 3 types of tenure, median CO_2 emissions were higher in Predominantly Rural areas than in Predominantly Urban areas and that the value for Urban with Significant Rural areas slotted in between these values. The chart also shows that there was a hierarchy for each area type such that median CO_2 emissions were highest for Owned-occupied homes followed by Private rented homes and then Social rented homes had the lowest CO_2 emissions. The difference between median emissions in Predominantly Rural areas and Predominantly Urban areas was smaller for the Social rent sector than the private sector.

The following set of bullets provide more detailed findings.

- For Social rent homes, the estimated median CO_2 emissions as at March 2023 was 2.6 tonnes/year in Predominantly Rural areas and 2.4 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.2 tonnes/year (or 7%) more in Predominantly Rural areas than in Predominantly Urban areas.
- For Private rent homes, the estimated median CO_2 emissions as at March 2023 was 3.6 tonnes/year in Predominantly Rural areas and 3.0 tonnes/year in Predominantly Urban areas.

So, the median emissions were 0.5 tonnes/year (or 15%) more in Predominantly Rural areas than in Predominantly Urban areas.

- For Owner-occupied homes, the estimated median CO_2 emissions as at March 2023 was 4.3 tonnes/year in Predominantly Rural areas and 3.7 tonnes/year in Predominantly Urban areas. So, the median emissions were 0.5 tonnes/year (or 13%) more in Predominantly Rural areas than in Predominantly Urban areas.
- The difference between the estimated median CO_2 emissions for a Private rented home and a Social rented home was bigger in Predominantly Rural areas (1.0 tonnes/year) than in Predominantly Urban areas (0.6 tonnes/year).
- The difference between the estimated median CO_2 emissions for an Owner-occupied home and a Social rented home was bigger in Predominantly Rural areas (1.7 tonnes/year) than in Predominantly Urban areas (1.3 tonnes/year). An Owner-occupied home in Predominantly Rural areas, on average, emits 1.7 times the CO_2 of a Social rent home. In Predominantly Urban areas this ratio is 1.6 times the CO_2.

Figure F-8: Bar chart showing median CO_2 emissions by tenure and Local Authority Rural-Urban Classification in 2023 (Note F-2, Note F-3, Note F-6)

The legend is presented in the same order and orientation as the cluster of columns.

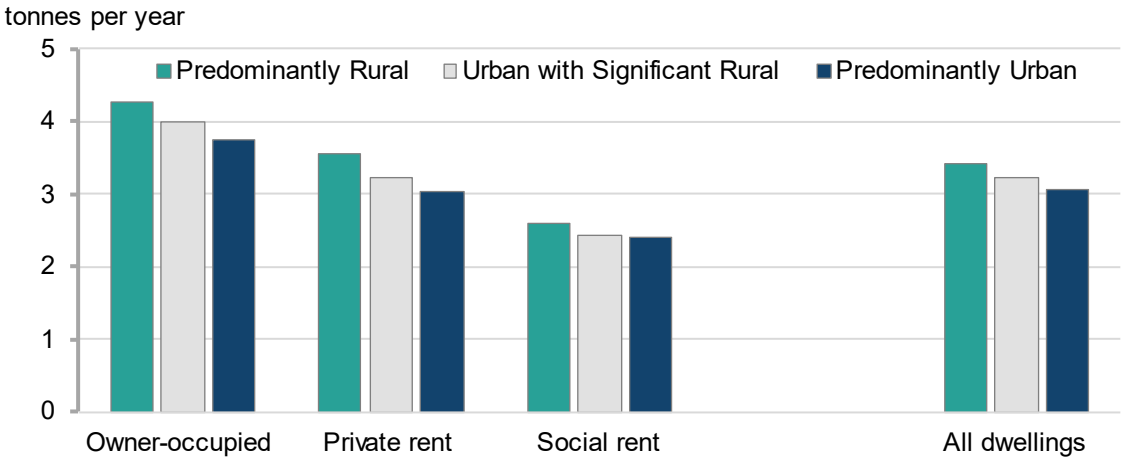


Figure F-5 is a bar chart that shows the median CO_2 emissions by home tenure in Mainly Rural and Largely Rural areas. It shows that the more rural the area the higher the CO_2 emissions for all tenure types. In the most rural areas (Mainly Rural) the median CO_2 emissions were 4.5 tonnes/year for Owner-occupied homes compared to 2.7 tonnes/year for Social rent homes. This is a difference of 1.8 tonnes/year. Whilst in Largely Rural areas, the median CO_2 emissions were 4.1 tonnes/year for Owner-occupied homes compared to 2.5 tonnes/year for Social rent homes – a difference of 1.6 tonnes/year. The difference in median CO_2 emissions between homes in Mainly Rural and Largely Rural is smaller for Social rent homes (0.1 tonnes/year) than for those homes in the private sector (0.4 tonnes/year for Owner-occupied and 0.5 tonnes/year for Private rented).

Figure F-9: Bar chart showing median CO_2 emissions by tenure in Mainly Rural and Largely Rural Local Authorities in 2023 (Note F-2, Note F-3, Note F-6)

The legend is presented in the same order and orientation as the cluster of columns.

Energy efficiency of Rural homes explanatory notes

- **Note F-1**

Tables showing the data in Section F are available in the Energy data tables.

- **Note F-2**

The Office for National Statistics (ONS) publish Energy Efficiency of Housing at Local Authority level on an annual basis for financial years. This section primarily uses the Median estimated carbon dioxide (CO_2) emissions, England and Wales dataset for the financial year ending March 2023. Data has been used at Local Authority level from tables 2b, 2c and 2d.

The source data for this ONS publication is Department for Levelling up, Housing and Communities – Energy Performance Certificate data on Open Data Communities and Valuation Office Agency - Property Attributes data (https://epc.opendatacommunities.org/).

- **Note F-3**

An Energy Performance Certificate (EPC) provides information on the energy efficiency of a building. Since 2007, an EPC is required when a building is constructed, sold or let and it is valid for 10 years. There can be multiple EPC lodgements for the same dwelling, but only the latest lodgement is analysed to avoid double counting dwellings. Analysis includes the latest EPC lodgements for a 10 year period, from Q2 2013 to Q1 2023. So this data does not reflect all dwellings in England, because not every dwelling has an EPC.

EPCs are based on data about a building's energy features (like the building materials used, heating systems and insulation, for example), which are collected by an accredited energy assessor and are entered into a government-approved software to generate the EPC.

The median CO_2 emissions are calculated at the time the EPC lodgement was assessed. This means that these statistics do not necessarily reflect energy efficiency improvements as the majority of alterations don't require a new EPC to be generated.

- **Note F-4**

Statistics for **new properties** were generated using data from new dwelling EPC records, which include new builds, conversions and change of use. Statistics for **existing properties** were generated using the latest EPC lodgement available for a property, within the existing dwellings records. An existing dwelling may have undergone several EPC assessments for different reasons (for example, due to a marketed sale, for a green deal assessment, or following the implementation of the changes suggested in a green deal assessment). New and existing dwellings are assessed using slightly different methodologies.

- **Note F-5**

ONS break down houses (including bungalows and park homes) into Detached, Semi-detached and Terraced property types and group Flats and maisonettes together as the final property type.

- **Note F-6**

Tenure is more likely to change over time in comparison to other housing variables. The tenure is that given at the time of the EPC assessment. It is less likely to have tenure data for newly-built dwellings because they have just been constructed and do not yet have a tenure.

- **Note F-7**

Section A of the Statistical Digest of Rural England: 2 - Housing contains information on the stock of housing by house type and how it varies between Rural and Urban areas. Census 2011 data revealed that the majority of dwellings in both Rural Villages and Rural Hamlets and Isolated Dwellings were 'detached' properties and that the proportion of dwellings which were 'flats' decreases as the settlement becomes more rural, falling from 32% in Urban Conurbations to only 4% in both Rural Villages and Rural Hamlets and Isolated Dwellings.

- **Note F-8**

Tables showing distribution summary statistics for CO_2 emissions by property type at Local Authority level are available in the Energy data tables

Appendix 1: The 8 thematic reports that make up the Statistical Digest of Rural England (and the topics included within them)

1. Population

A. Population level and change
B. Population age profile
C. Ethnicity
D. Internal migration
E. Local Authority population data

2. Housing

A. Housing stock: age and type
B. Housing stock: additions and affordable housing
C. Housing costs: purchases and rentals
D. House purchase affordability
E. Second and empty homes
F. Homelessness
G. Land use change for housing
H. Housing quality

3. Health and Wellbeing

A. Life expectancy and Mortality
B. Wellbeing
C. NHS Dentistry provision
D. NHS General Practices
E. Childcare provision
F. Loneliness
G. Volunteering and charity

4. Communities and Households

A. Deprivation
B. Poverty due to low income
C. Household expenditure
D. Police recorded crime and outcomes
E. Crime surveys: local police and businesses
F. Feelings about the local neighbourhood

5. Connectivity and Accessibility

A. Broadband and mobile
B. Travel behaviours
C. Access to personal transport
D. Access to services
E. Home working

6. Education, Qualifications and Training

A. Schools and their workforce
B. Class sizes
C. Secondary education attainment
D. School inspections
E. Free school meals
F. Alternative and specialist education provision
G. Progression to higher education
H. Apprenticeships and on-the-job training
I. Workforce education level

7. Rural Economic Bulletin

A. Employment
B. Earnings
C. Redundancies
D. Claimant count - Jobseeker's Allowance
E. Output and productivity measured by Gross Value Added (GVA)
F. Business demographics
G. Businesses by industry
H. Business survival and growth
I. Innovation and investment

8. Energy

A. Fuel poverty
B. Energy Performance Certificates: average Energy Efficiency Score
C. Energy Performance Certificates: achieving energy efficiency category C
D. Energy costs
E. Energy consumption
F. CO_2 emissions

Each of the 8 themes also has their own set of supplementary data tables that include the larger source data that could not be included in the presented document. The chapter headings above are hyperlinked to the home page for that specific digest theme. The supplementary tables can be accessed from these home pages.

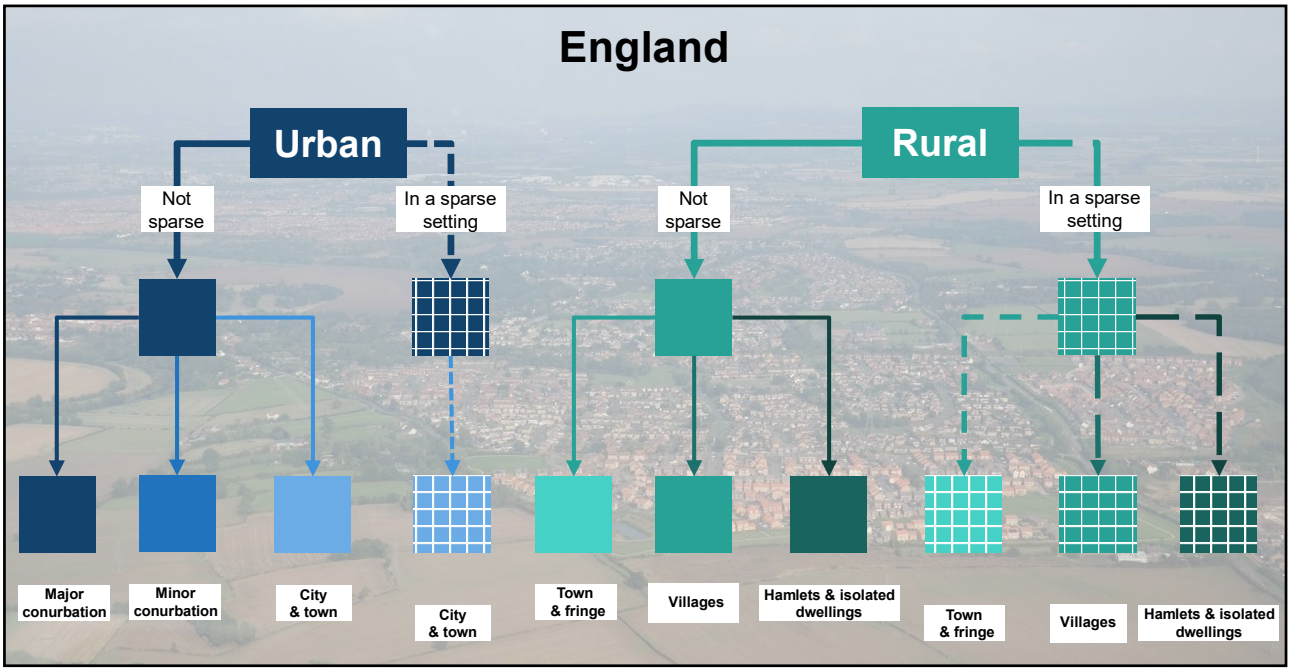
There is a further document including the individual Local Authority data tables, which have been separated for ease of use.

Appendix 2: Defining Rural areas

Wherever possible, the Rural-Urban Classification is used to distinguish Rural and Urban areas. The Classification defines areas as Rural if they fall outside of settlements with more than 10,000 resident population.

Census Output Areas are the smallest areas for which data are available from Censuses. These Census Output Areas are assigned to one of four Urban or six Rural categories (Figure X-1) based on dwelling densities. Those described as “in a sparse setting” reflect where the wider area is sparsely populated (again based on dwelling densities). From Census Output Areas, other small area geographies can be classified based on how they map to Census Output Areas (such as Lower Super Output Areas (LSOAs), Wards, and postcodes – Note 1).

Figure X-1: Classifying Rural and Urban areas for small geographical areas



A map showing the distribution of the Rural and Urban Census Output Areas is shown in Figure X-2.

When data are not available at a small geographical scale, it may be possible to apply the Rural-Urban Local Authority Classification or a similar classification for other larger geographies. This classification categorises districts and unitary authorities on a six-point scale from Rural to Urban. It is underpinned by Rural and Urban populations as defined by the Census Output Area Classification. A map of the geographical distribution of the Rural and Urban Local Authorities is shown in Figure X-3.

However, the Local Authority Classification also considers some Urban areas as Hub Towns (with populations of between 10,000 and 30,000). These Hub Towns have met statistical criteria (based on dwelling and business premise densities) to be considered hubs for services and businesses for a wider rural hinterland and their populations are therefore classified as effectively Rural for the purposes of determining the classification of the authority.

Figure X-2: Map of the 2011 Rural-Urban Classification for Census Output Areas in England

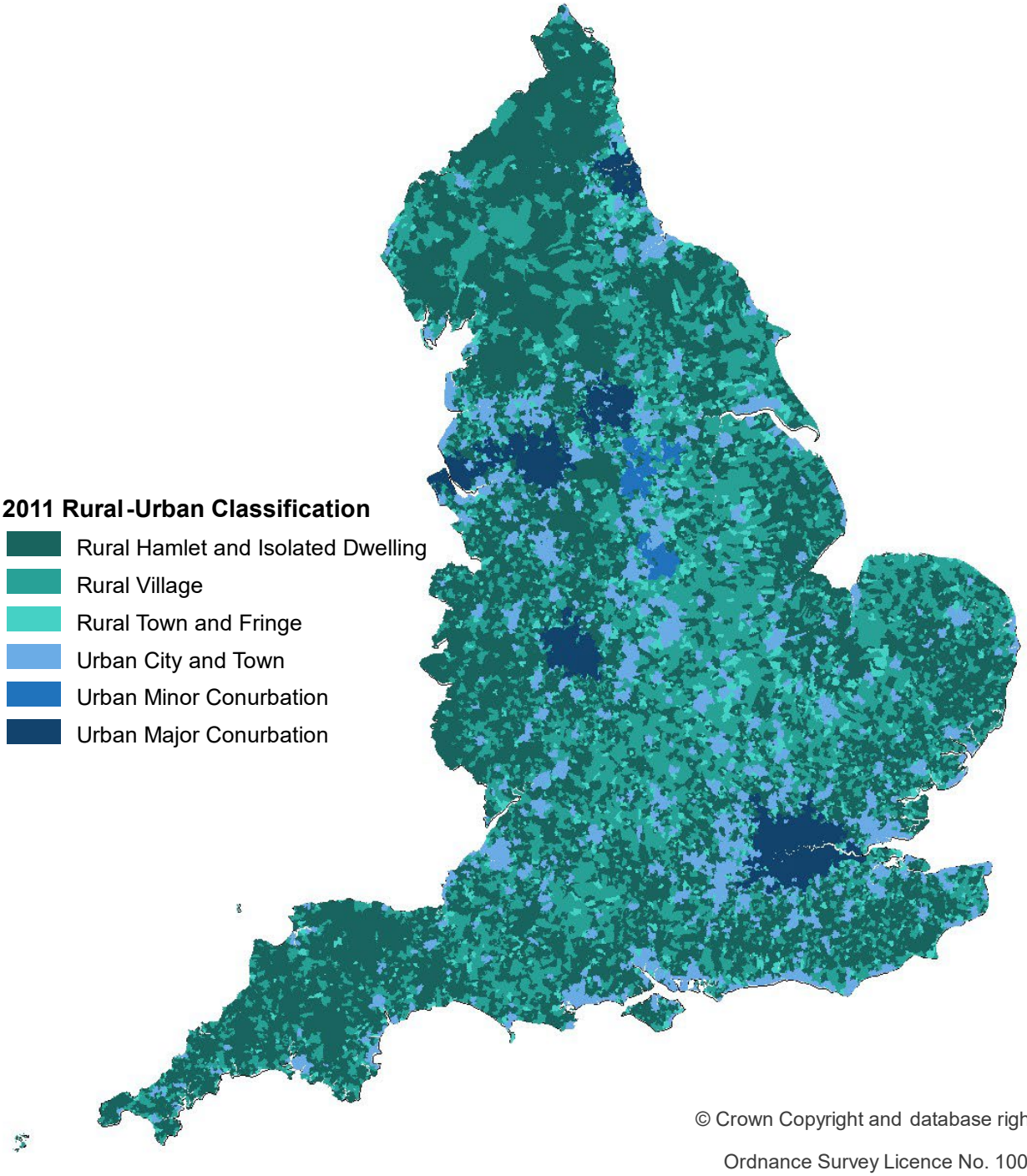
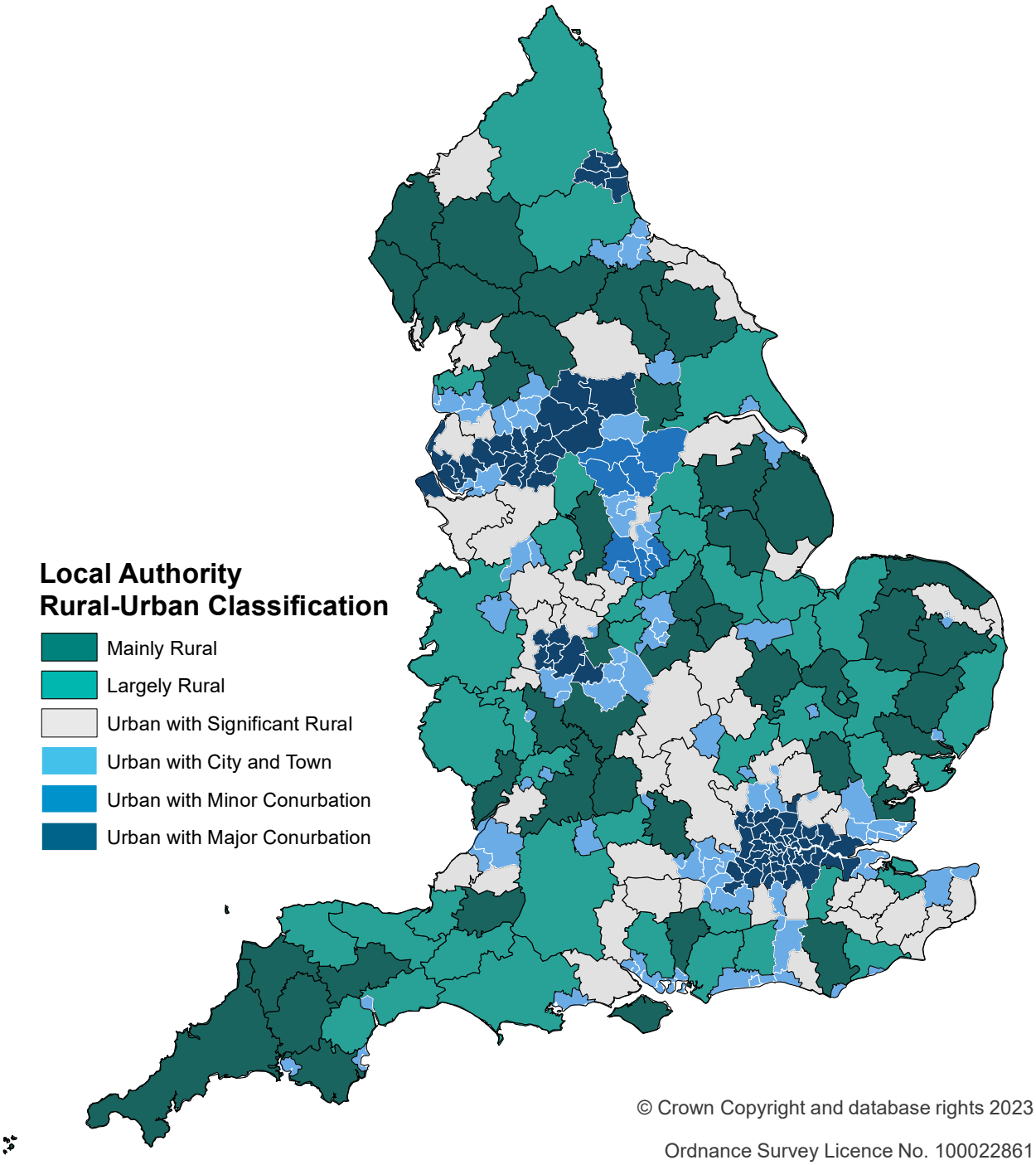
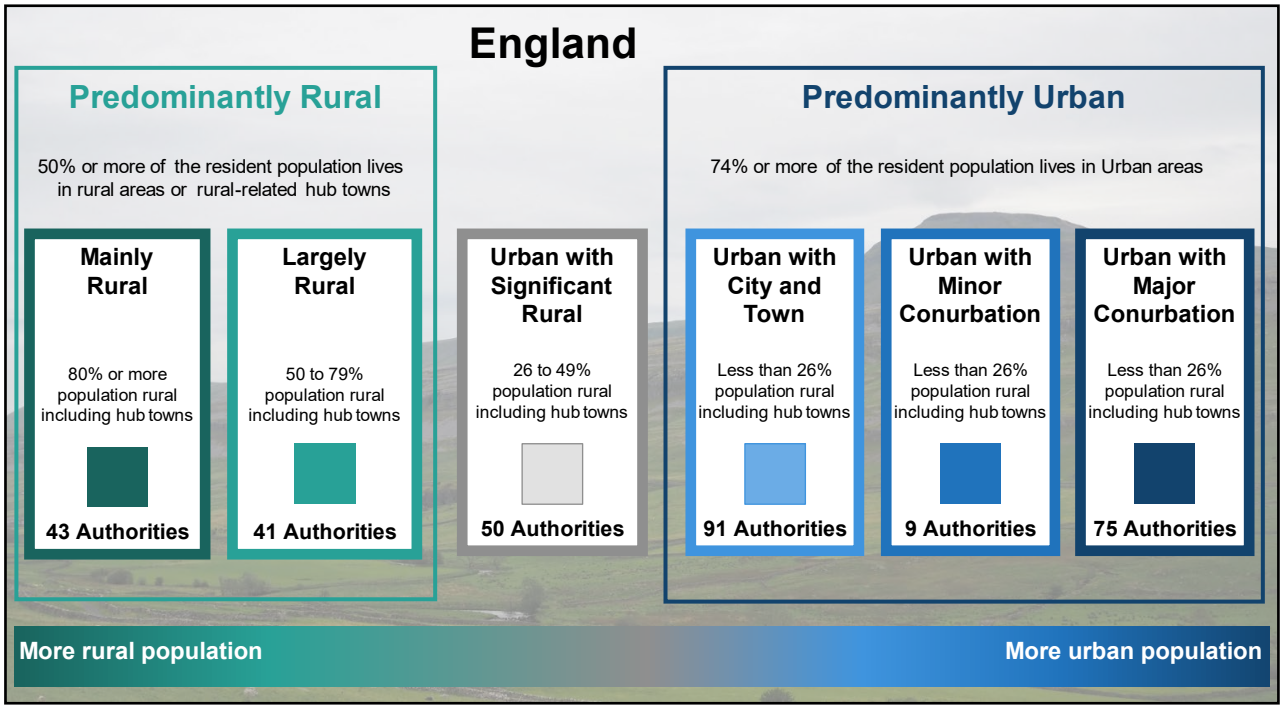


Figure X-3: Map of the 2011 Rural-Urban Classification for Local Authority Districts and Unitary Authorities in England



Under the classification, which is shown in Figure X-4, each Local Authority is assigned to one of six categories on the basis of the percentage of the total resident population accounted for by the combined Rural and Hub Town components of its population and its 'conurbation context'. The Local Authority Classification categories are frequently aggregated to ‘Predominantly Rural’, ‘Urban with Significant Rural’ and ‘Predominantly Urban’ as shown on Figure X-4.

Figure X-4: 2011 Rural-Urban Classification for Local Authorities in England



The Local Authority Rural-Urban Classification is based on populations and settlement patterns, not on how much countryside there is. Authorities classified as Urban may have wide areas of countryside and may have sizeable Rural populations. The classification has been made according to the proportions of the population residing in Urban settlements and outside Urban settlements. More information on the classifications can be found at: The Rural-Urban Definition.

A similar approach to that for Local Authorities was used to create a classification for Westminster Parliamentary Constituencies. Under this classification, which is shown in Figure X-5, each Parliamentary Constituency is assigned to one of six categories on the basis of the percentage of the total resident population accounted for by the combined Rural and Hub Town components of its population and its 'conurbation context'. A map of the geographical distribution of the Rural and Urban Westminster Parliamentary Constituencies is shown in Figure X-5. This map depicts a classification for the new rebalanced Parliamentary Constituencies that were introduced for 2024 General Election. The Parliamentary Constituency Classification categories are frequently aggregated to ‘Predominantly Rural’, ‘Urban with Significant Rural’ and ‘Predominantly Urban’ as shown on Figure X-6.

Figure X-5: Map of the 2011 Rural-Urban Classification for Westminster Parliamentary Constituencies in England

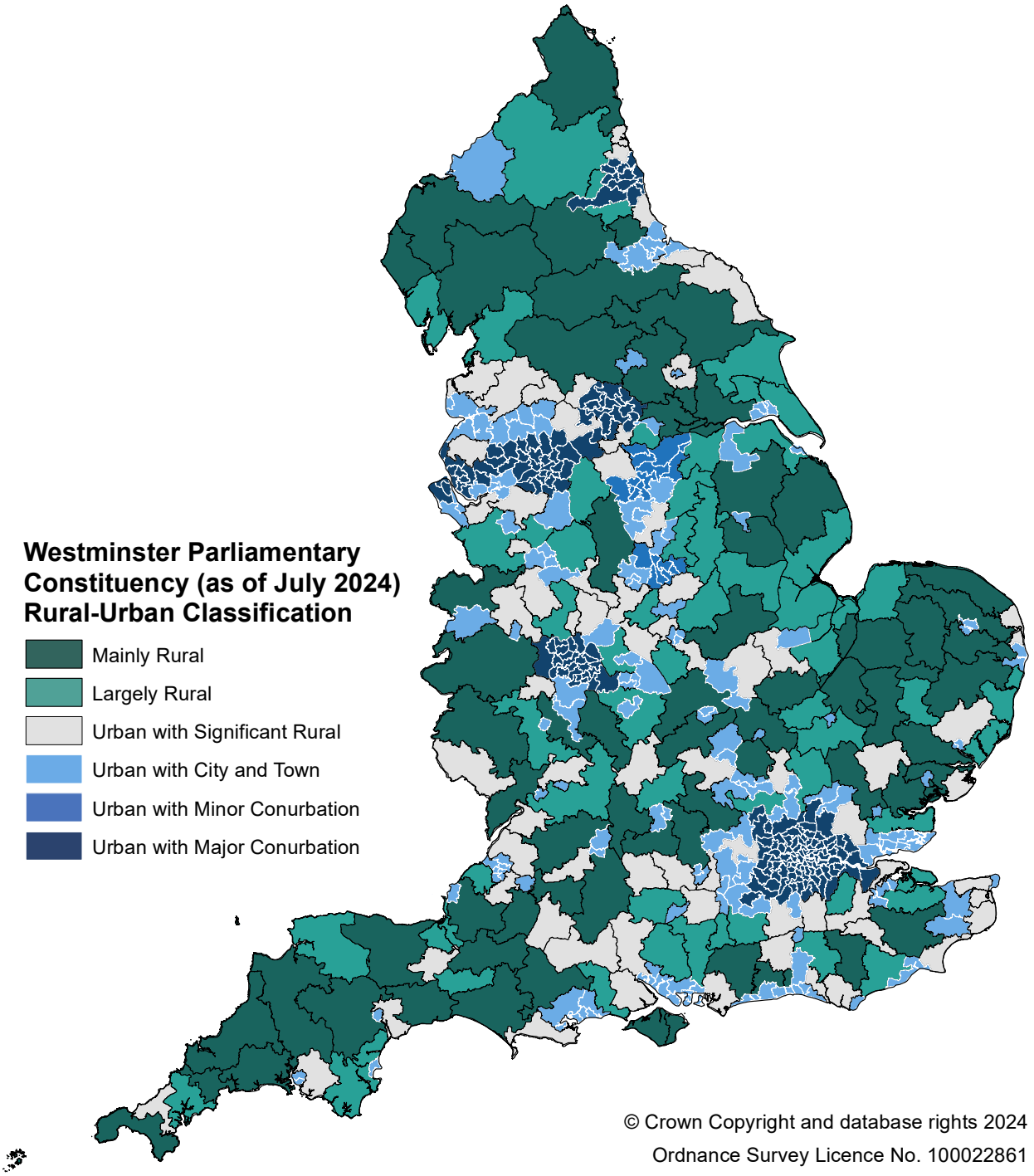
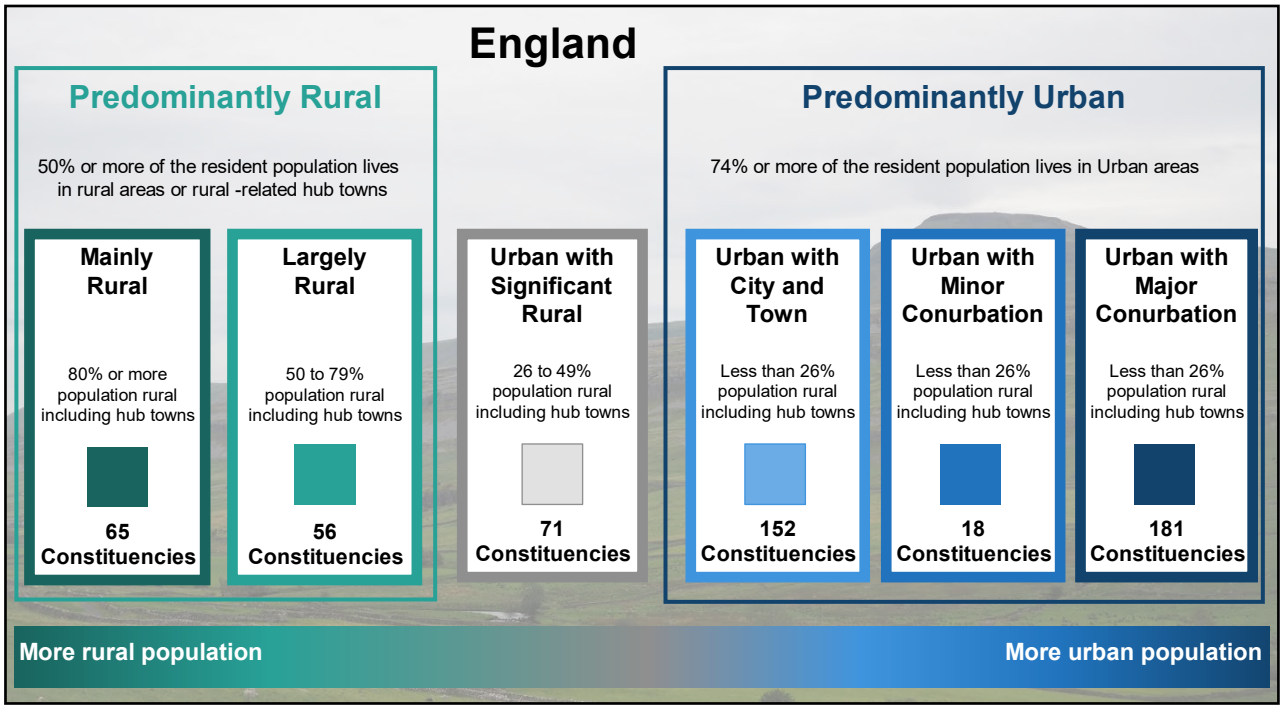


Figure X-6: 2011 Rural-Urban Classification for Westminster Parliamentary Constituencies in England



Defining Rural areas explanatory notes

- **Note 1:** Defining Super Output Areas and Wards
  - *Census Output Areas* (OAs) were created for publication of the results of the recent Censuses. They cover around 125 households. In practice few datasets are produced at OA level. However, other larger geographies can be built up from OAs. These include *Lower Layer Super Output Areas* (LSOAs) which typically contain 5 OAs, so contain approximately 625 households or a population of approximately 1,500 and a minimum 1,000. Their Rural-Urban Classification is based on the majority category of OAs they contain. Some other geographies, for example postcodes are classified based on the location of their central point and the classification of respective OA.
- **Note 2:** Accessibility of Figure X-2
  - We accept that this map might not be accessible for all users, but it is difficult to develop a map containing six colours that will provide enough contrast between all colours to enable every user to see them, especially when the shaded areas are small. Separate maps (showing only three levels of shading) for Rural and Urban areas are available on request from: rural.statistics@defra.gov.uk