Annual Fuel Poverty Statistics in England, 2021 (2019 data)

4 March 2021   **National Statistics**

Headline Statistics

- **The headline figures in this annual report are based on the new fuel poverty metric Low Income Low Energy Efficiency (LILEE)** set out in the Sustainable Warmth strategy published in February 2021.

- In 2019, there were an estimated **13.4 per cent of households (3.18 million) in fuel poverty in England** under the LILEE metric, down from 15.0 per cent in 2018 (3.52 million).

- The **aggregate fuel poverty gap** for England in 2019 was £687 million under the LILEE metric down by 13.2 per cent since 2018 (£791 million). The **average fuel poverty gap** for England in 2019 (the reduction in fuel costs needed for a household to not be in fuel poverty) was estimated at £216, down by 4.0 per cent since 2018 (£225).

- In 2019, further progress was made towards the interim 2020 **fuel poverty target**, with 97.4 per cent of all low income households living in a property with a fuel poverty energy efficiency rating of band *E* or better.

Fuel poverty target	2010 progress	2018 progress	2019 progress
Band E or above by 2020	91.5	97.0	97.4
Band D of above by 2025	64.6	86.8	88.8
Band C or above by 2030	14.6	41.4	47.8

A household's fuel poverty status depends on the interaction of three key drivers:

- **Energy efficiency** – improvement in energy efficiency between 2018 and 2019 has brought more low income households to band C which removes them fuel poverty.

- **Incomes** – incomes increased at the median rate of increase for households near the low income threshold so the share of households in relative poverty remained similar.

- **Energy prices** – between the 2018 and 2019 fuel poverty datasets energy prices rose by 3.2 per cent in real terms with higher increases for households on prepayment meters. Higher prices can bring a household's income after fuel bills into poverty.

Contents

Chapter 1: Introduction

This annual publication provides a comprehensive view of the latest statistical trends and analysis of fuel poverty in England in 2019.

Fuel poverty in England is now measured using the Low Income Low Energy Efficiency (LILEE) indicator[1], which considers a household to be 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)[2] Methodology - this is depicted by the horizontal threshold in Figure 1; and

- its disposable income (income after housing costs (AHC) and energy needs) would be below the poverty line[3] as depicted by the vertical sloping threshold in Figure 1.

Figure 1: The LILEE metric including the fuel poverty gap
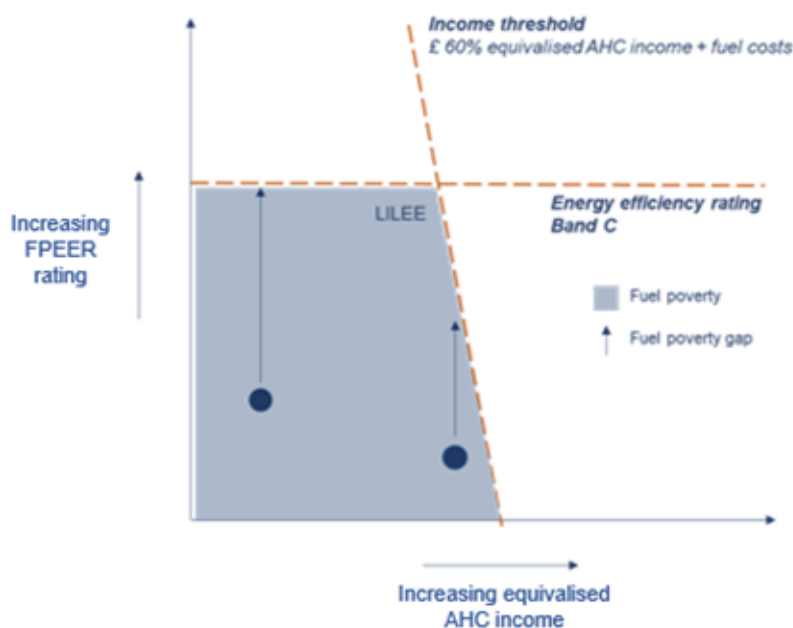
The 2014 fuel poverty target for England set an objective to ensure that as many fuel poor households as reasonably practicable achieve a minimum energy efficiency rating of band C[4,5] by 2030, with interim targets of band E by 2020, and band D by 2025.

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[1] The calculation of the LILEE metric is set out in detail in the LILEE Fuel Poverty Methodology Handbook
https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook
[2] More information on FPEER can be found her
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/332236/fpeer_methodology.pdf
[3] The poverty line (income poverty) is defined as an equivalised disposable income of less than 60% of the national median (Section 2):
https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/articles/persistentpovertyintheukandeu/2015
[4] Energy efficiency rating is measured using Fuel Poverty Energy Efficiency Rating (FPEER), see Section 2.3.3 and glossary for more detail.
[5] Household energy efficiency ratings are banded from *G* (lowest) to *A* (highest).

The primary purpose of the Annual Fuel Poverty Statistics is to monitor progress against the statutory target and track the proportion of households in fuel poverty and their fuel poverty gap[6].

In addition to the headline results, the key drivers of fuel poverty are presented in Chapter 2, with detailed analysis of the prevalence and severity of fuel poverty by various household and dwelling characteristics (between 2010 and 2019) in Chapter 3. Detailed data tables are published alongside this report (see Annex G for details of published tables).

The fuel poverty statistics, and underlying data, form a key element of the evidence base supporting BEIS to:
- Implement the Fuel Poverty Strategy

- Inform Clean Growth Strategy ambitions[7]

- Develop, monitor and evaluate key policies including the Energy Company Obligation (ECO)[8], Warm Homes Discount[9], Green Homes Grant[10] and Private Rented Sector Minimum Energy Efficiency Standards[11]

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. Therefore fuel poverty is measured based on *required* energy bills rather than *actual* spending. This ensures that those households who have low energy bills simply because they actively limit their use of energy at home, for example, by not heating their home are not overlooked.

A methodology handbook has been published alongside this publication. This sets out the method for calculating the headline statistics using the LILEE indicator and the detailed methodology for calculating the income, energy efficiency and fuel prices for each household. It is available at:
https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Fuel Poverty Strategy

The Government consulted on updating the Fuel Poverty Strategy for England in summer 2019[12]. The Government response to the consultation was published in February 2021 alongside the Fuel Poverty Strategy, *Sustainable warmth: protecting vulnerable households in England*[13].

The updated Fuel Poverty Strategy confirmed a new fuel poverty metric, Low Income Low Energy Efficiency (LILEE). An estimate for fuel poverty under the old Low Income High Costs (LIHC) method is included as Annex B and a comparison of the households classified as fuel poor under each metric is included in Annex C.

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[6] Fuel poverty gap is the reduction in fuel bill that a fuel poor household needs in order to not be classed as fuel poor.
[7] https://www.gov.uk/government/publications/clean-growth-strategy
[8] https://www.ofgem.gov.uk/environmental-programmes/eco
[9] https://www.gov.uk/the-warm-home-discount-scheme
[10] https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme
[11] https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents
[12] https://www.gov.uk/government/consultations/fuel-poverty-strategy-for-england
[13] https://www.gov.uk/government/publications/sustainable-warmth-protecting-vulnerable-households-in-england

Data

These statistics are based on data collected in the English Housing Survey (EHS), which is a continuous national survey commissioned by the Ministry of Housing, Communities and Local Government (MHCLG). It collects information about people's housing circumstances and the condition and energy efficiency of housing in England.

This report is based on fieldwork carried out between April 2018 and March 2020 (a mid-point of 1st April 2019). The sample comprises 11,974 occupied dwellings where a physical inspection and a household interview was carried out; this is hereby referred to as the 2019 data. Further information, including EHS releases and a detailed survey guide for users, can be found at the following link:

https://www.gov.uk/government/collections/english-housing-survey

The 2019 fuel poverty dataset will be made available later this year via the UK Data Service. Previous year's data used to derive LIHC estimate are available there. These releases contain the underlying data used to calculate fuel poverty and the corresponding breakdown variables used within the fuel poverty report. Documentation covering variable names and descriptions are also provided alongside the datasets.

The majority of fuel poverty variables are included in the dataset deposited at the UK Data Service under the standard End User Licence. To comply with data protection, supplementary fuel poverty variables are released under a more restricted Special Licence on the UK Data Service. To maintain the confidentiality of respondents, disclosure control is applied to both the End User Licence and Special Licence fuel poverty datasets on the UK Data Service.

Please note: users will need to register with the UK Data Service website to access the data: https://ukdataservice.ac.uk/

Fuel Poverty Projections

The data presented in this report are representative of 2019. BEIS would normally make projections of up to two years to make an estimate of the current levels of fuel poverty. Given the additional challenge of reflecting the impact of the Covid-19 pandemic these projections will be published separately on 29th April.

Chapter 2: Key Drivers of Fuel Poverty in England, 2019[14]

2.1 Overview: fuel poverty in England

In 2019, 13.4 per cent of households in England (3.18 million households) were classed as fuel poor, a reduction of 1.6 percentage points (341,000 households) from 2018.

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. Under LILEE this is either the change in required fuel costs associated with increasing the energy efficiency of a fuel poor household to an FPEER rating of at least 69 (band C threshold) or reducing the costs sufficiently to meet the income threshold. The average fuel poor household would see reduction of £216 to their fuel costs if they were to be moved out of fuel poverty – the average fuel poverty gap (referred to hereafter as simply the gap). The average gap in 2019 is 4.0 per cent lower than 2018 and 33 per cent lower than 2010[15]. We recommend using the gap, in conjunction with the proportion, as an indication of fuel poverty at the national level. The changes in the proportion of households in fuel poverty and the average gap are not statistically significant year on year – see Annex A.

The aggregate fuel poverty gap, which is the total of all fuel poverty gaps for households in England decreased by 13 per cent since 2018 and Table 2.1 below summarises these figures.

Table 2.1: In 2019 the proportion of households in fuel poverty and the aggregate gap have decreased compared to 2010 and 2018

Headline measure	2010	2018	2019
Average gap[16] (£)	321	225	216
Aggregate gap[16] (£ millions)	1,537	791	687
Proportion of households in fuel poverty (%)	22.1	15.0	13.4
Number of households in fuel poverty (millions)	4.78	3.52	3.18

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[14] Note that caution should be used when interpreting year on year changes as the sample is not independent; fuel poverty is based on a two year combined sample (see Annex B).
[15] This is reduction in real terms, adjusted to account for inflation.
[16] The average gap figures are adjusted to 2019 prices.

Figure 2.1: Following a steady decrease over time, the proportion of fuel poor households fell to 13.4 percent in 2019 while the average gap fell to £216.[17,18]
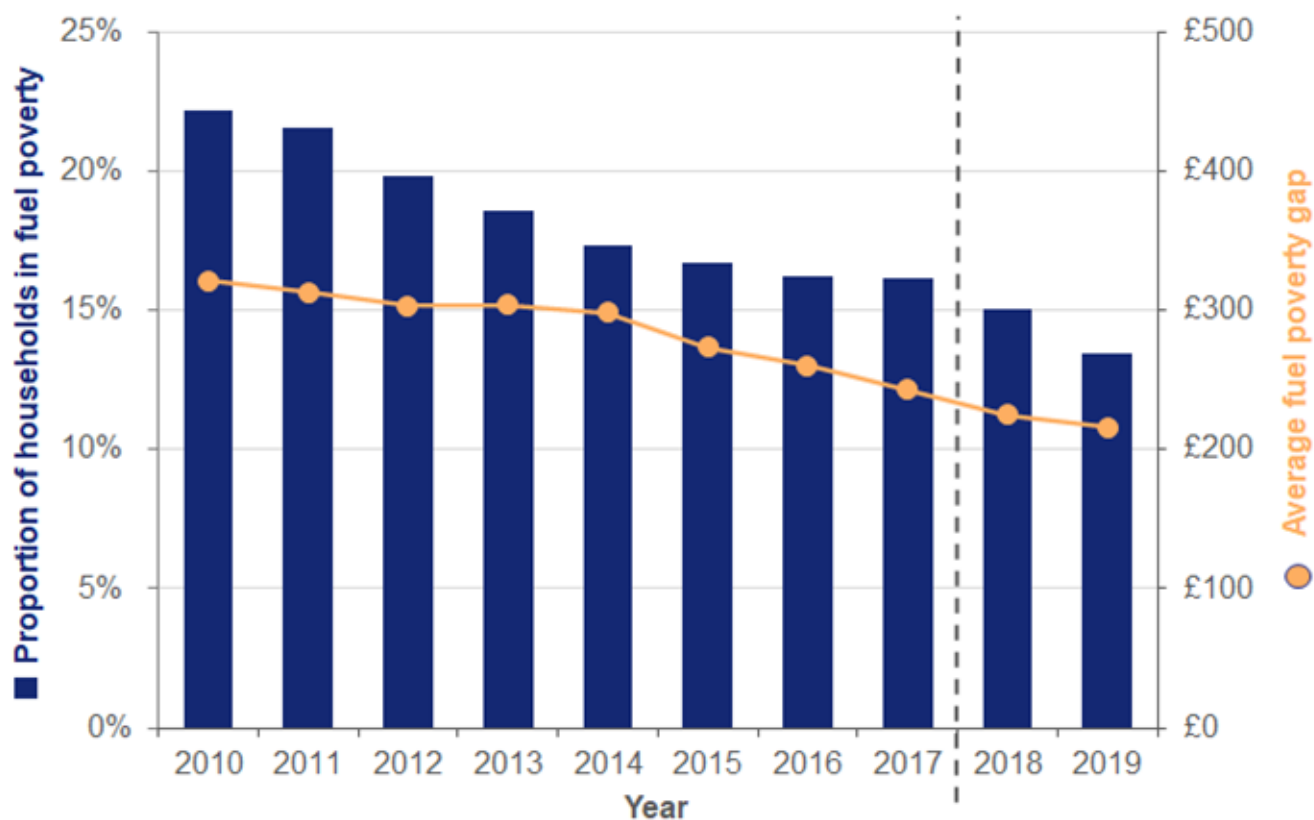
See note on discontinuity of the LILEE timeseries due to SAP changes between 2017 and 2019

Under the LILEE metric, increases in the share of low income households achieving band C or above directly reduces the share of households in fuel poverty. Due to a change in the assumptions used to calculate SAP there is a discontinuity in the time series. It is estimated that this increased the average SAP rating by 0.7 points between 2017 and 2019 with around half of this between 2017 and 2018. In 2017, we estimate that the share of fuel poor households would be around 1 percentage point lower under the new assumptions.[19] Estimates for 2018 are partially affected by this change with the full effect seen in 2019.

The main reason for the reduction in fuel poor households in 2019 was energy efficiency with 47.8 per cent of low income homes achieving an energy efficiency rating of band C or higher, up from 41.4 per cent in 2018 and just 14.6 per cent in 2010.

The average fuel poverty gap has showed a steady reduction over time as households have moved closer to the absolute energy efficiency threshold. This reduces the gap between their current required fuel costs and the required fuel costs for that household at band C.

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[17] In Annex A error bars have been added to this line to denote the confidence interval around the figures.
[18] Left axis: blue bars show the proportion of households in fuel poverty. Right axis: orange dots show the average fuel poverty gap.
[19] SAP assumptions changed to increase the energy efficiency calculations of some heating systems with chimneys, fans and flues.

2.2 Progress against the target

In 2014, the Government put in place a new statutory fuel poverty target for England: to ensure that as many fuel poor households as reasonably practicable achieve a minimum energy efficiency rating of band C[20],[21] by 2030, with interim targets of band E by 2020, and band D by 2025 (see Figure 2.2).

Figure 2.2: England's statutory fuel poverty target
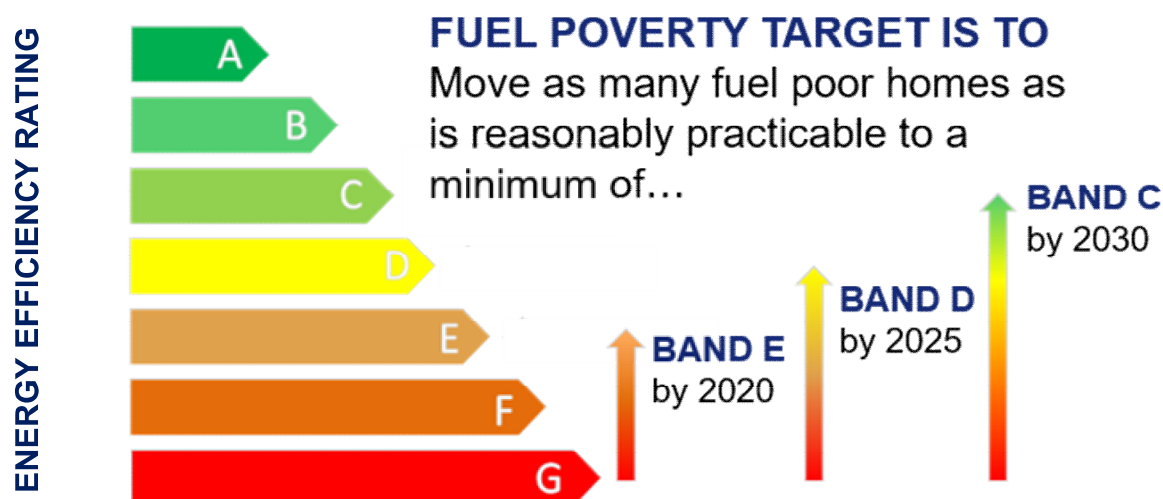
Whilst the target remains unchanged following the 2021 fuel poverty strategy, the way Government monitors progress towards it has changed. Under the LILEE metric, a household that achieves a fuel poverty energy efficiency rating of band C or above would not be measured as fuel poor, and therefore fuel poverty would be eradicated if all low income households achieved an energy efficiency band C rating. LILEE provides an absolute metric for the target whereas LIHC did not. Progress towards the fuel poverty target will now be measured as the share of all low income households who achieve an energy efficiency band C in 2030 and the interim milestones.

The proportion and number of fuel poor households in each band are reported annually to track progress against the target. Figure 2.3, Table 2.2 and Table 2.3 show that, in 2019, further progress was made towards the fuel poverty target and interim milestones.

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[20] Energy efficiency rating is measured using Fuel Poverty Energy Efficiency Rating (FPEER), see Section 2.3.3 and glossary for more detail.
[21] Household energy efficiency ratings are banded from *G* (lowest) to *A* (highest).

Table 2.2: In 2019, further progress was made towards the fuel poverty target and interim milestones

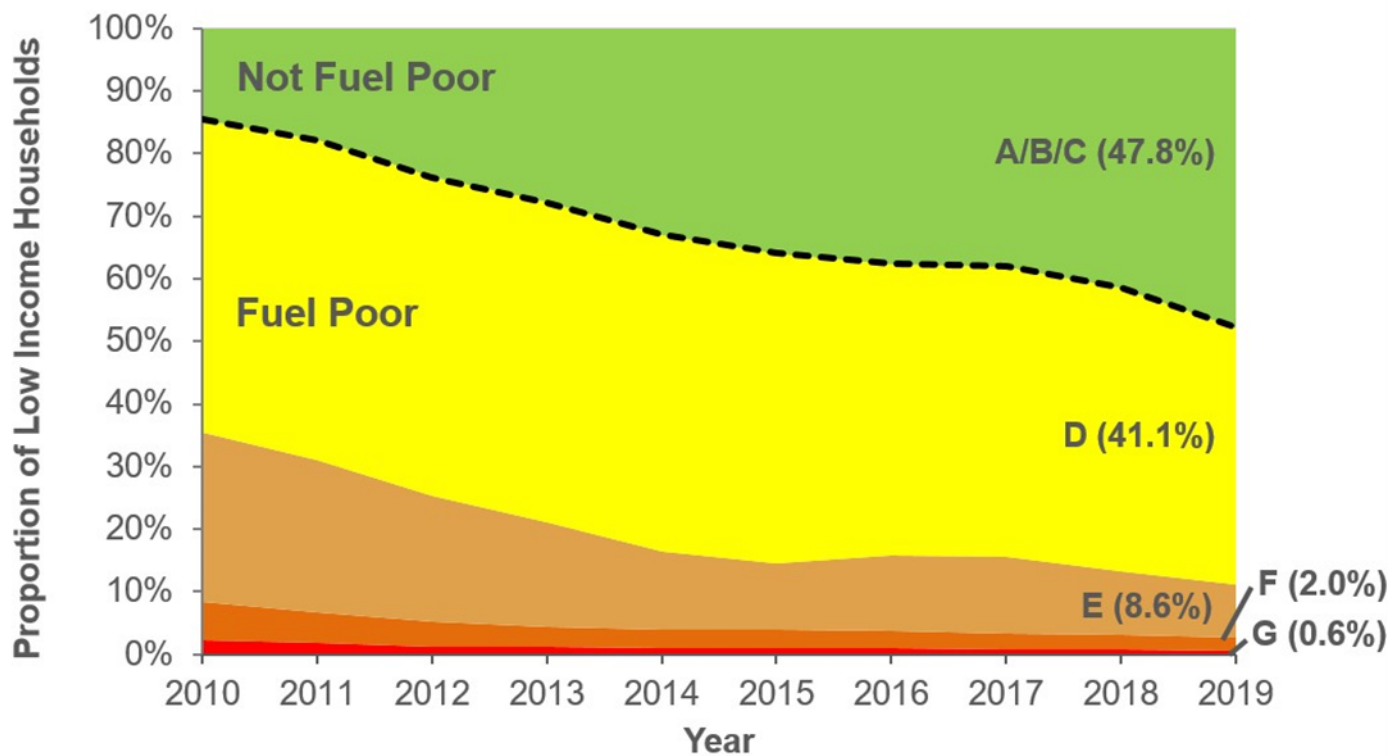| Fuel poverty target	2010 progress (%)	2018 progress (%)	2019 progress
Band E or above by 2020	91.5	97.0	97.4
Band D of above by 2025	64.6	86.8	88.8
Band C or above by 2030	14.6	41.4	47.8

Figure 2.3: Percentage of low income households in band A to C was 47.8% and band A to E was 97.4% in 2019[22,23,24]

[22] Annex A contains the raw data in this chart.

[23] Charts which capture changes in FPEER go back to 2010, as opposed to 2003, due to data collection. See Section 2.3.3 for more information on FPEER.

[24] Figures for energy efficiency band G are based on small sample sizes, inferences should not be made based on this figure.

Table 2.3: Proportion and number of low income households in each band, 2010, 2018 and 2019

| Low income households in each FPEER band	2010		2018		2019	
	(%)	No. households (000's)	(%)	No. households (000's)	(%)	No. households (000's)
Band A/B/C	14.6	814	41.4	2,488	47.8	2,903
Band D	50.0	2,797	45.3	2,723	41.1	2,496
Band E	27.0	1,509	10.2	612	8.6	522
Band F	6.3	353	2.2	132	2.0	121
Band G	2.2	121	0.8	49	0.6	37

2020 interim target progress – 97.4 per cent of low income households were living in properties with an energy efficiency rating in band A to E. In other words, in 2019, 2.6 per cent of low income households are in band F or G, this has reduced from 8.5 per cent in 2010. For context, 3.0 per cent of *all* households are band F or G.

2025 interim target progress – 88.8 per cent of low income households were living in properties with energy efficiency rating in band A to D. There has been an increase of 2.0 percentage points between 2018 and 2019. For comparison, 88.0 per cent of all households have an energy efficiency rating in band A to D.

2030 target progress – 47.8 per cent of low income households were living in properties with an energy efficiency rating of A, B or C, an increase of 33.2 percentage points since 2010 and 6.4 percentage points since 2018. Over a two-fifths of all households (42.5%) have an energy efficiency rating of A, B or C.

2.3 Key drivers

The fuel poverty status of a households depends on the interaction between three key drivers[25]:
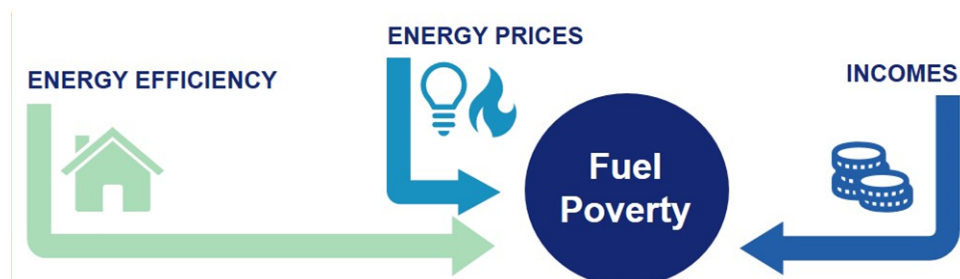
The key drivers will be assessed in turn to explore their effect on headline fuel poverty figures in 2019. *Increased* energy efficiency, *higher* incomes and *lower* energy prices would each have a positive impact on a fuel poor household.

The new LILEE fuel poverty indicator sets an absolute 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.

Chapter 3 explores dwelling and household characteristics that help identify where the most severe fuel poverty gaps are, and which households are in fuel poverty.

2.3.1 The Low Income Low Energy Efficiency quadrant

Fuel poverty in England is now measured using the LILEE indicator, which is defined in Chapter 1. Based on a combination of household income, energy requirements and energy prices, the indicator allows households to be grouped into one of the following four quadrants illustrated below in Figure 2.4.

Energy Efficiency: The horizontal line provides the absolute threshold between low energy efficiency rated households (band D to G) and high energy efficiency rated households (band A to C).

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. This ensures that households who have low energy bills simply because they actively limit their use of energy at home, for example, by not heating their home are not overlooked. An equivalisation factor is applied to reflect the different levels of energy required depending on the number of people living in the property.

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[25] See Annex D: Measuring fuel poverty in England, for further explanation of how changes to key drivers affect fuel poverty figures.

Income, on the horizontal axis, 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 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.

Further information on how fuel costs and income are calculated can be found in Sections 5 and 3 of the Methodology Handbook: https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook.

**Figure 2.4: 13.4 per cent of all households classified as fuel poor (LILEE) in 2019[26]**
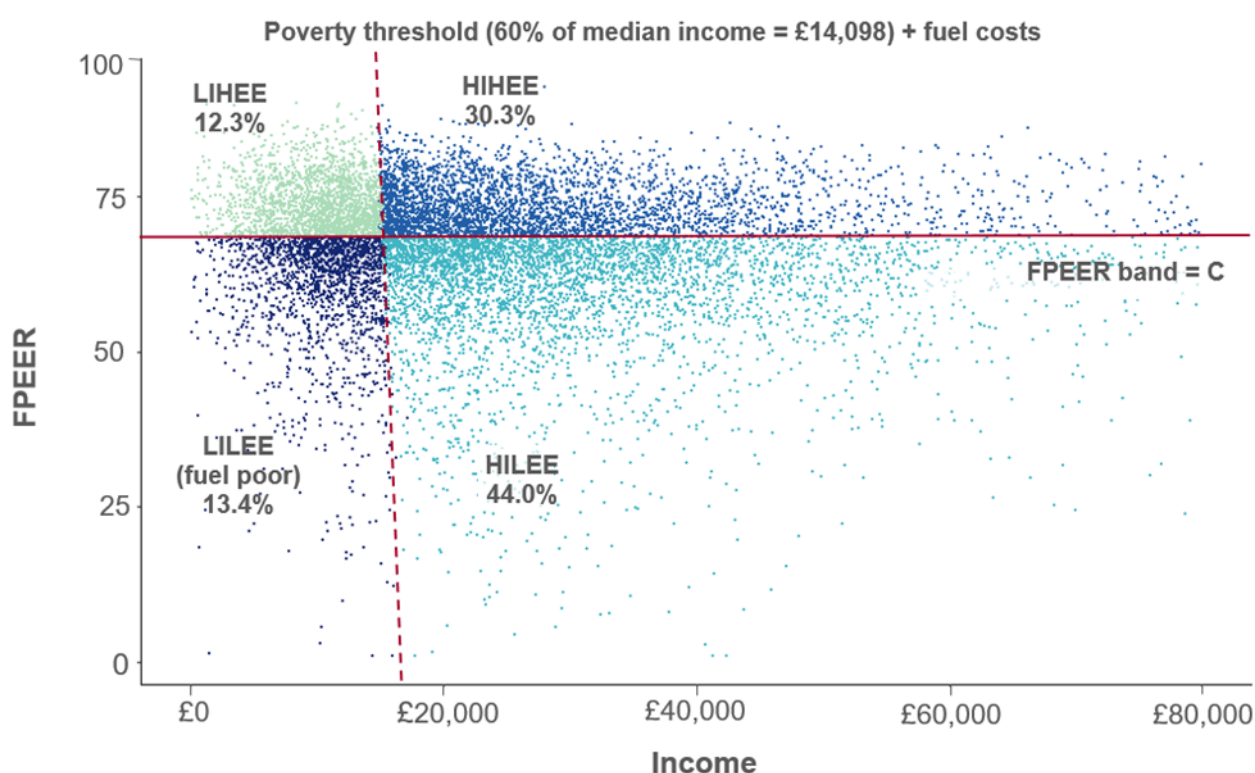
In 2019, 25.7 per cent of households were classed as having a low income (with 74.3 per cent having a high income) and 57.4 per cent of households were classed as low energy efficiency. Of those households with low incomes, 52.2 per cent were classed as fuel poor based on having an energy efficiency rating of band D or below.

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[26] In line with Canberra Group Handbook guidance, negative AHC incomes have been set to zero following equivalisation: http://www.unece.org/index.php?id=28894. For more information, see Section 3 of the methodology handbook.

2.3.3 Energy efficiency

Energy efficiency is a key driver of fuel poverty, as higher energy efficiency reduces a household's fuel costs for a particular size of property. The LILEE metric also sets an absolute threshold above which a household cannot be fuel poor (FPEER band C) regardless of income. Using an absolute threshold also means that once a property attains this threshold it is unlikely to fall unless energy efficiency measures are removed or in cases where the energy efficiency rating includes the receipt of Warm Homes Discount.

Figure 2.5: Fuel costs for the least efficient[27] properties (band G) are almost three times higher than costs for the most efficient properties (band A-C) in 2019
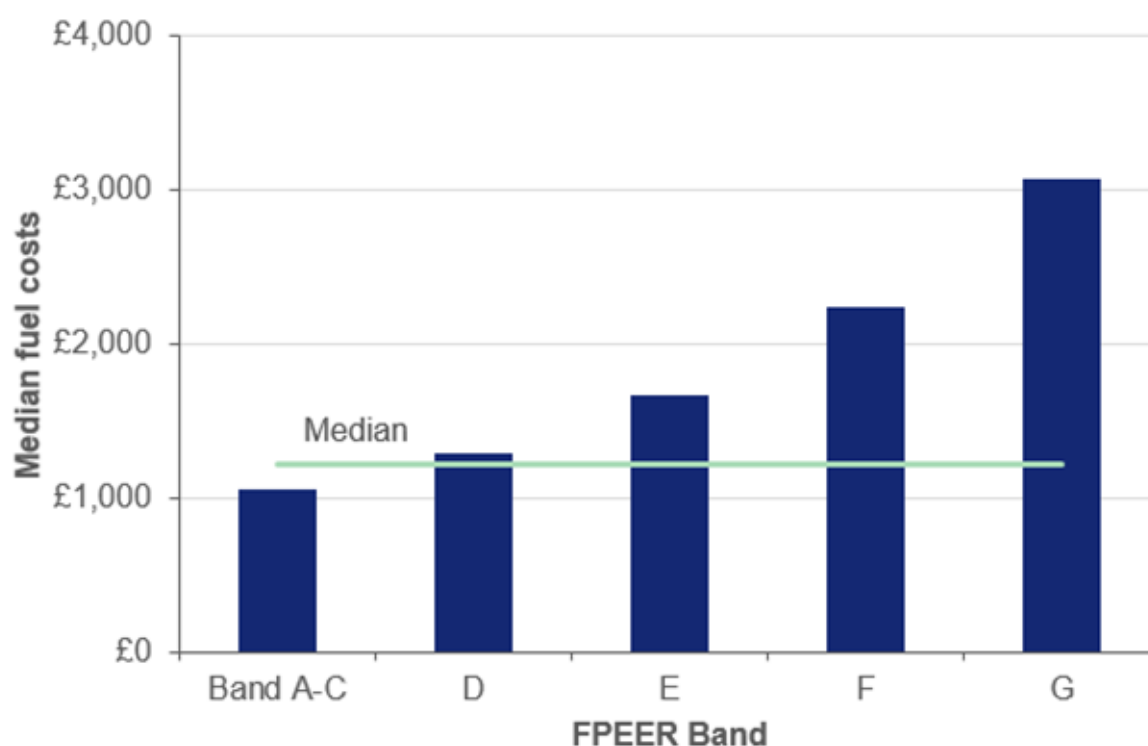
Theoretical energy consumption and actual usage were compared in a special feature article, published in March 2019. The analysis suggests that in properties rated band C or lower actual consumption is, on average, lower than the theoretical value. This difference increases as the energy efficiency of a property decreases.

The Standard Assessment Procedure (SAP) is used[28] to measure energy efficiency of the housing stock in England. For fuel poverty statistics, and to measure progress against the fuel poverty target (Section 2.2), BEIS is legally bound to use a fuel poverty specific energy efficiency rating.

The fuel poverty energy efficiency rating (FPEER) (from hereafter referred to as energy efficiency rating), is based on SAP, but accounts for the impact of policies which discount households' energy bills (e.g. the Warm Home Discount[29])[30]. For example, if a household has

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[27] Energy efficiency measured using FPEER.
[28] Every household in England can be assessed using SAP, and a score 1-100 awarded, with 1 indicating the least energy efficient and 100 being the highest. For the purposes of Energy Performance Certificates (EPC), SAP scores are banded to give a rating A-G, A being the highest.
[29] https://www.gov.uk/the-warm-home-discount-scheme
[30] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332236/fpeer_methodology.pdf

a band E Energy Performance Certificate (EPC) and they get £140 deducted from their energy bill due to receipt of the Warm Home Discount, this could move them into an FPEER band D.

Figure 2.6: Median energy efficiency ratings increased between 2018 and 2019 for low income and all households
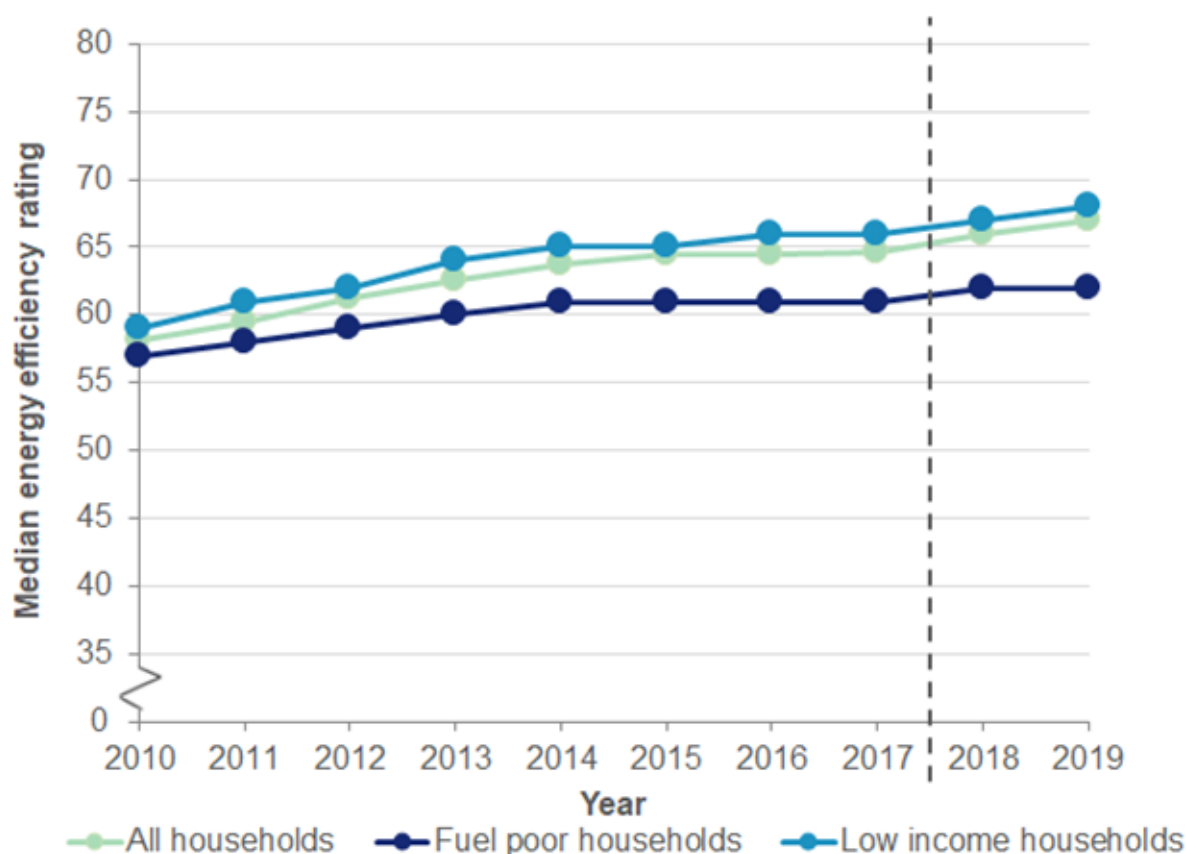
The median energy efficiency rating for all households increased strongly between 2017 and 2019, after it had levelled off between 2015 and 2017. A similar trend is seen for low income households who would be fuel poor if living in a home rated D-G. The rate of growth specifically among fuel poor households is slowest since improvements which take a household to band C remove them from fuel poverty and therefore this improvement is not seen in this group. It is estimated that average energy efficiency rating increased by an additional 0.7 SAP points between 2017 and 2019 due to methodology improvements to the calculation of SAP ratings.[31]

2.3.4 Income

Income is one of the three key drivers of fuel poverty and determines whether a household is classed as "low income" or "high income". Changes to occupants' earnings, benefits and housing costs all affect household income. In 2019, a household is classed as low income if their equivalised income (less tax and National Insurance), once they've paid their housing and fuel costs is less than £14,098 (60 per cent of median income for all households)[32].

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[31] https://www.gov.uk/government/statistics/english-housing-survey-2019-to-2020-headline-report (Figure 2.10)
[32] In the 2019 Fuel Poverty dataset, the median (after housing costs equivalised income for all households) = £23,496 so 60 per cent of the median = £14,098. See Figure 2 of the methodology handbook: https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Figure 2.7: The growth in incomes was very similar across the central part of the distribution between 2018 and 2019
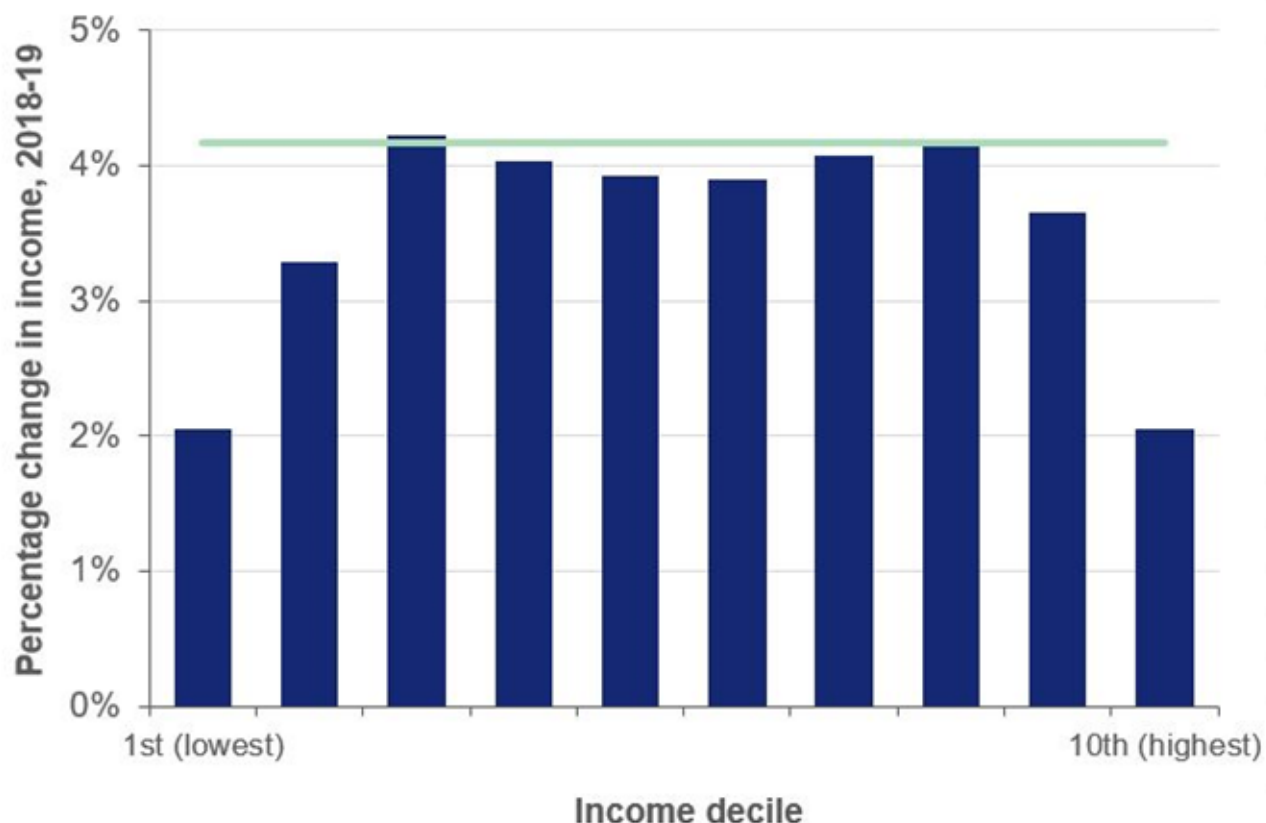

The proportion of households classed as low income only changed fractionally from 25.6% in 2018 to 25.7% in 2019, because the growth in incomes between 2018 and 2019 in the 3rd and 4th deciles is very similar to the median income growth of 4.2 per cent.

2.3.5 Energy prices

Energy prices are used to calculate how much the required energy for each household would cost for that specific year. The required energy bill for each household is subtracted from the equivalised household income and hence determines if a household is classified as low income.

In 2019, fuel poor households were required to spend a median cost of £1,301 on their energy bills, 28 per cent more (£281) than Low-Income High Energy Efficiency households. Characteristics of the dwelling and household which contribute to these higher costs are explored in detail in Chapter 3.

Figure 2.8: Despite slight rises in fuel prices the fuel poverty gap has shown a strong reduction as fuel poor homes are brought closer to the band C threshold.[33],[34]
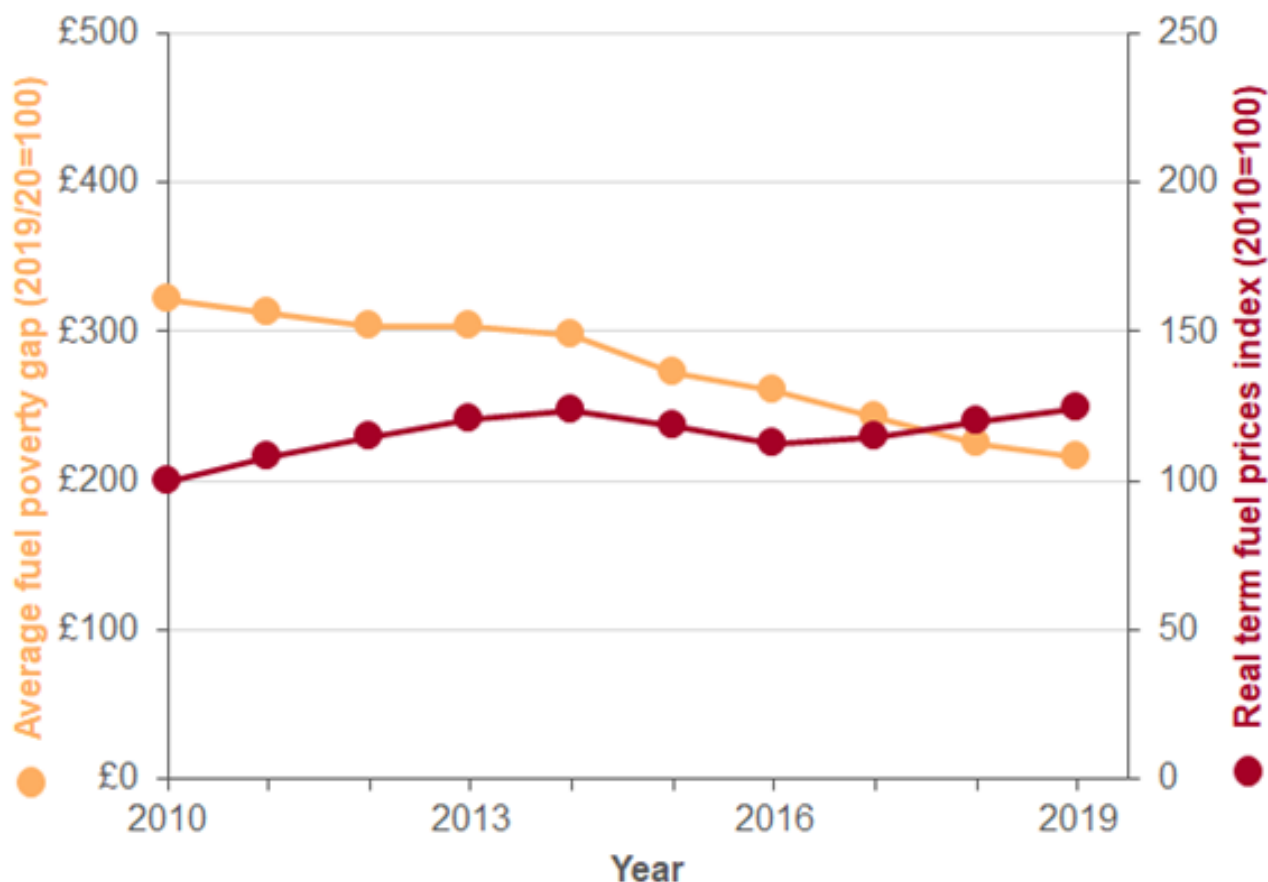

Under the LILEE metric the primary driver of the fuel poverty gap will be energy efficiency but the reduction in the gap between 2012 and 2014 was held up by rising prices.

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[33] Produced using the Gross Domestic Product (GDP) deflators (December 2020), published in January 2021 and available at the following link:
https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-december-2020-quarterly-national-accounts
[34] Real term fuel prices index source: 2.1.2: https://www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics

Figure 2.9: The overall average domestic gas and electricity bill increased by 3.2 per cent between 2017|2018 and 2018|2019 in real terms[35]
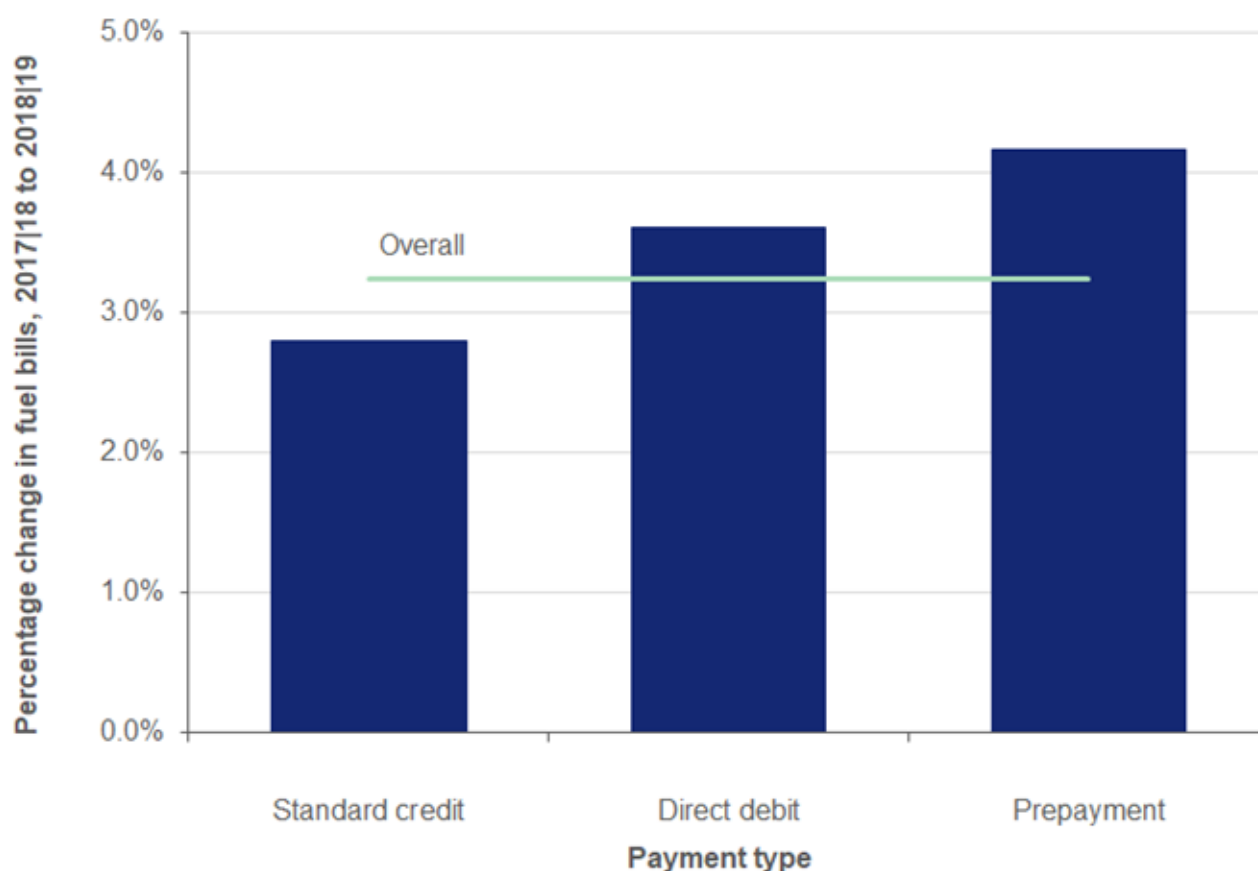
Fuel poverty estimates are based on two years of survey data so this price comparison is of prices used for the 2018 fuel poverty statistics (2017 & 2018 prices) and 2019 statistics (2018 & 2019 prices).

The rate at which average domestic gas and electricity prices changed differs depending on payment method. The average total bill for households paying for their energy by prepayment meter increased by £43 (4.2%) over the last two years. Standard credit remains the most expensive form of payment, 9 per cent higher than prepayment in 2018|19 down from 11 per cent high, see Tables A.1 and A.2 in Annex A.

Fuel poor households were more likely to pay their energy bills by prepayment compared to all households (27 per cent vs 13 per cent respectively[36]). The proportion of households paying their electricity by prepayment meter that are in fuel poverty decreased slightly from 31 per cent in 2010 to 27 per cent in 2019. The fuel poverty gap for prepayment electricity households fell from £285 in 2010 to £166 in 2019.

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[35] Source: Annual domestic price statistics, Table 2.2.2 and Table 2.3.2: https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics. Figures are based on Standard Electricity tariffs, are in real terms and cover England and Wales. Data for gas and electricity separately can be found in Annex A. Prices for non-metered fuels used in fuel poverty modelling, see section 4 of the Methodology Handbook.
[36] These figures are for electricity method of payment, figures for gas follow a similar pattern.

A prepayment price cap came into force in April 2017 following an enquiry by the Competition & Markets Authority (CMA) on energy markets. The prepayment cap is a set maximum that a supplier can charge those using prepayment meters.

From January 2019 the default tariff price cap was introduced to cover all non-fixed tariffs[37]. This has reduced the growth in bills for customers on standard credit and direct debit tariffs relative to prepayment meters. The prepayment cap increased by 22 per cent between its introduction in April 2017 and April 2019.

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[37] https://www.ofgem.gov.uk/energy-price-caps/about-energy-price-cap

# Chapter 3: Detailed Analysis of Fuel Poverty in England, 2010-2019[14]

Fuel poverty in England is affected by multiple characteristics of energy efficiency, income and fuel costs. This means that assigning causality to one factor alone is not possible. The following chapter analyses these individual characteristics, but users should be aware of the built-in interactions likely to exist between them. It should be noted that some of the variation in fuel poverty rates across the household types shown here is different under LILEE and LIHC. The headline results for LIHC are shown in Annex B and a comparison with LILEE is shown in Annex C.

The data behind this analysis is available in the fuel poverty detailed, trends and supplementary tables detailed in Annex G.

3.1 Property characteristics

3.1.1 Fuel Poverty Energy Efficiency Rating (FPEER)[38]

Figure 3.1: The proportion of households in fuel poverty and the size of the average gap is highest for those living in band G properties in 2019
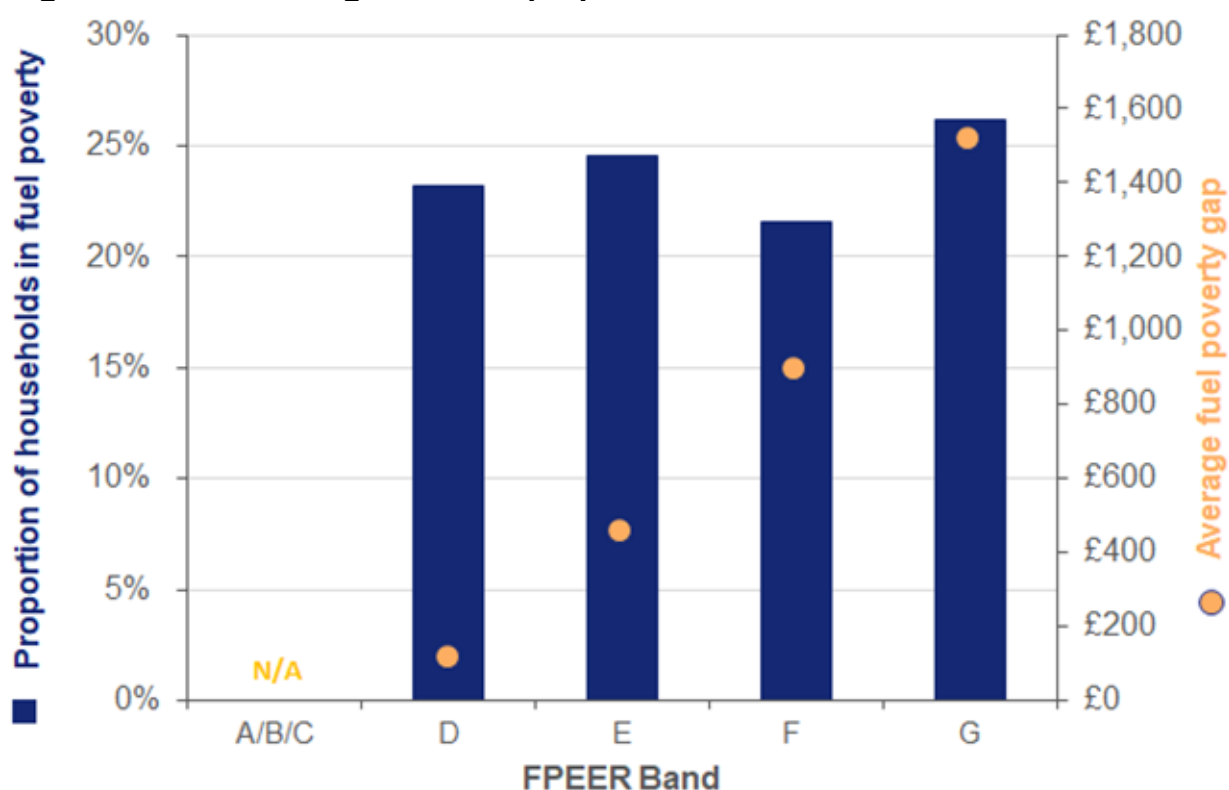
In Figure 3.1 above, the blue bars denote the proportion of households in fuel poverty for each group and the orange circles represent the average fuel poverty gap for each group. For

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[38] The Fuel Poverty Energy Efficiency Rating is defined in Section 2.3.3.

example, the blue bars show that 23.2 per cent of households who live in energy efficiency band D properties are fuel poor and they have an average gap (shown by the orange circles) of £114. By definition, households rated A-C are not fuel poor and therefore they do not have a fuel poverty gap. Between 2018 and 2019 the overall share of FPEER band A-C homes increased sharply from 36 per cent to 43 per cent.

In total 25.7 per cent of households were classified as low income[39] in 2019 and hence would be fuel poor if they live in homes of energy efficiency rating D or below. While the share of fuel poor households is similar across band D to G the fuel poverty gap rises substantially across the bands.

In addition, the share of homes rated E-G fell from 15 per cent to 12 per cent which would reduce the overall required fuel costs of homes and reduced the average fuel poverty gap.

In 2019, 78.6 per cent of all fuel poor homes were FPEER band D, up from 77.4 per cent in 2018 and reflects the increasing share of fuel poor homes getting close to band C.

The number of fuel poor homes in each FPEER band fell between 2018 and 2019 driven by the overall reduction in the share of homes in the lowest bands.

Figure 3.2: The cumulative number of energy efficiency measures installed has increased between 2013 and 2019, with the numbers of some measures growing in 2019[40]


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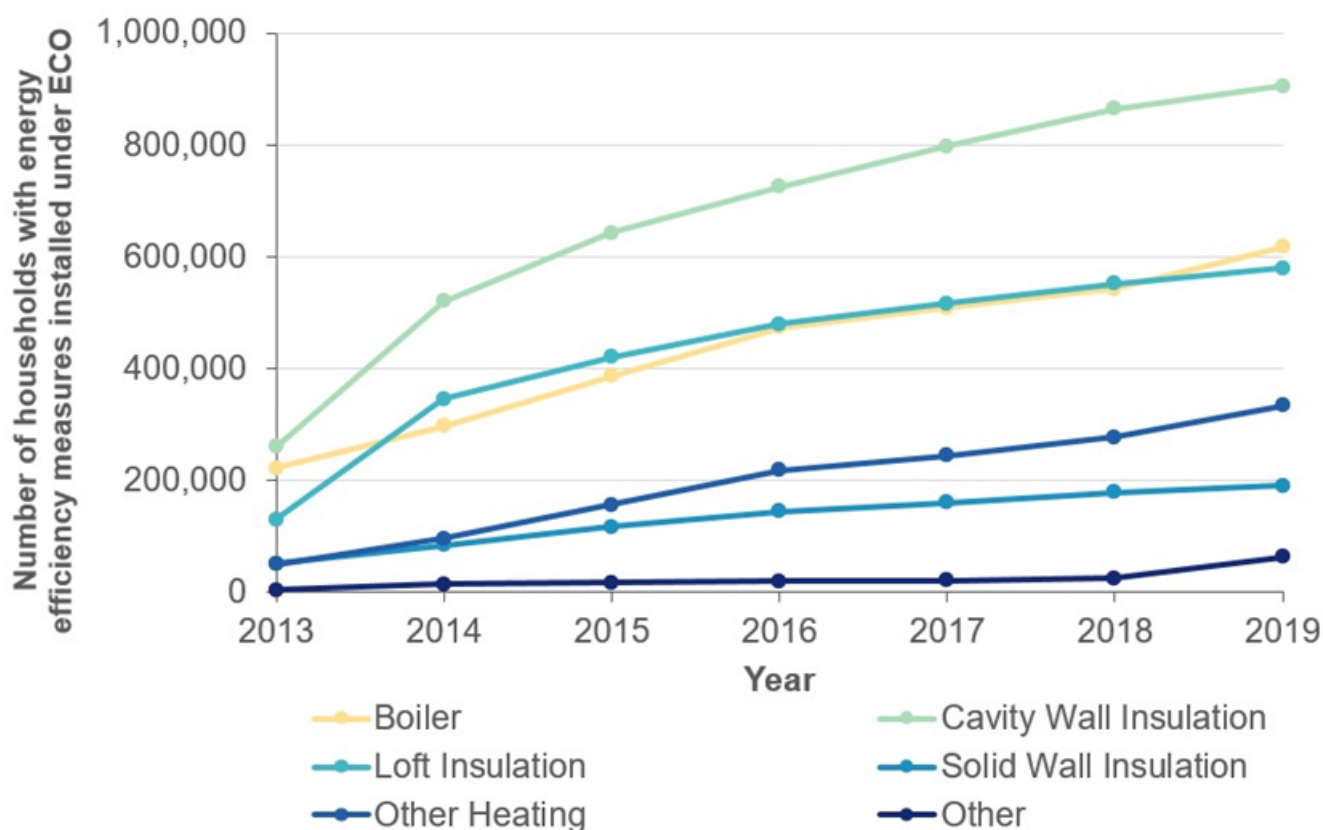
[39] Low income is defined in section 2.3.4
[40] The 'Other' category includes windows and doors, micro-generation and under floor insulation and glazing measures

The increase in energy efficiency ratings can partly be explained by the installation of energy efficiency measures reported in the Household Energy Efficiency National Statistics[41], see Figure 3.2. These statistics show there has been an increase in the cumulative number of energy efficiency measures installed each year through the Energy Company Obligation between 2013 and 2019. While the delivery of some measures has levelled off in recent years, the introduction of ECO3 at the end of 2018 has increased the delivery of boilers alongside supplementary insulation measures, typically under floor insulation and often heating controls.

Figure 3.3: As energy efficiency ratings decrease (from A to G) fuel costs tend to increase
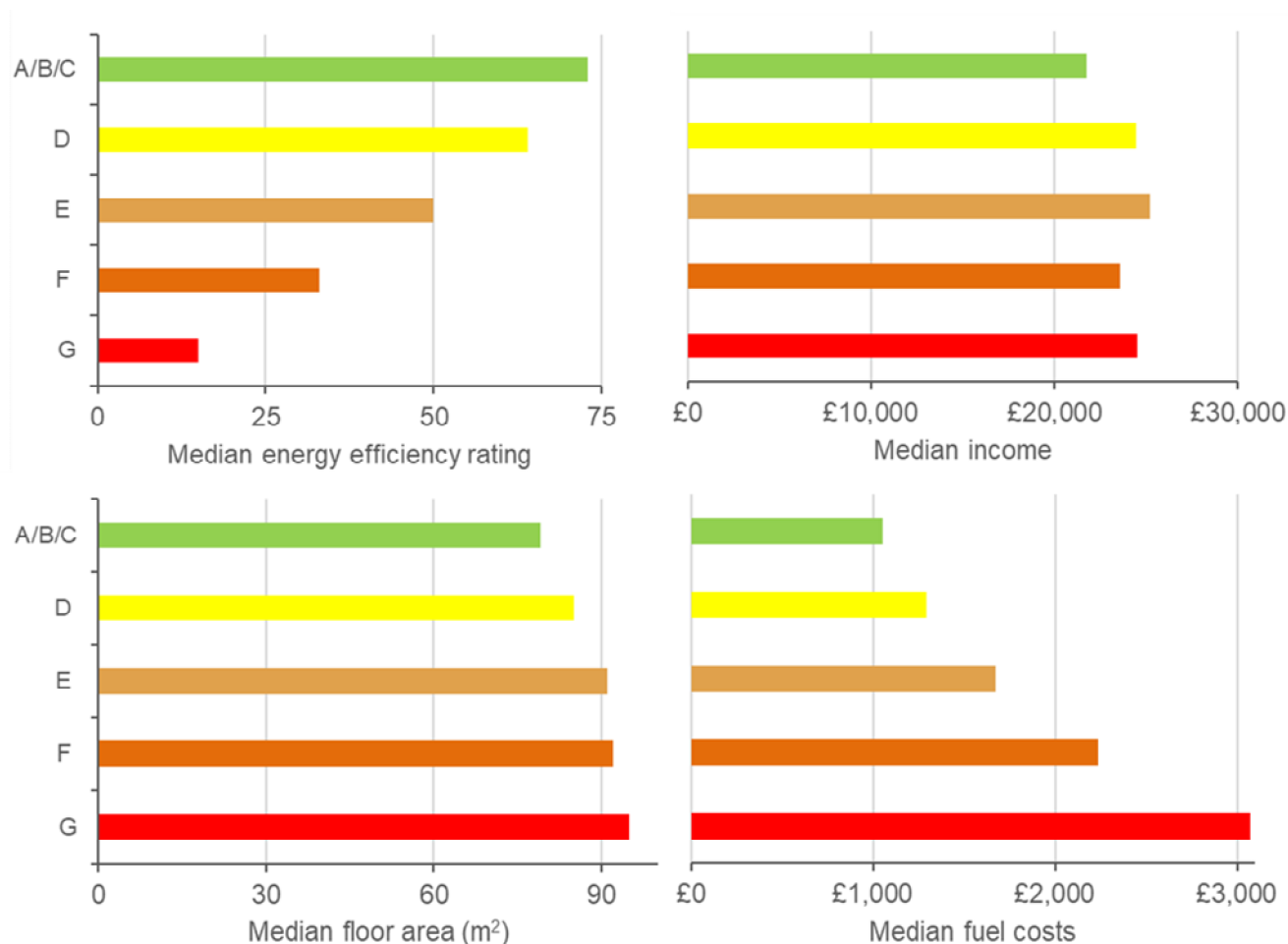

There is very strong correlation of lower fuel costs in high energy efficiency homes both due to the rating but also reflecting that there are more smaller homes in the highest rating bands.

The lowest median income is in the highest energy efficiency rating reflecting a combination of a higher share of social housing, higher share of flats and the impact of the Warm Homes Discount. Further detail on tenure type is discussed in Section 3.2.1.

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[41] https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics

3.1.2 Wall type

Figure 3.4: In 2019 the average gap and proportion of households in fuel poverty is highest for those living in properties with uninsulated walls[42,43]
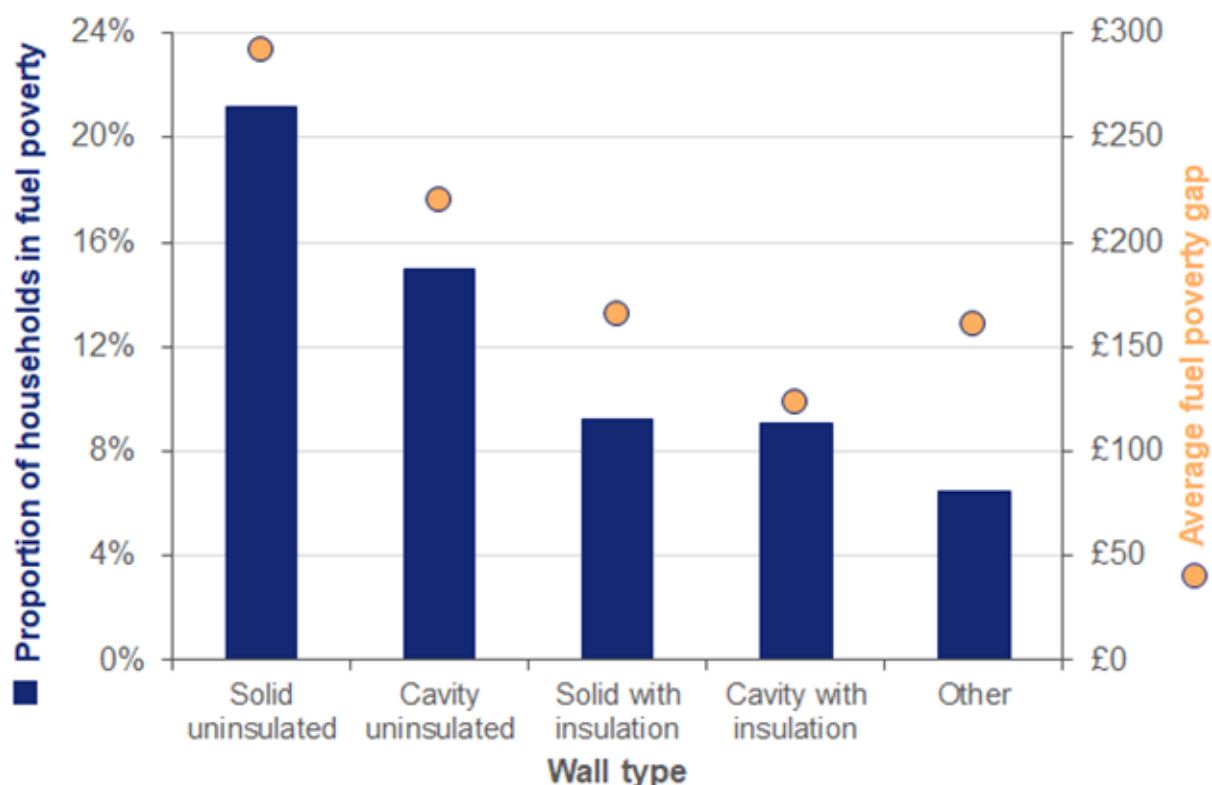
Properties with uninsulated solid walls had the highest rate of fuel poverty (21.2% of households) with an average gap of £291, whereas those with insulated solid walls are less than half as likely to be fuel poor (9.3%) with an average gap of £165. Properties with cavity walls follow a similar pattern – households living in properties with uninsulated cavity walls are more likely to be fuel poor (15.0%) and have a larger average gap (£220) than those households living in properties with insulated cavity walls (9.1% and £123).

The larger average gaps and higher likelihood of fuel poverty in properties without wall insulation are likely due to these having lower energy efficiency ratings and higher fuel costs - insulated walls have a higher median energy efficiency rating than uninsulated. According to figures from the National Energy Efficiency Data-Framework (NEED), properties studied had median percentage cost savings of 7.7 per cent following the installation of cavity wall insulation, and 18.9 per cent from installing solid wall insulation[44].

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[42] The 'Other' category includes dwellings built with stone, pre-fab, timber and other methods.
[43] 'Other' figures based on low sample count (between 10 and less than 30), inferences should not be made based on this figure.
[44] Source: National Energy Efficiency Data-Framework (NEED) report: Summary of analysis 2020
https://www.gov.uk/government/statistics/national-energy-efficiency-data-framework-need-impact-of-measures-data-tables-2020

3.1.3 Dwelling type

Figure 3.5: The average fuel poverty gap is highest for detached properties despite these having the lowest rate of fuel poverty
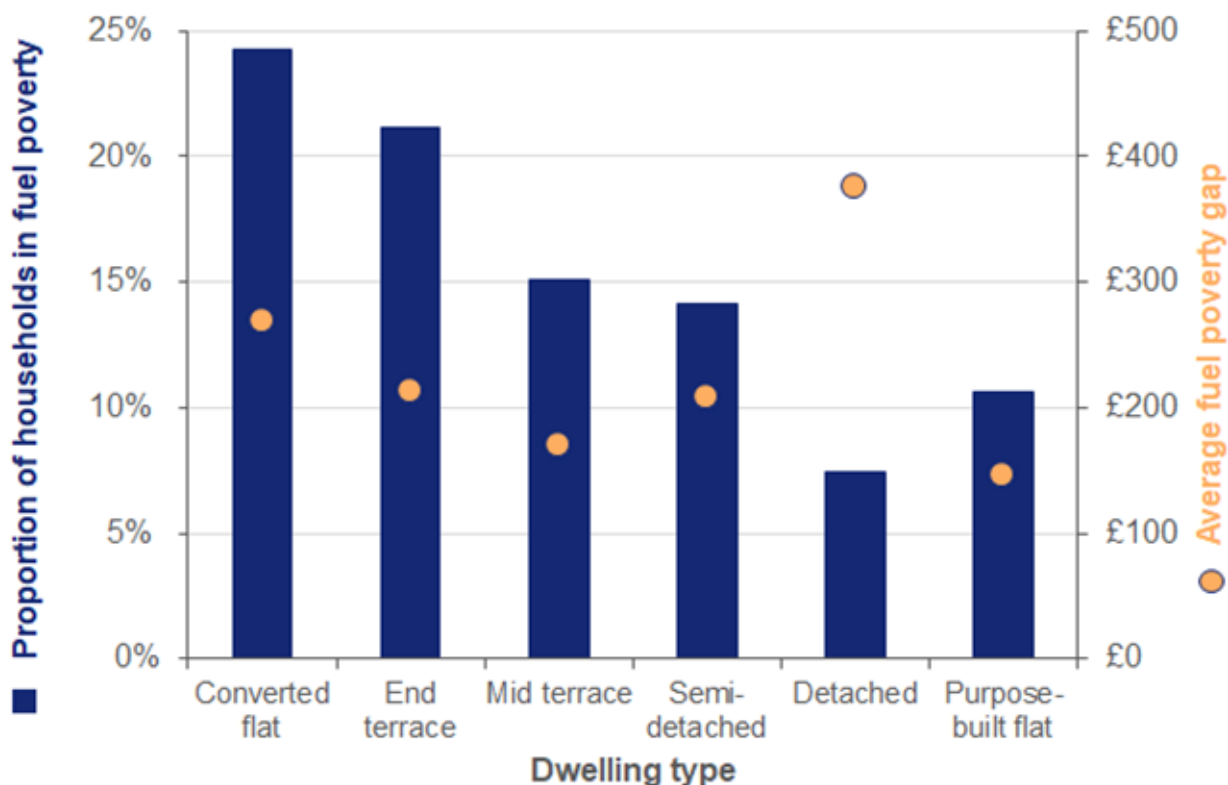

Households living in converted flats had the highest likelihood of fuel poverty (24.2%), in contrast, those living in detached properties have the lowest likelihood of fuel poverty (7.4%). However, households living in detached properties have the largest average gap at £375, partly due to the number of exposed walls which contribute to a lower energy efficiency rating and higher floor areas, with a median floor area of 123m^2, compared to semi-detached with a floor area of 86m^2 – the next largest.

Figure 3.6 shows that households living in detached homes had much higher median incomes than other households which explains the lower levels of fuel poverty but the highest fuel poverty gap.

Purpose-built flats had a median energy efficiency rating of 73, compared to 65 for converted flats, due to the nature of the build, age and standard of the property (more modern properties are built to a higher energy efficiency standard).

Figure 3.6: Purpose-built flats have the highest median energy efficiency but the lowest median income
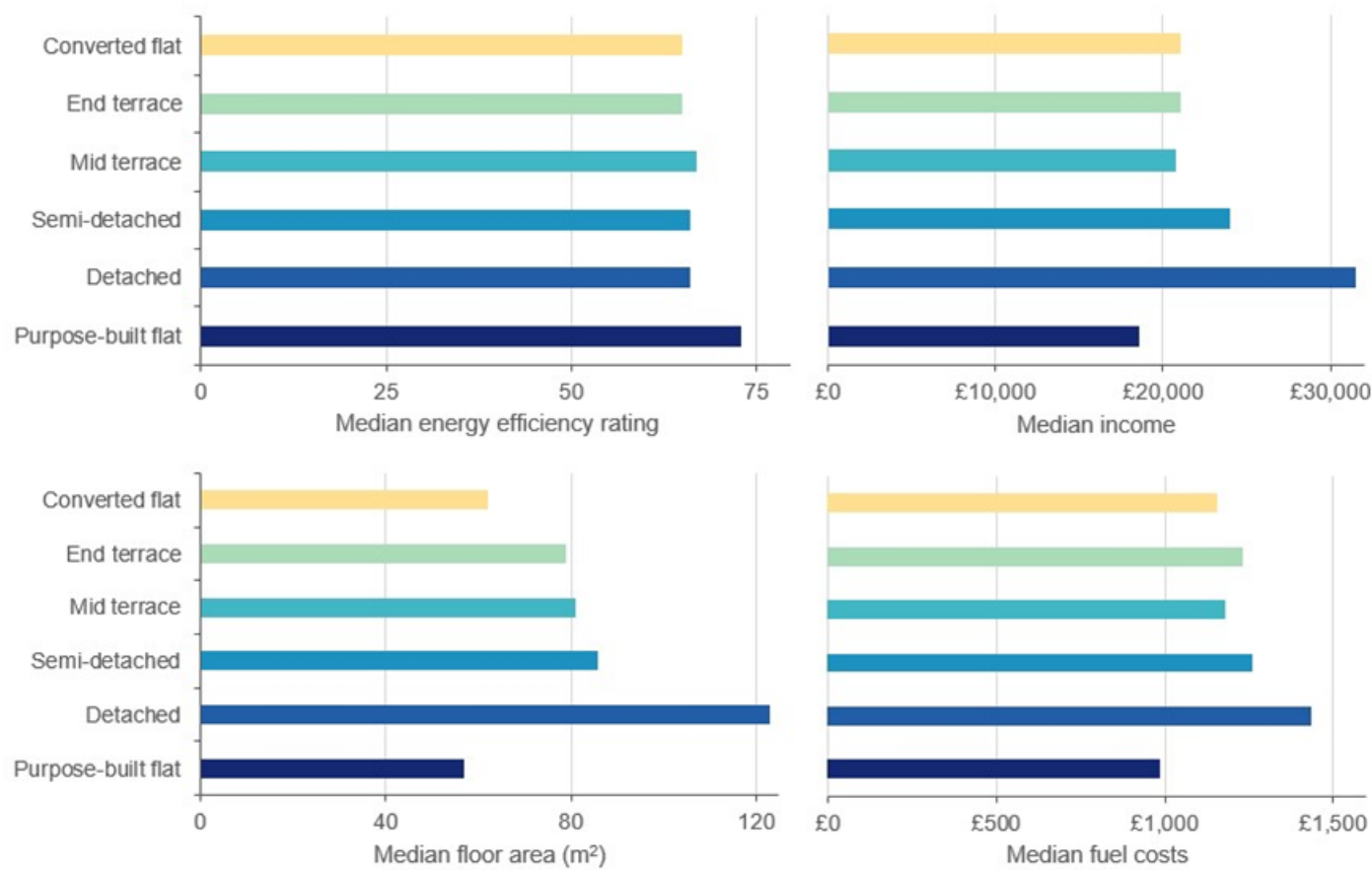
3.1.4 Floor area

Figure 3.7: Smaller properties are more likely to be occupied by the fuel poor and properties over 110m^2 have the largest average gap (£366)
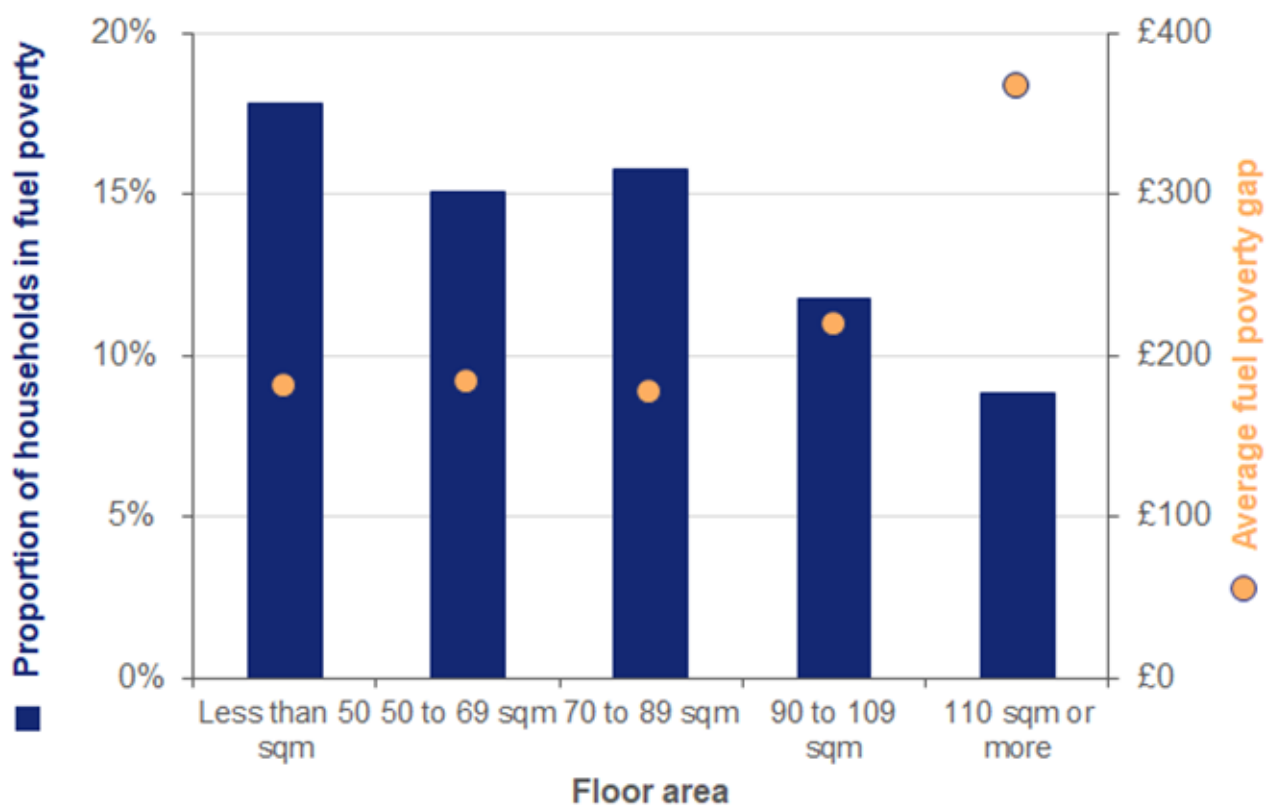

There is a higher proportion of fuel poor households among households living in smaller homes. In general, larger floor areas correlate with higher incomes but lower energy efficiency resulting in higher fuel costs (see Supplementary Table 8).

While the share of fuel poor households is lowest in homes with floor areas of 110m^2 or more at 8.8 per cent, they have the highest fuel poverty gap of £366. This is due to higher median fuel costs of £1,573 in these larger homes compared to £1,223 overall.

3.1.5 Property age

Figure 3.8: Households living in properties built before 1919 have the highest share of fuel poverty and highest average gap at £298, more than double the average gap properties built after 2002
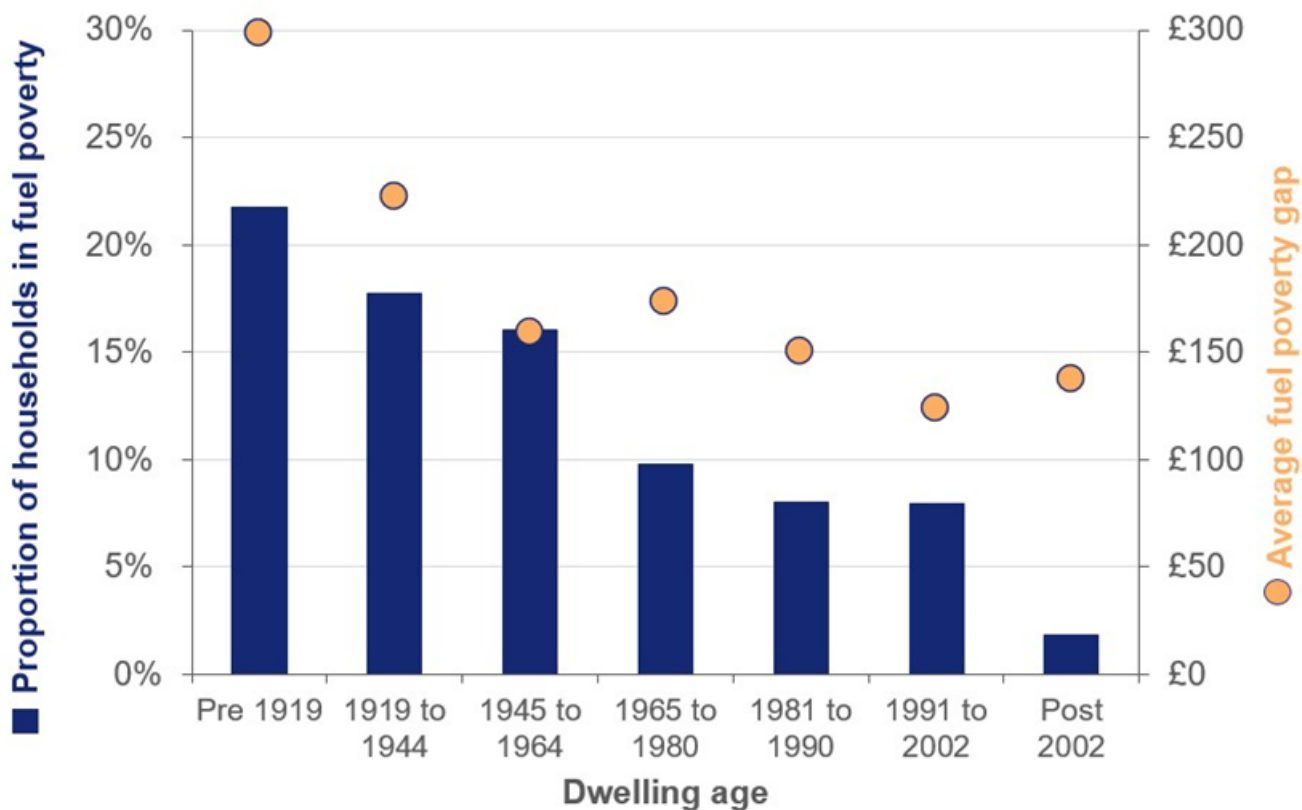
Households living in properties built before 1919 have the highest average gap at £298 and the largest proportion in fuel poverty (21.7%). This is due to their lower than average energy efficiency rating and higher than average floor area leading to a higher than average fuel cost (see Supplementary Table 7). This trend broadly correlates to the decreasing average fuel poverty gap in more recently built properties as energy efficiency broadly improves with more recent property age.

3.1.6 Main fuel type

Figure 3.9: In 2019 households using electricity as their main fuel for heating had the highest likelihood of being in fuel poverty but those using non gas/electric heating have the highest fuel poverty gap
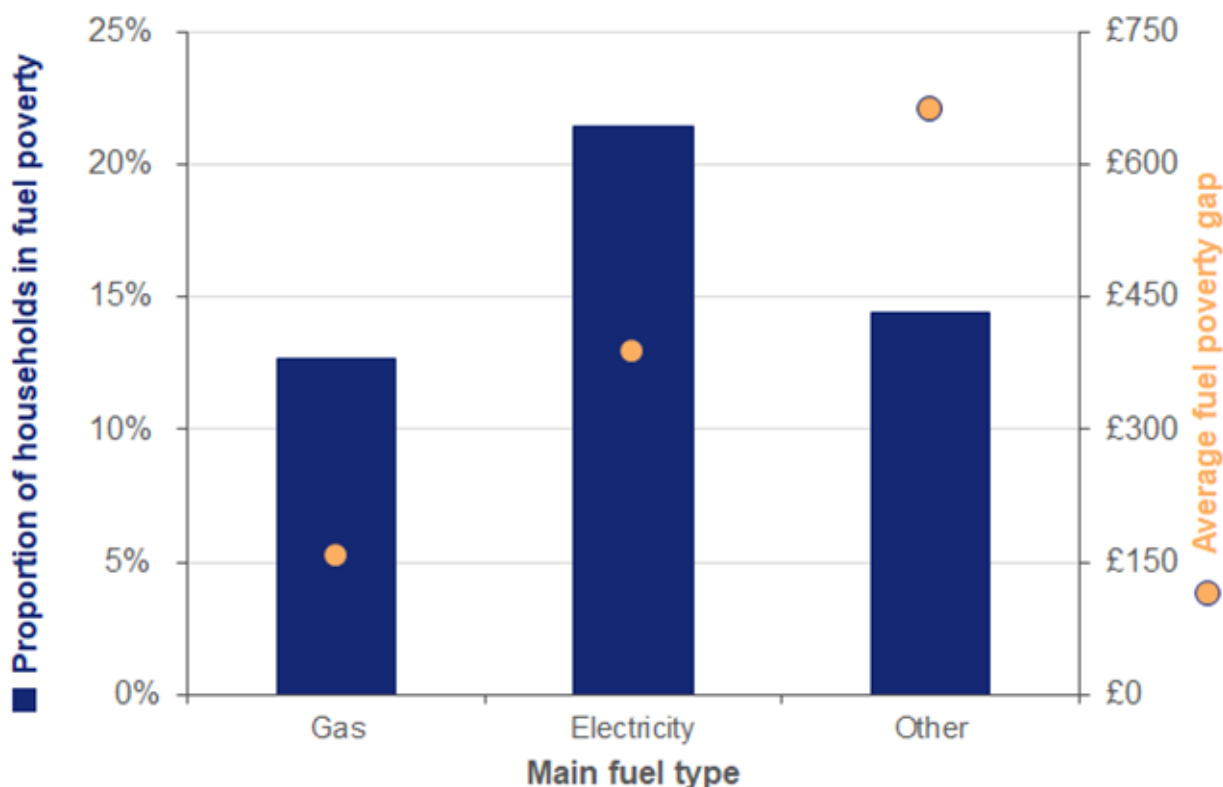

Households using electricity as a main fuel for heating had the highest likelihood of fuel poverty at 21.4 per cent, compared to gas at 12.7 per cent. This is due to the higher fuel expenditure associated with properties with a lower energy efficiency but also the lower median incomes of these households (See supplementary table 10). Households using gas as their main fuel have a median energy efficiency rating (68) above the national average (67).

Households using electricity and other fuels have a lower than average energy efficiency rating (62 and 55 respectively). The median fuel cost for a household using other fuels is the highest at £1,669, this is due to a combination of a lower median energy efficiency, larger median floor area and the higher cost of other fuels. The 'other' category which consists predominantly of oil or coal[45], has the highest average gap, at £661. Those using electricity as a main fuel for heating make up 7per cent of households in England in comparison to 87 per cent using mains gas, however they account for 12 per cent of all fuel poor households.

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[45] Other includes heating oil, anthracite nuts, household coal, smokeless fuel, wood, propane, bulk LPG, community heating from boilers/ CHP/ waste heat

3.1.7 Region

Figure 3.10: In 2019, households living in the West Midlands had the highest proportion of fuel poor households and the South West had the highest average gap
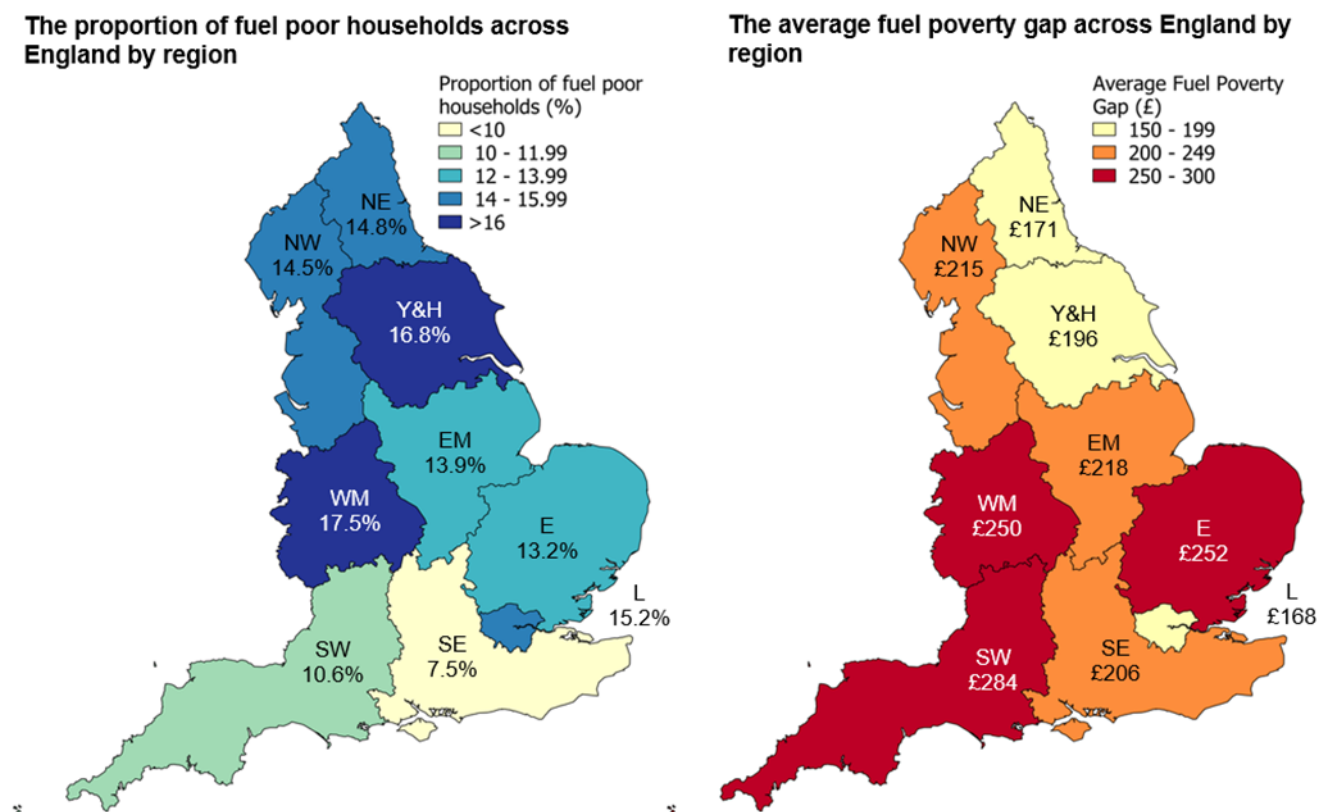

There is a high level of variation in fuel poverty rates between regions. The West Midlands had the highest rate of fuel poverty at 17.5 per cent, compared to 7.5 per cent in the South East.

The South West had the highest average gap (£284) and the London had the smallest average gap (£168) reflecting these regions having the highest and lowest median floor area respectively. Given there were similar median energy efficiency ratings between regions and similar median fuel costs it is the lower median incomes seen in northern regions and West Midlands have driven the higher shares of fuel poverty.
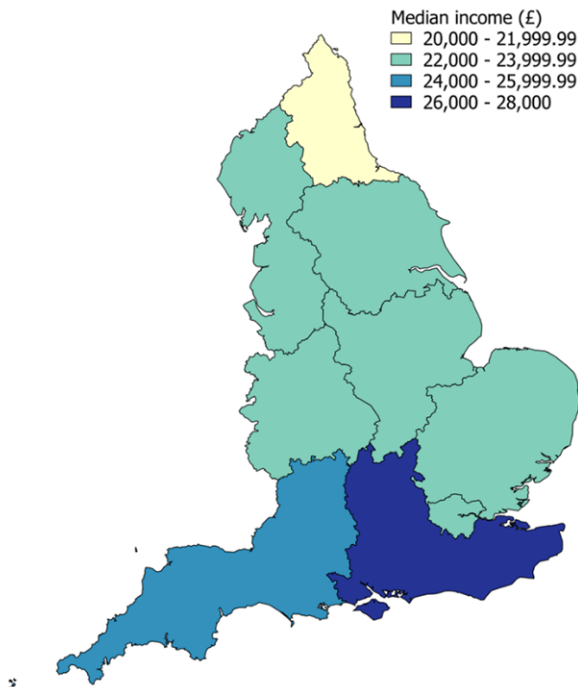
The South West had the highest median floor area (89m^2) which drives the highest median fuel costs (£1,293) and hence the highest average fuel poverty gap.

Figure 3.11: Northern regions tend to have lower than average (median) incomes, whilst southern regions outside London tend to have the largest median floor areas
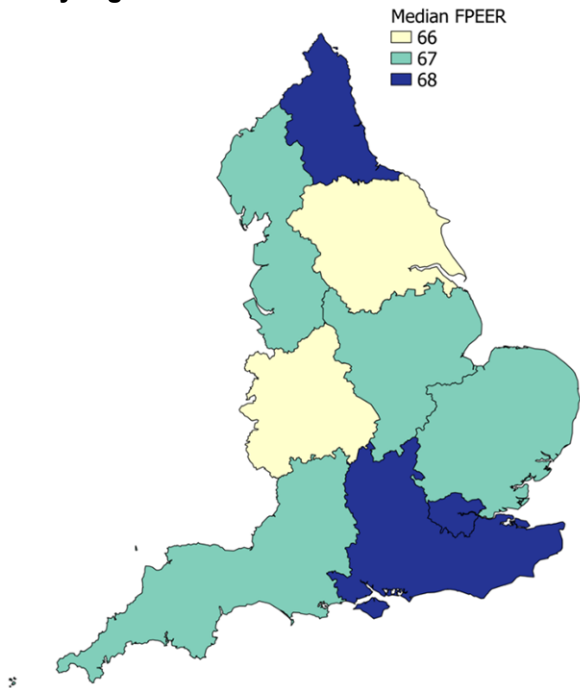
Household median fuel costs across England by region

Median fuel costs (£)
- 1,150 - 1,199.99
- 1,200 - 1,249.99
- 1,250 - 1,300
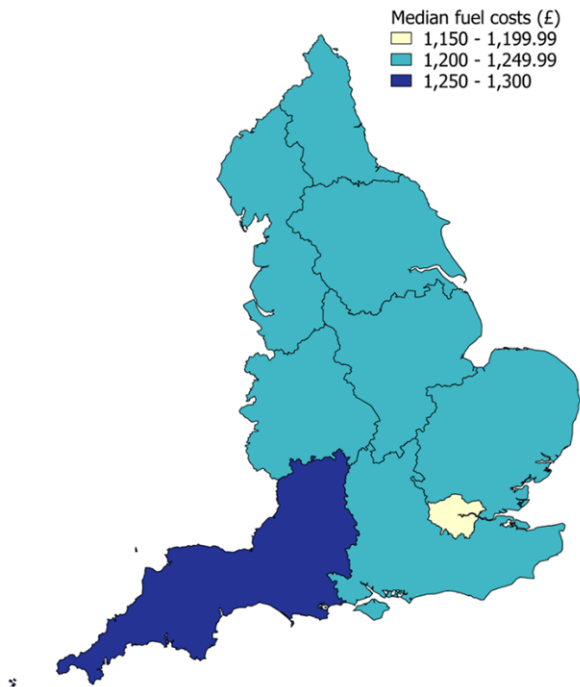
Household median income across England by region

Median income (£)
- 20,000 - 21,999.99
- 22,000 - 23,999.99
- 24,000 - 25,999.99
- 26,000 - 28,000

Household median energy efficiency rating across England by region

Median FPEER
- 66
- 67
- 68

Household median floor area across England by region

Median Floor Area
- 75 - 79.9
- 79.9 - 84.9
- 85 - 90

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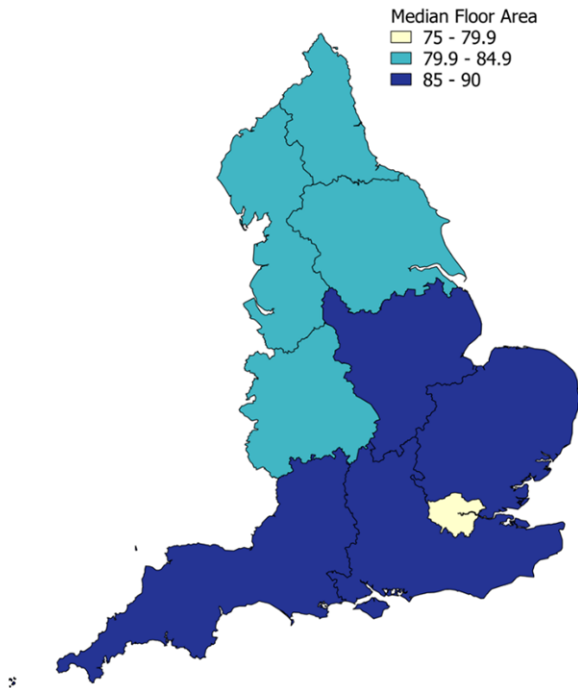
3.1.8 Rurality and gas grid connection

Figure 3.12: In 2019, households living in urban areas are most likely to be in fuel poverty but rural households have the largest fuel poverty gap
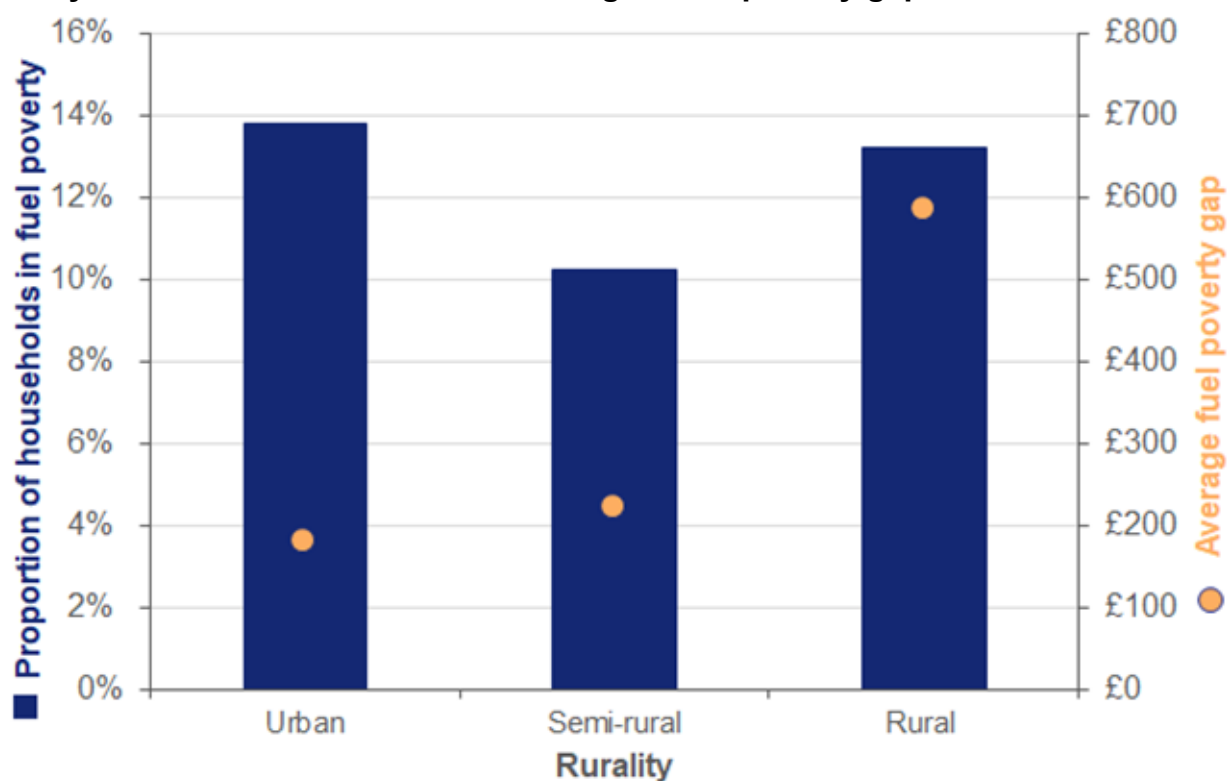

Households living in urban areas are most likely to be in fuel poverty (13.8% of urban households are in fuel poverty) but rural households have the largest fuel poverty gap at £585.

Households living in rural areas have, on average, less energy efficient and larger properties but higher than average median incomes (see Supplementary Table 4).

Rural properties have a higher incidence of being off the gas grid – the survey showed 54.5 per cent are off gas grid, compared to just 8.6 per cent of urban properties.

Of households living in properties not on the gas grid, 18.2 per cent are fuel poor compared to 12.7 per cent on the gas grid. These compare with 22.9 per cent and 22.0 per cent respectively in 2010, showing the reduction in fuel poverty and largely come from households connected to the gas grid. The average fuel poverty gap for households off the gas grid was £480, three times higher than on gas grid households (£162).

Figure 3.13: Fuel poor households are more likely to be off the gas grid and have an average fuel poverty gap three times higher than gas households
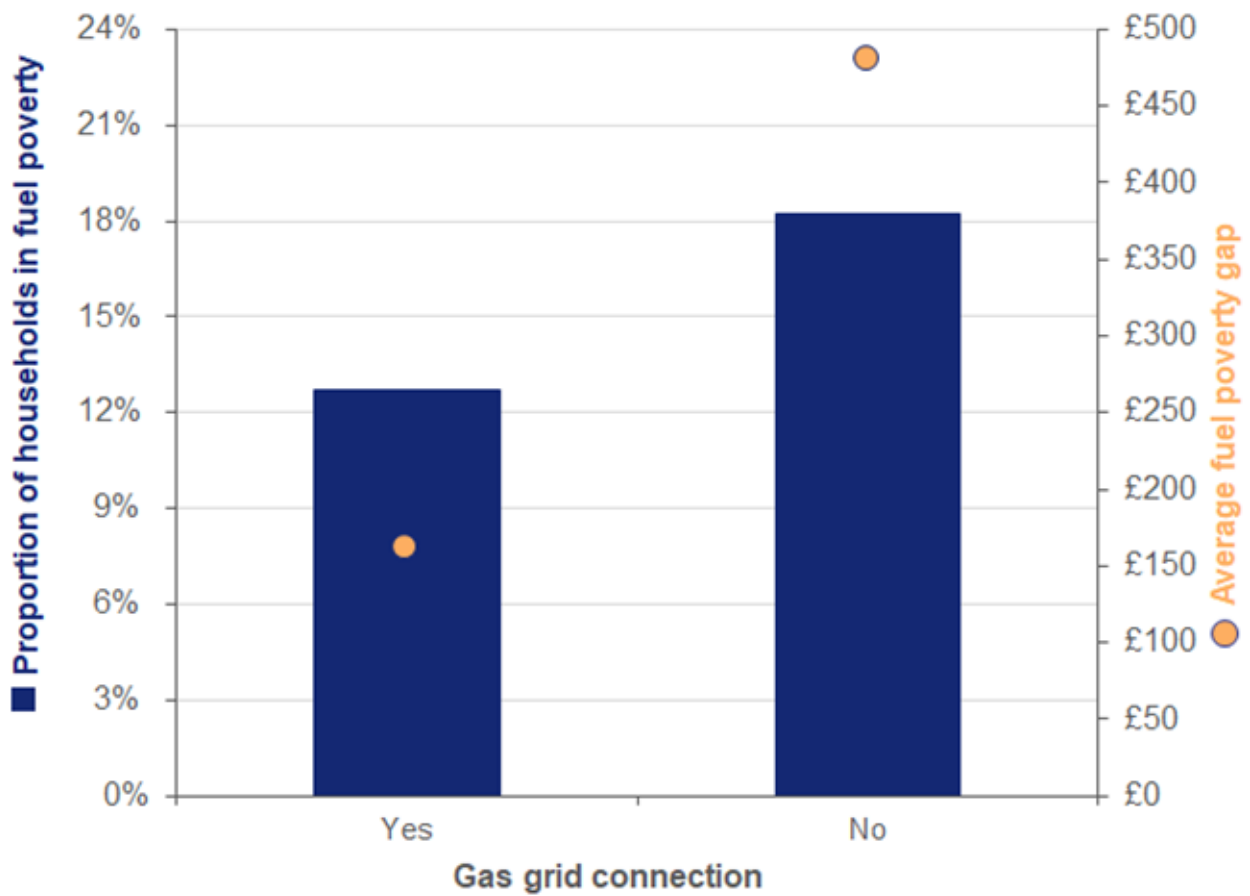
3.2 Household characteristics

3.2.1 Tenure

The differences in fuel poverty prevalence and the average gap by tenure reflect both the nature of the housing stock and household characteristics typical to a household's tenure.

Figure 3.14: The proportion of households in fuel poverty was highest for private renters at 26.8 per cent whilst owner occupiers have the highest average gap at £255
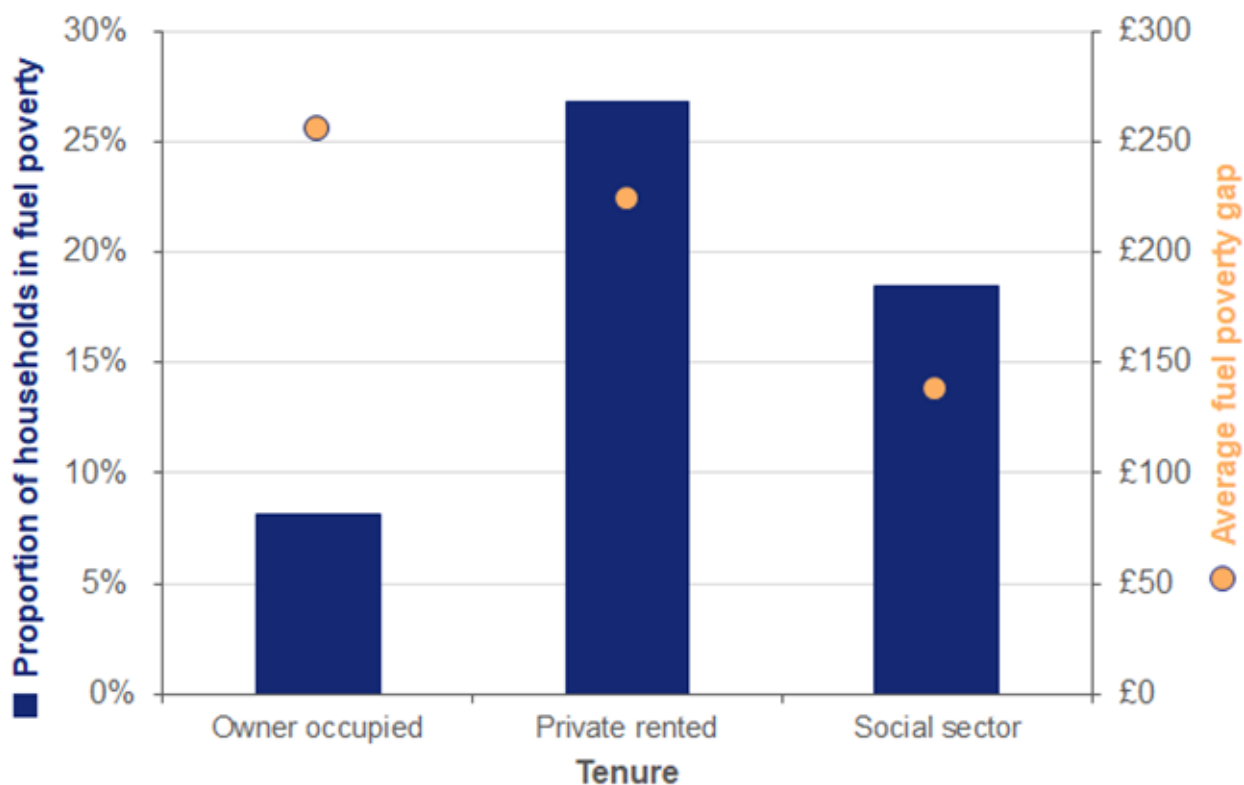
The highest level of fuel poverty was in the private rented sector with 26.8 per cent of these households being fuel poor.

Owner occupiers had the lowest level of fuel poverty reflecting their higher median incomes. Owner occupiers who own their home outright are slightly less likely to be fuel poor (7.8%) than those with a mortgage (8.6%). This is partly due to their minimal housing costs.

Figure 3.15: There is a higher proportion of band A, B and C properties that are socially rented compared to owner occupied and privately rented properties
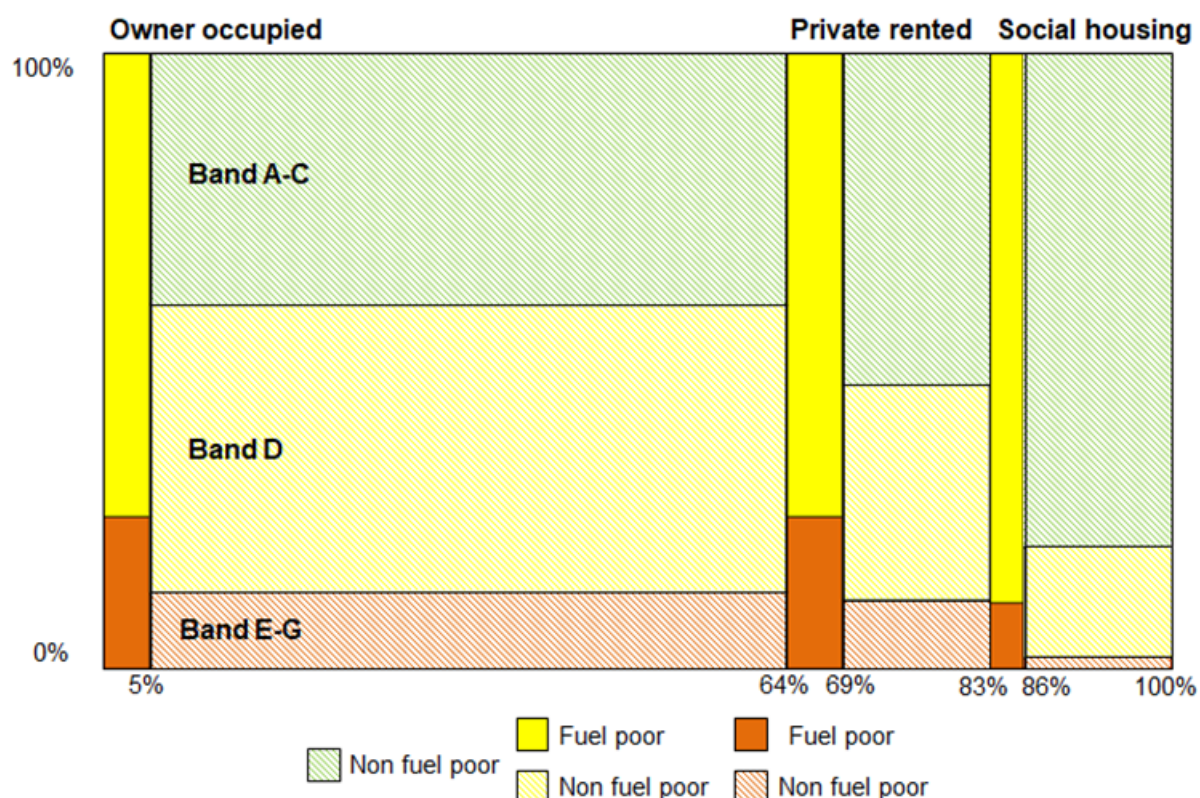
*Area is equivalent to the proportion of households in that group*

Under LILEE, any household with an energy efficiency rating of A-C is not fuel poor regardless of income. The highest share of band A-C homes is in the social housing sector where 65.5 per cent of homes were band A-C in 2019. Of households with band D-G rating, 53.5 per cent were fuel poor. While the median income of households living in social housing was 17.1 per cent lower than for private rented households, the higher levels of energy efficiency have driven down the rate of fuel poverty from 40.3 per cent in 2010 to 18.4 per cent in 2019.

In the private rented sector, the share of band A-C homes has increased from 29.3 per cent in 2017 to 39.5 per cent in 2019 which the Private Rented Sector regulations will have helped drive. In 2019, this sector had a higher median energy efficiency rating than the owner-occupied sector. The sector still has the highest fuel poverty rate based on the lower income households who live in this sector compared with the owner-occupied sector.

The majority (39.1%) of fuel poor households are owner occupied, 37.6 per cent are privately rented and 23.2 per cent live in social housing. As a comparison, 64.3 per cent of all households are owner occupied, 18.8 per cent privately rented and 16.9 per cent live in social housing.

Figure 3.16: Social housing properties tend to be more energy efficient driving lower levels of fuel poverty despite having the lowest median incomes
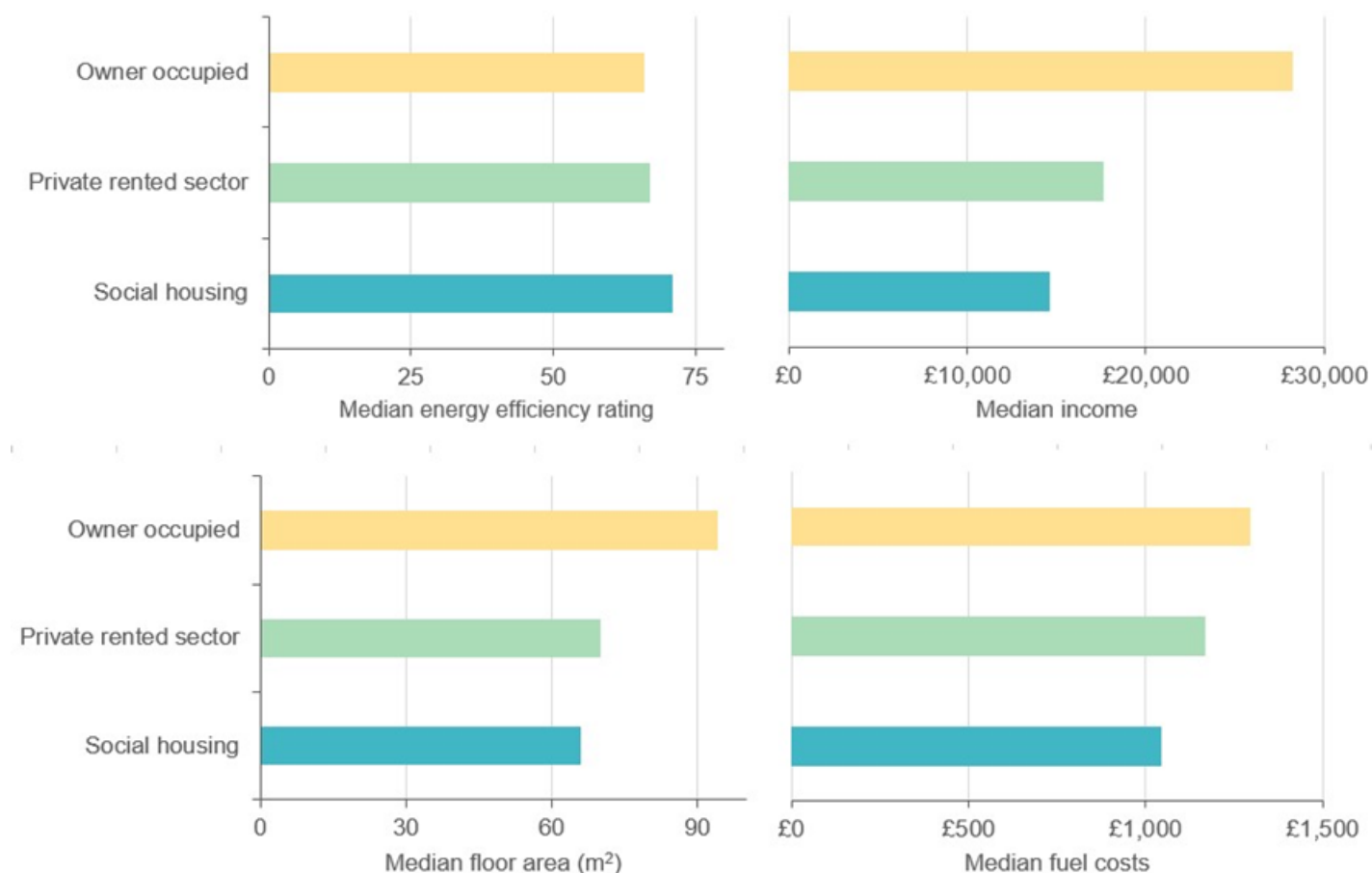
As seen in Figure 3.16 social housing properties tend to be more energy efficient with two-thirds of social rented homes now rated C or above and as such are not fuel poor. Of social rented homes below band C, 53.5 per cent were fuel poor due to the lower incomes in this tenure.

Owner occupied and privately rented properties have lower median energy efficient ratings resulting in higher energy costs and a higher average gap. The median income of owner occupiers is significantly larger than that of private renters and social renters leading to a lower rate of fuel poverty within this tenure.

3.2.2 Household composition[46]

Figure 3.17: Single parents have the highest proportion of households in fuel poverty and couples aged over 60 have the highest average gap
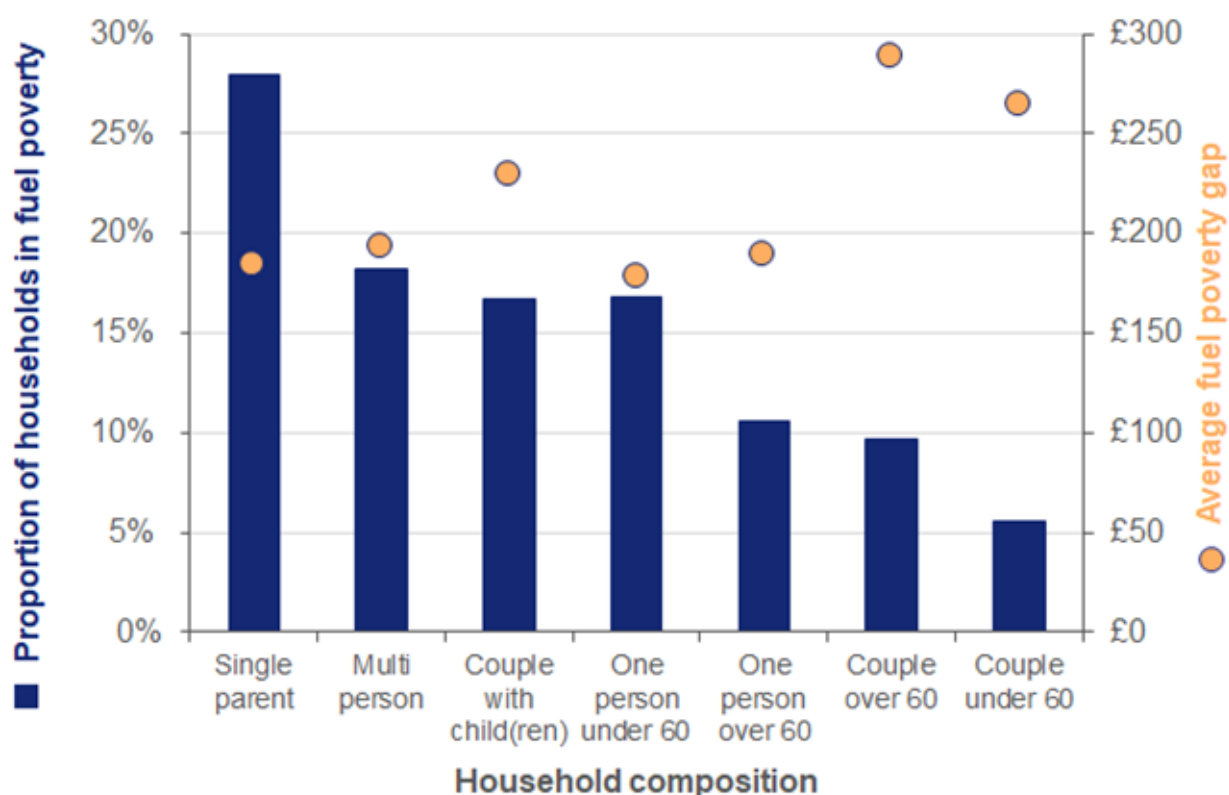
Single parent households have consistently had the highest proportion of households in fuel poverty (see Trends Table 11). In 2019, 28.0 per cent of single parent households were fuel poor and had an average gap of £184, likely due to their considerably lower median income.

Couples over 60, had the highest average gap (£289) whilst having a lower prevalence of fuel poverty (9.7%), this is likely due to their larger median floor area and higher median fuel costs. Couples under 60 without children were the least likely to be in fuel poverty (5.6%) with an average gap of £265 likely due to their high median income.

Of all single parent households in fuel poverty, 30.2% lived in social housing (local authority and housing association) which has higher energy efficiency ratings thus more energy efficient. This partly explains why their average gap is lower than the national average.

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[46] 'Couple with child(ren)' – Couple with dependent child(ren); 'Couple over 60' – Couple, no dependent child(ren) aged 60 or over; 'Couple under 60' – Couple, no dependent child(ren) under 60; 'Single parent' – Lone parent with dependent child(ren); 'One person over 60' – one person aged 60 or over; 'One person under 60' – one person; under 60; 'Multi-person' – Other multi-person households

Figure 3.18: Single parent households have considerably lower median income than average
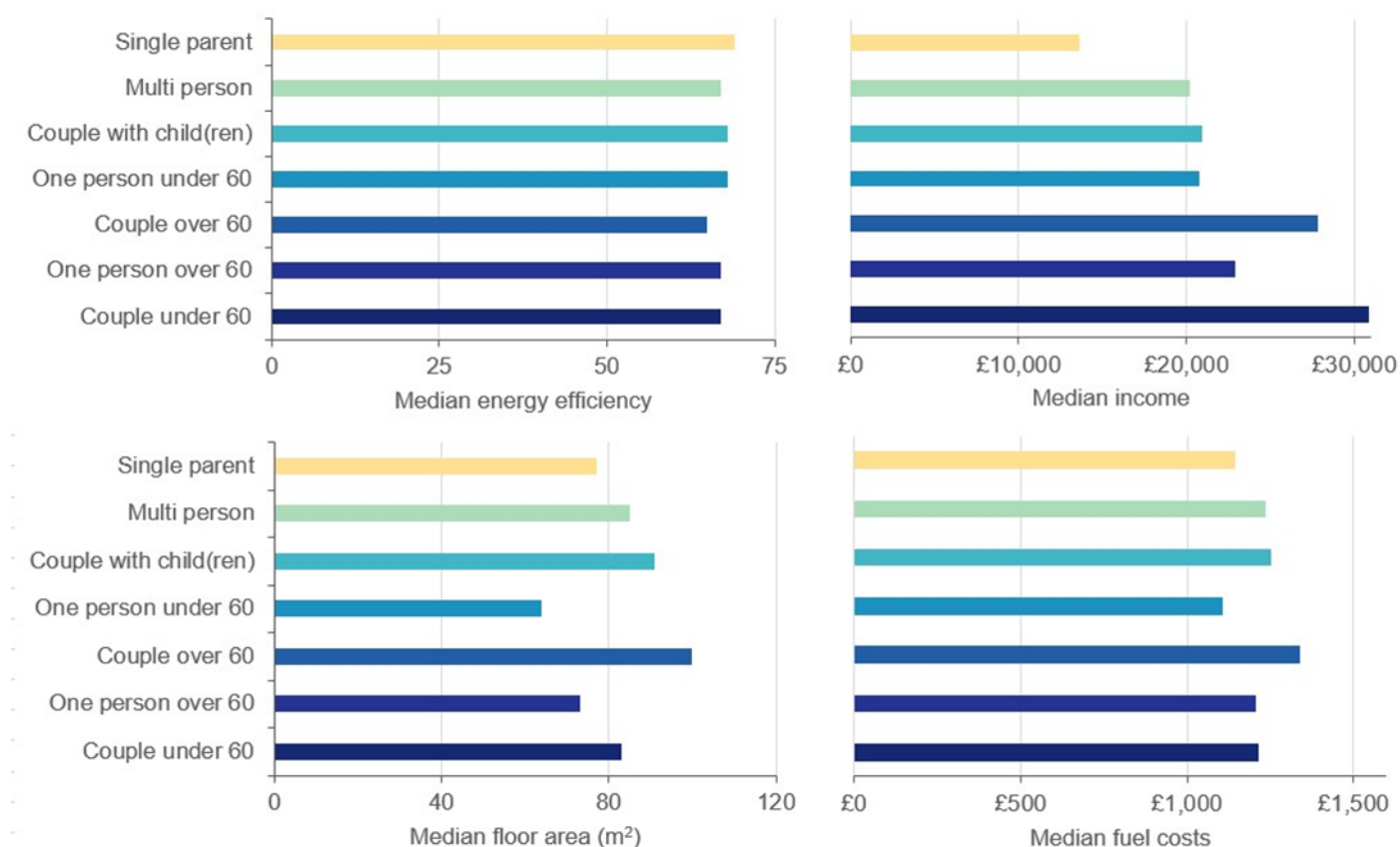
In 2019, 40.3 per cent of all fuel poor households had one or more dependent children (1.3 million households). This is 5.4 per cent of all households and 19.4 per cent of all households with children[47].

Households that pay by prepayment meter have historically had the highest likelihood of fuel poverty of the payment types, as discussed in Section 2.3.5 and Section 3.4. Single parent households have a higher likelihood of paying for their electricity by prepayment meter (32.6%) and will have therefore benefitted from the prepayment cap, however this group continue to have the lowest median income.

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[47] Table 20, detailed tables: https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2019

3.2.3 Ethnicity[48]

Data are based on the household reference person (HRP)[49]. Some households will contain members from more than one ethnic group, which is not reflected in this analysis.

Figure 3.19: Households with an ethnic minority HRP have a higher likelihood of being in fuel poverty but a lower average gap than households with a white HRP
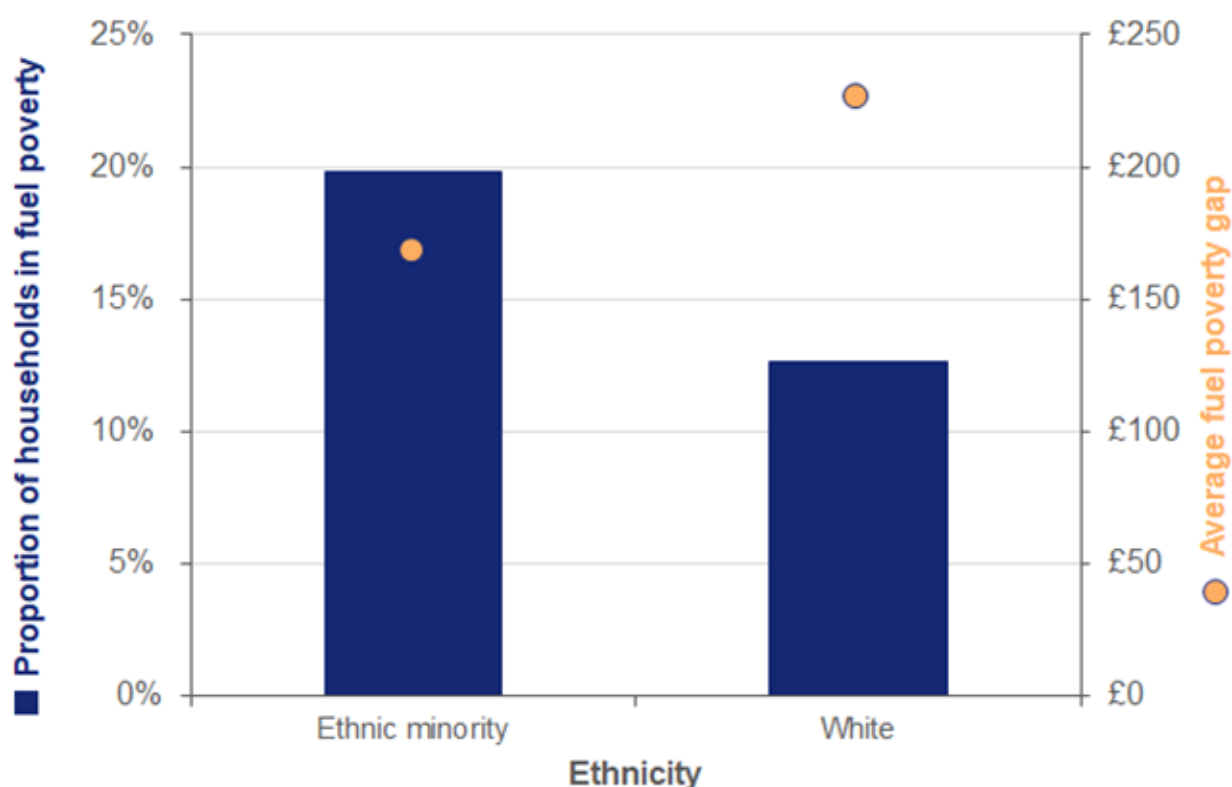
In 2019, the median income for ethnic minority households was, on average, lower than the income for white households which partly explains their higher likelihood of fuel poverty[50]. However, ethnic minority households tend to have a higher proportion living in social housing (27 per cent compared to 16 per cent for white households) and tend to live in more energy efficient properties with a median energy efficiency rating of 69 compared to 67 for white households which may explain their lower average gap.

This data is also published as part of the Ethnicity Facts and Figures collection published by the Cabinet Office: https://www.ethnicity-facts-figures.service.gov.uk/

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[48] In the 2011 census, 86 per cent of England and Wales said they were White and 14 per cent were from an ethnic minority. Further information on this can be found here https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity.

[49] The person in whose name the dwelling is owned or rented or who is otherwise responsible for the accommodation. In the case of joint owners and tenants, the person with the highest income is taken as the HRP. Where incomes are equal, the older is taken as the HRP.

[50] See Table 16 in the supplementary tables: https://www.gov.uk/government/statistics/fuel-poverty-supplementary-tables-2020

3.2.4 Age

Age can be analysed in two different ways:

- Age of the *oldest* member of the household.

- Age of the *youngest* member of the household.

This allows us to distinguish between households with young children and households that comprise solely of those aged 75 and over.

Figure 3.20: Households where the age of the oldest member is between 16 and 24 have the highest likelihood of being in fuel poverty (25.2%), with an average gap of £156
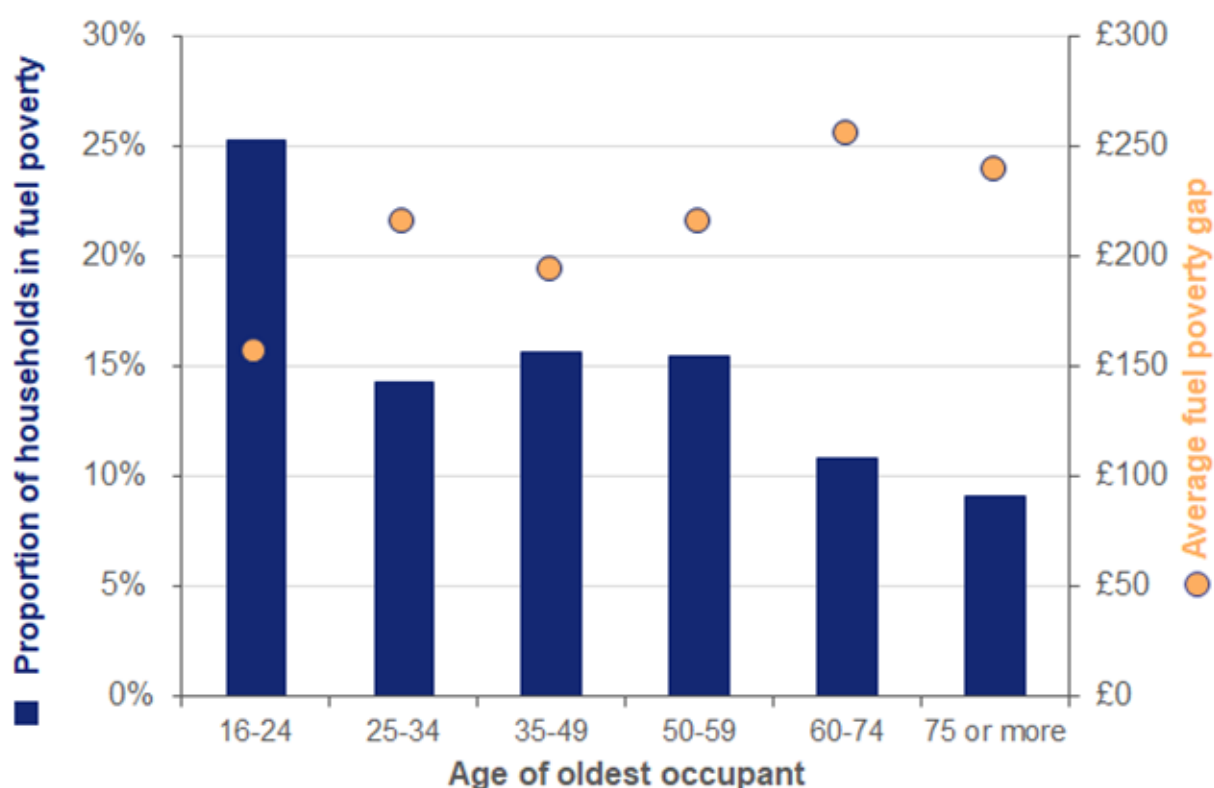
In 2019, 25 per cent of households where the oldest member is aged 16 to 24 years were fuel poor, which is likely to be a result of lower incomes for younger households. The youngest households (age 16-24) had a median income of £14,458 compared to £23,496 for *all* households (See Supplementary table 15).

The lower fuel poverty gaps were seen in younger households reflecting lower fuel costs due to smaller homes and the lower daytime occupancy levels taken into account in BREDEM[51] modelling of households who are less likely to be at home during the day.

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[51] BRE Domestic Energy Model (BREDEM) https://www.bre.co.uk/page.jsp?id=3176

Figure 3.21: Households where the age of the youngest member is 10 and younger have the highest likelihood of being in fuel poverty
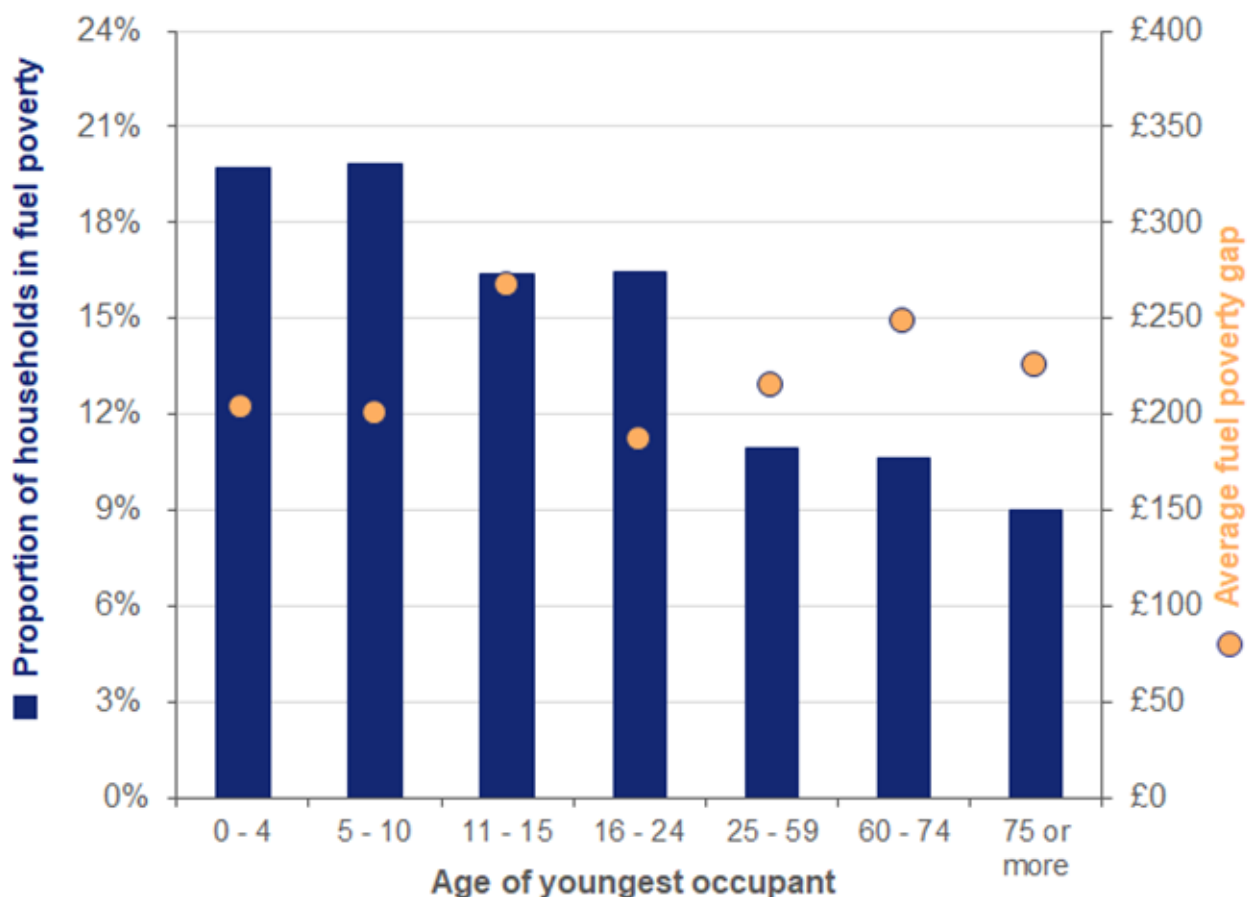
Households with children aged 10 years or under had the highest prevalence of fuel poverty. This is due to these households having lower than average equivalised median income. Equivalised income reflect the number of people in the household who depend on the total household income. The lowest median income was for households with a child aged 0-4, and 5-10 of £17,660 and £18,947 respectively compared with an overall median income of £23,496.

Households where the youngest occupants were 60 or over have seen a decrease in their likelihood of fuel poverty between 2010 and 2019[52]. The Warm Home Discount[53] (introduced in 2011) and the Winter Fuel Payment[54] (which was introduced in 1997) are likely to have had an effect.

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[52] See Table 12 in the trends tables: https://www.gov.uk/government/statistics/fuel-poverty-trends-2020
[53] https://www.gov.uk/the-warm-home-discount-scheme
[54] https://www.gov.uk/winter-fuel-payment

3.3 Household income

3.3.1 Employment status

Data are based on the household reference person (HRP)[55]. Some households will contain members with a mixture of employment statuses, which is not reflected in this analysis.

Figure 3.22: Households with an unemployed HRP have the largest proportion of households in fuel poverty at 38.0 per cent while households with a HRP in full time work have the lowest (9.0%)[56]
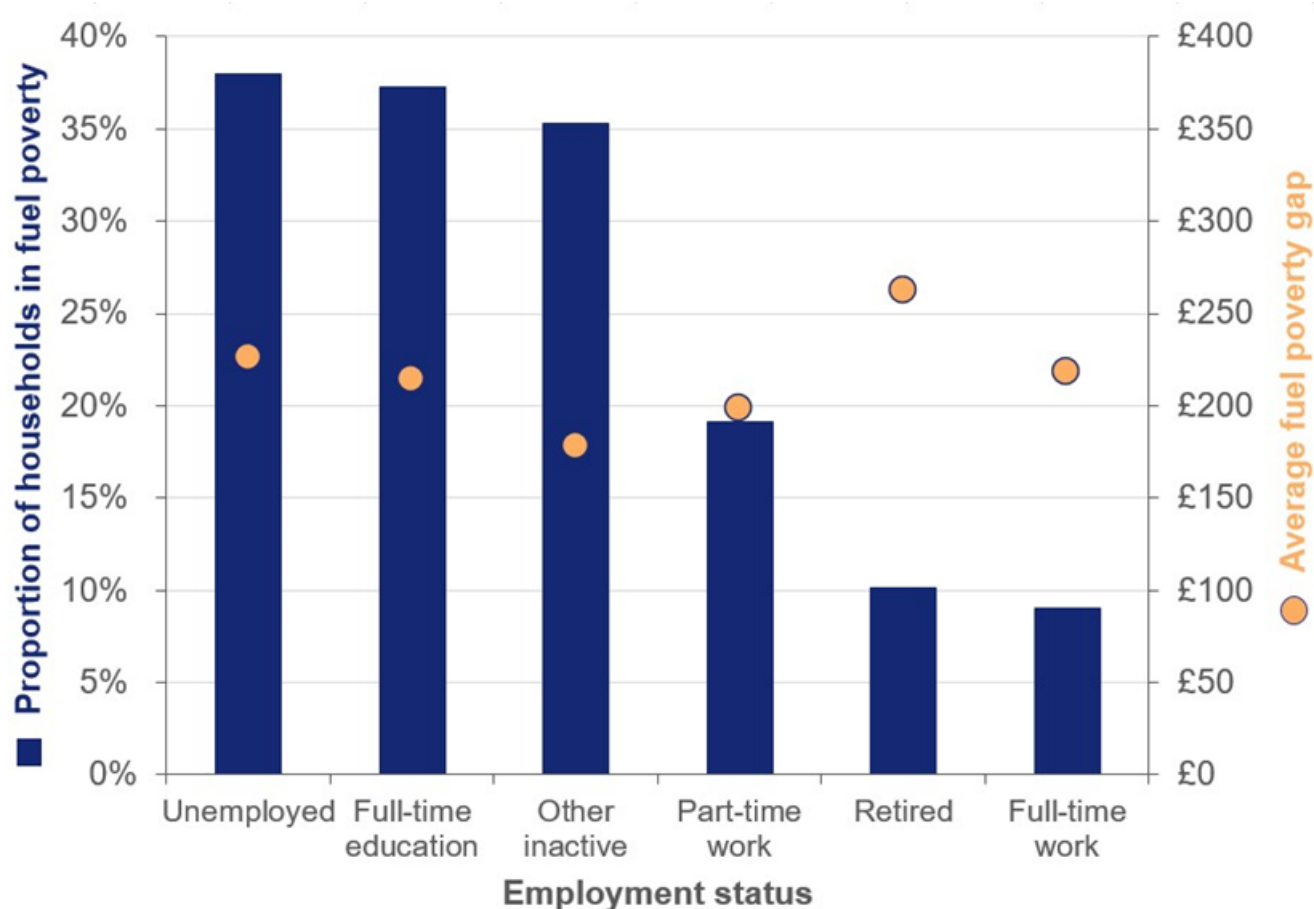
Figure 3.22 shows that those in full-time work and retired have the lowest proportions that are classed as fuel poor (9.0% and 10.1%, respectively). Whereas households where the HRP is unemployed have the highest likelihood of being in fuel poverty (38.0%).

Despite having a lower level of fuel poverty, retired households have the highest fuel poverty gap of £262 reflect their higher median fuel costs (£1,270) due to higher occupancy levels, slightly higher floor areas and slightly lower energy efficiency.

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[55] Please note the definition of HRP (footnote 59) would suggest there could be a bias in the figures towards those with higher incomes.
[56] Figures for households where the HRP is in full time education are based on small sample sizes, inferences should not be made based on this figure

Figure 3.23: Households where the HRP is unemployed have the lowest median income and the lowest median fuel costs
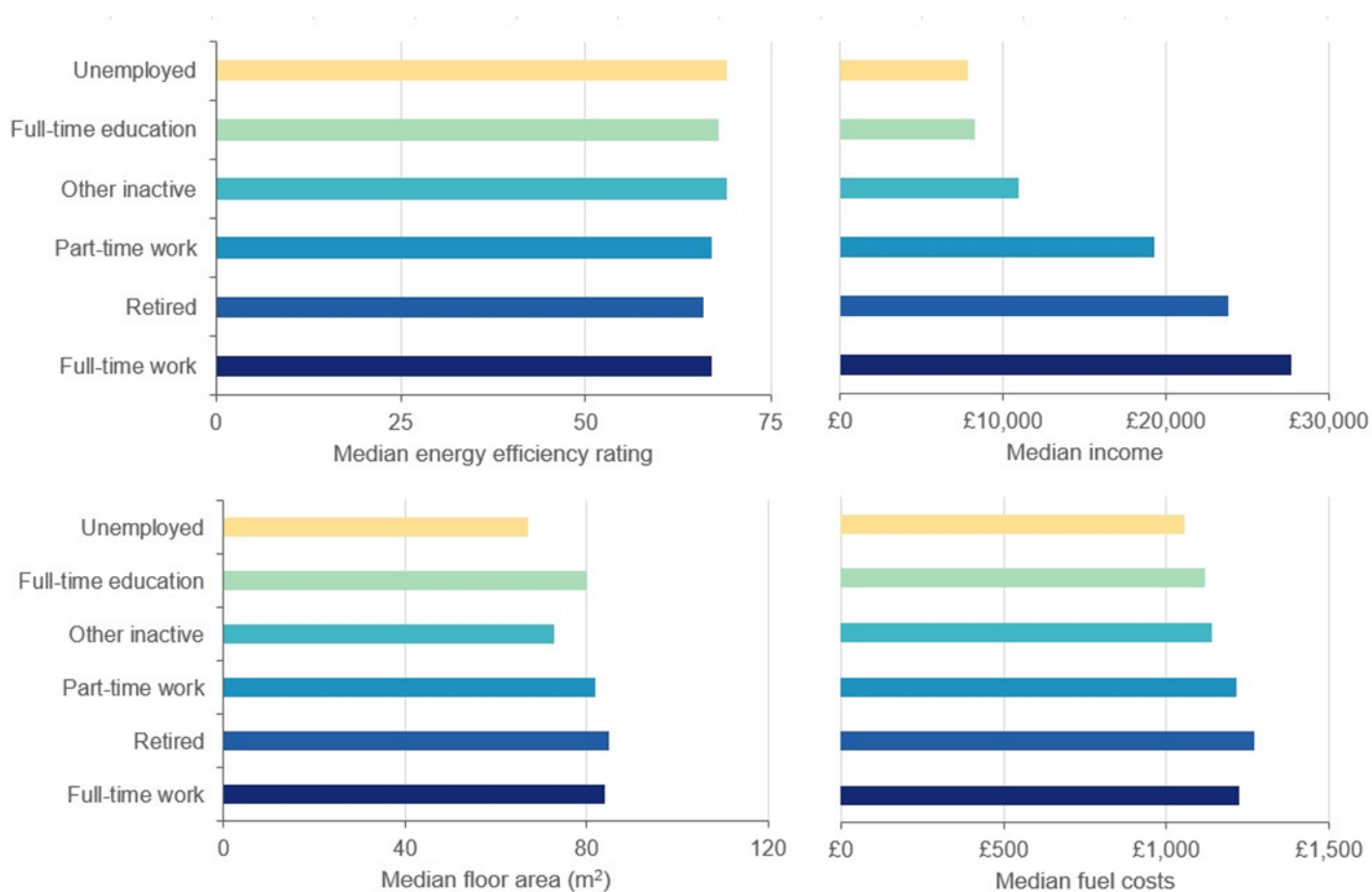
The median income for households tends to be negatively correlated with the proportion of households in fuel poverty. For example, households where the HRP is in full time work have the lowest proportion in fuel poverty (9.0%) and the highest median income of £27,641.

Households where the HRP is unemployed are more likely to pay for their electricity by prepayment meter (47.5%) and will have therefore benefitted from the prepayment cap, however this group continues to have the lowest median income.

3.4 Fuel payment type

Households that pay by prepayment meter have historically had the highest likelihood of fuel poverty of the payment types. It should be noted that under the LILEE metric this is driven by the lower incomes associated with households with these tariffs rather than the tariff itself. It is noted though that the fuel poverty gap for these households is affected by tariffs which is seen in figure 3.24.

3.4.1 Electricity payment method

Figure 3.24: Households that pay for their electricity by prepayment have the highest proportion in fuel poverty but the lowest fuel poverty gap
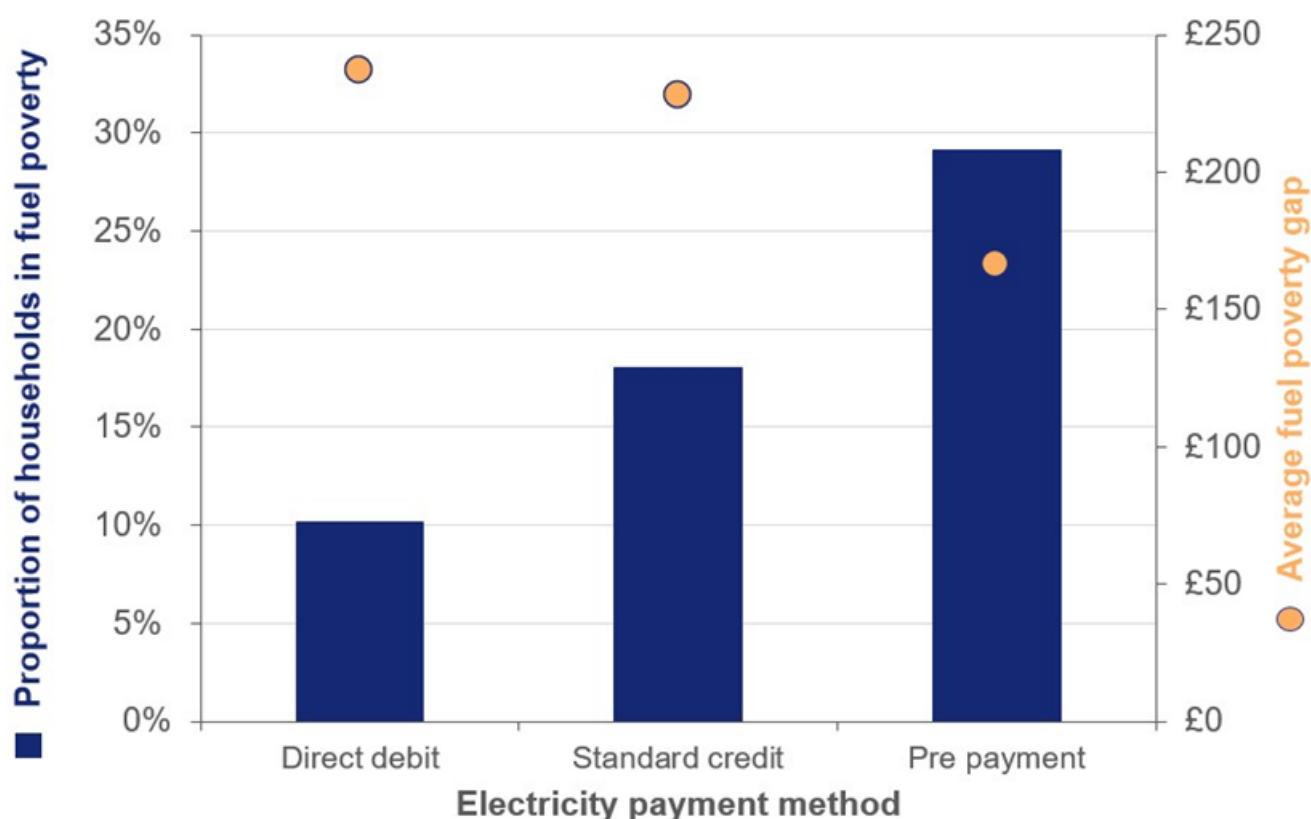
The share of households in fuel poverty using a pre-payment electricity meter is 29.1 per cent compared with 10.2 per cent for direct debit. Households with pre-payment electricity meters had the lowest median income of £13,588 driving high levels of fuel poverty but the lowest median floor area of 70m² and the lowest fuel costs of £1,116 which contribute to this payment method having the lowest fuel poverty gap of £166.

Figure 3.25: Households that pay for electricity by prepayment meter tend to live in smaller properties, have lower than average median fuel costs and a lower median income
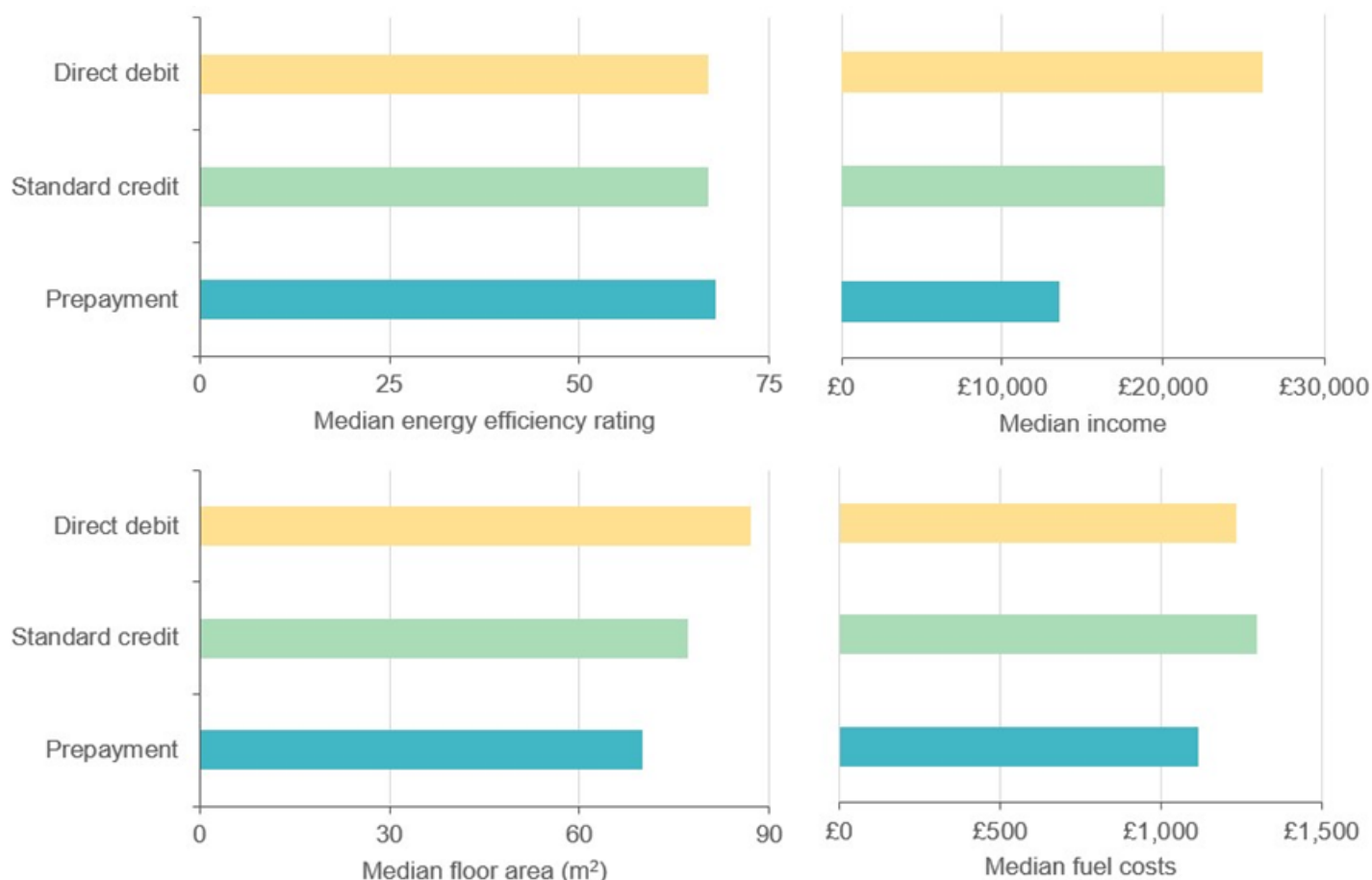
The proportion of households in fuel poverty and the average gap follows a similar pattern for a households' gas method of payment as it did for electricity method of payment.

As presented in this chapter and summarised in Chapter 2, the prevalence of fuel poverty in England varies by a number of key dwelling and household characteristics.

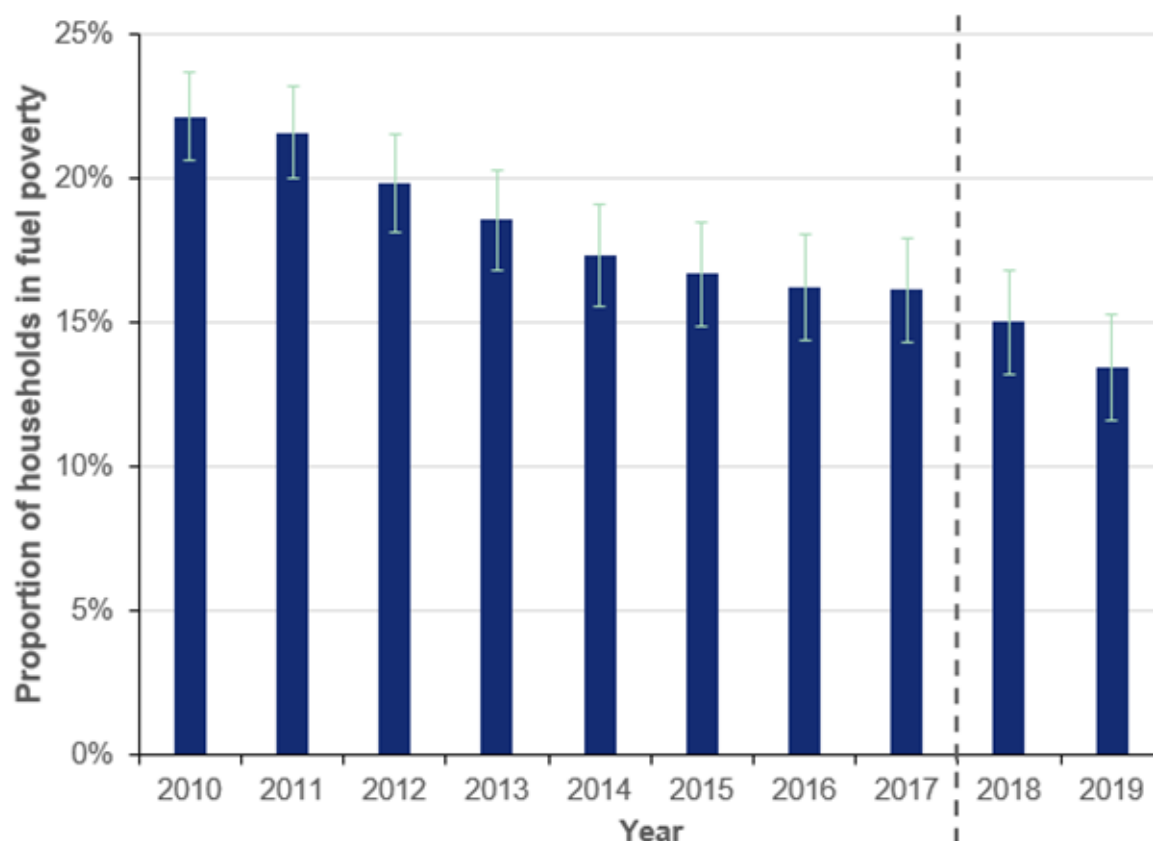More detailed information can be found online in the accompanying detailed, trends and supplementary tables for fuel poverty in England: https://www.gov.uk/government/collections/fuel-poverty-statistics.

Annex A: Additional Data and Figures

Figure A.1: Proportion in fuel poverty, 2010 to 2019 - 95 per cent confidence intervals dictated by the light blue bars

In 2019, the proportion of households in fuel poverty is an estimate based on a sample of 11,974 households from the EHS. Individual cases in the EHS are weighted up to give the total number of households in the UK[57]. The estimated 3,176,000 fuel poor households in 2019 are based on 1,872 individual households.

Based on the nature of the EHS sample, the 95 per cent confidence interval for the proportion of households in fuel poverty in 2019 is 13.4 per cent +/- 1.9 percentage points[58]. We can be 95 per cent sure that the true proportion of households in fuel poverty in 2019 is between 11.6 and 15.3 per cent.

The size of the 95 per cent confidence interval around the proportion of households in fuel poverty increases between 2010 and 2019. This is because the total sample size of the EHS has decreased by 25 per cent across this time period but also the rate of fuel poverty is falling. This has therefore reduced the number of cases that make up the fuel poor population each year, and the confidence we have in our estimates of the proportion has decreased slightly.

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[57] https://www.gov.uk/government/publications/english-housing-survey-weighting-methodology-introduced-in-2013-to-2014

[58] Calculated using the following formula: $p \pm 1.96(design\ factor * standard\ error)$ where $p = 13.4\%$ and the standard error is calculated for a proportion sqrt [$0.134*(1 - 0.134)$ / 1,872]=0.8%. The EHS $design\ factor = 1.2$ (average design factor for the EHS sample).

Figure A.2: Average fuel poverty gap, 2010 to 2019 (2019 prices)- 95 per cent confidence intervals dictated by the red bars
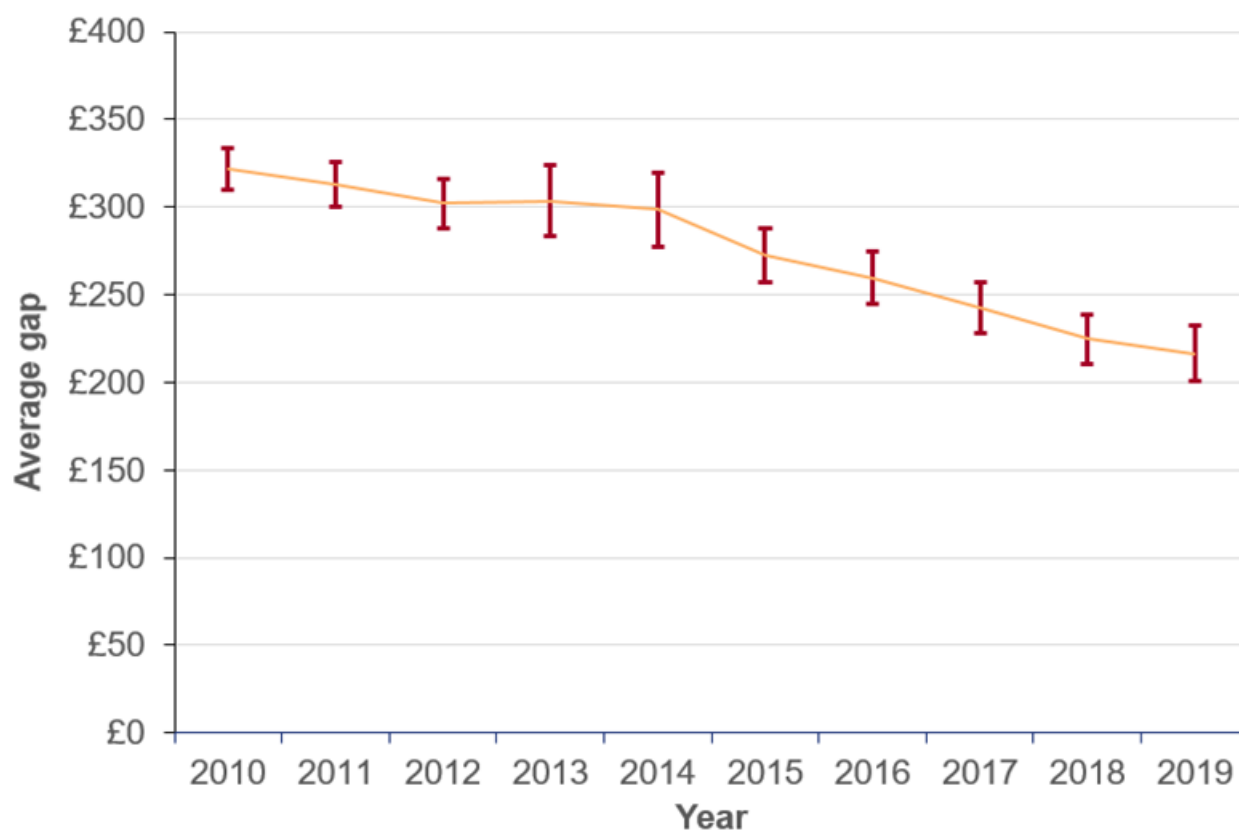
All fuel poor households have a fuel poverty gap based on their fuel expenditure and income. The calculation of the average gap is the aggregate fuel poverty gap divided by the number of fuel poor households.

The 95 per cent confidence interval for the average gap in 2019 is £216 +/- £16[59]. We can be 95 per cent certain that the true average gap in 2019 is between £201 and £232.

Similar to the proportion of households in fuel poverty, the size of the 95 per cent confidence interval around the average gap increases between 2010 and 2019, as the total sample size of the EHS has decreased.

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[59] Calculated using the following formula: $p \pm 1.96(design\ factor * standard\ error)$ where $p = £216$ and the standard error is around £7. The EHS $design\ factor = 1.2$ (average design factor for the EHS sample).

Figure A.3: Progress against the fuel poverty target, 2010 to 2019 - 95 per cent confidence intervals dictated by the bars
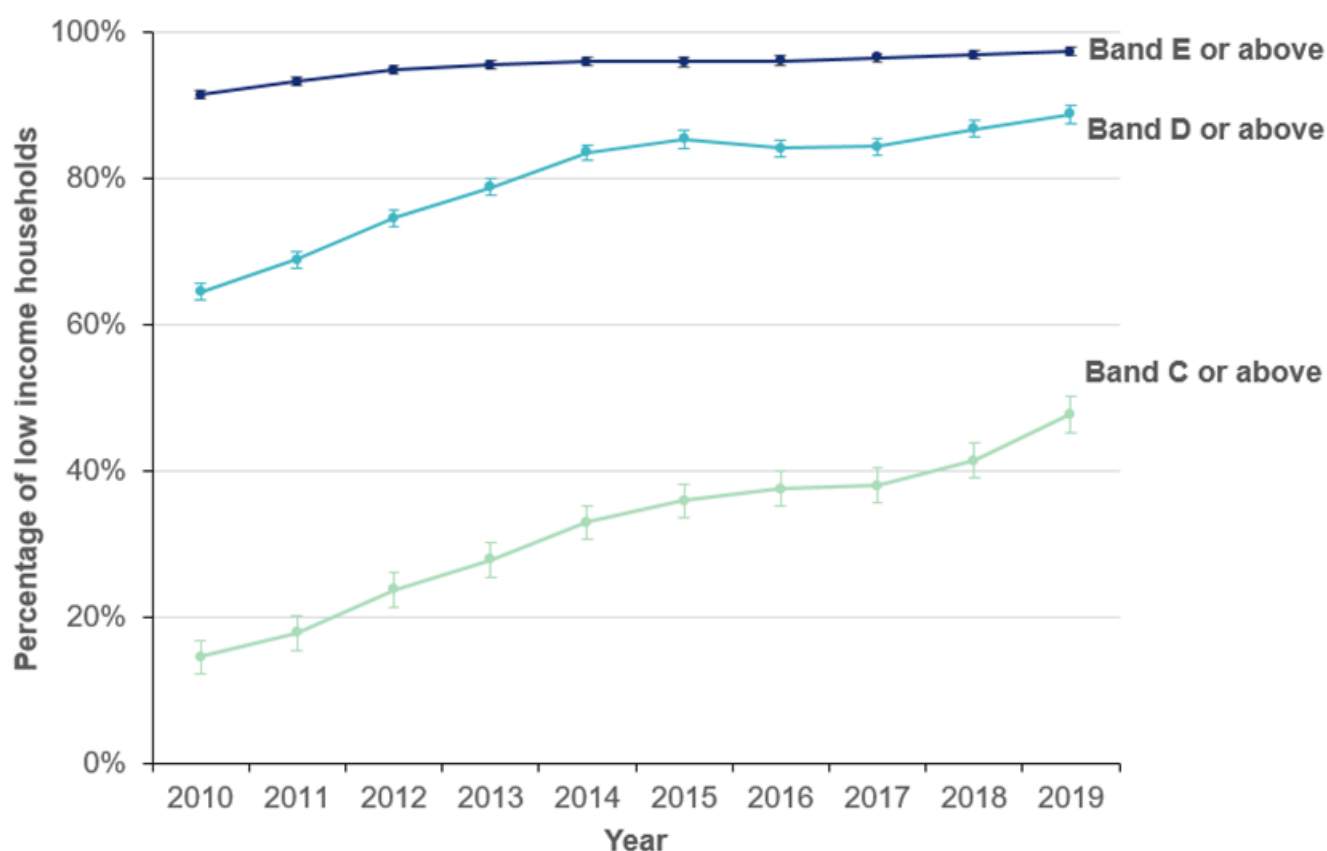
The 95 per cent confidence interval around the estimate of the proportion of households in band C or above in 2019 is +/- 2.6 percentage points. We can be 95 per cent certain that the true proportion of low income households in band C and above in 2019 is between 45.2 and 50.3 per cent.

The 95 per cent confidence interval around the estimate of the proportion of households in band D or above in 2019 is +/- 1.2 percentage points. We can be 95 per cent certain that the true proportion of low income band D and above households in 2019 is between 87.6 and 90.1 per cent.

The 95 per cent confidence interval around the estimate of the proportion of households in band E or above in 2019 (+/- 0.6 per centage points) is smaller than the confidence intervals around band D and band C or above, as this estimate is based on a larger sample size. We can be 95 per cent certain that the true proportion of low income band E and above households in 2019 is between 96.8 and 98 per cent.

Figure A.1 shows that the confidence intervals around the proportion of households in fuel poverty widen over time, due to the decrease in the EHS sample. The size of the confidence intervals around progress towards the target figures, however, remains similar between 2010 and 2019. This is because, although the EHS sample is decreasing, the proportion of households in more energy efficient properties is increasing. Therefore, the number of individual cases in each group increases and the confidence intervals do not widen.

As discussed in Section 2.3.5, Tables A.1 and A.2 show the change in annual domestic electricity and gas bills for each payment method. These compared the prices used for the 2018 fuel poverty statistics (2017 & 2018 prices) and 2019 statistics (2018 & 2019 prices).

Table A.1 Annual domestic gas bills for prepayment customers increased by 1.9 per cent between 2017|18 and 2018|19 (real terms) 2019[60]

Gas method of payment	2017|18 (£)	2018|19 (£)	Percentage change 2017|18-2018|19 (%)
Prepayment	508	518	1.9
Standard Credit	570	567	-0.5
Direct debit	501	504	0.5

Table A.2: Annual domestic electricity bills for prepayment customers increased by 6.3 per cent between 2017|18 and 2018|19 (real terms) 2019[61]

Electricity method of payment	2017|18 (£)	2018|19 (£)	Percentage change 2017|18-2018|19 (%)
Prepayment	537	571	6.3
Standard Credit	589	625	6.0
Direct debit	529	564	6.5

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[60] Annual figures derived from Annual domestic price statistics, Table 2.3.2: https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics. Figures are based on Standard Electricity tariffs, are in real terms and cover England and Wales. Figures used for 2018 fuel poverty dataset represent average of 2017 and 2018 and for 2019 average of 2018 and 2019.

[61] Annual figures derived from Annual domestic price statistics, Table 2.2.2: https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics. Figures are in real terms and cover England and Wales. Figures used for 2018 fuel poverty dataset represent average of 2017 and 2018 and for 2019 average of 2018 and 2019.

As shown in figure 2.3, 47.8 per cent of low income households are rated A-C compared with 42.6 per cent of all households in figure A.4. This demonstrates the combined effect of targeting energy efficiency measures to low income homes and the impact of the Warm Home Discount. On average, low income households had a SAP rating (prior to the application of Warm Home Discount) 0.6 points (1 per cent) higher than high income households.

The share of households with E-G energy efficiency ratings was high among high income households (12.0 per cent) compared with 11.2 per cent for all households.

Figure A.4: The proportion of *all* households split by energy efficiency rating bands
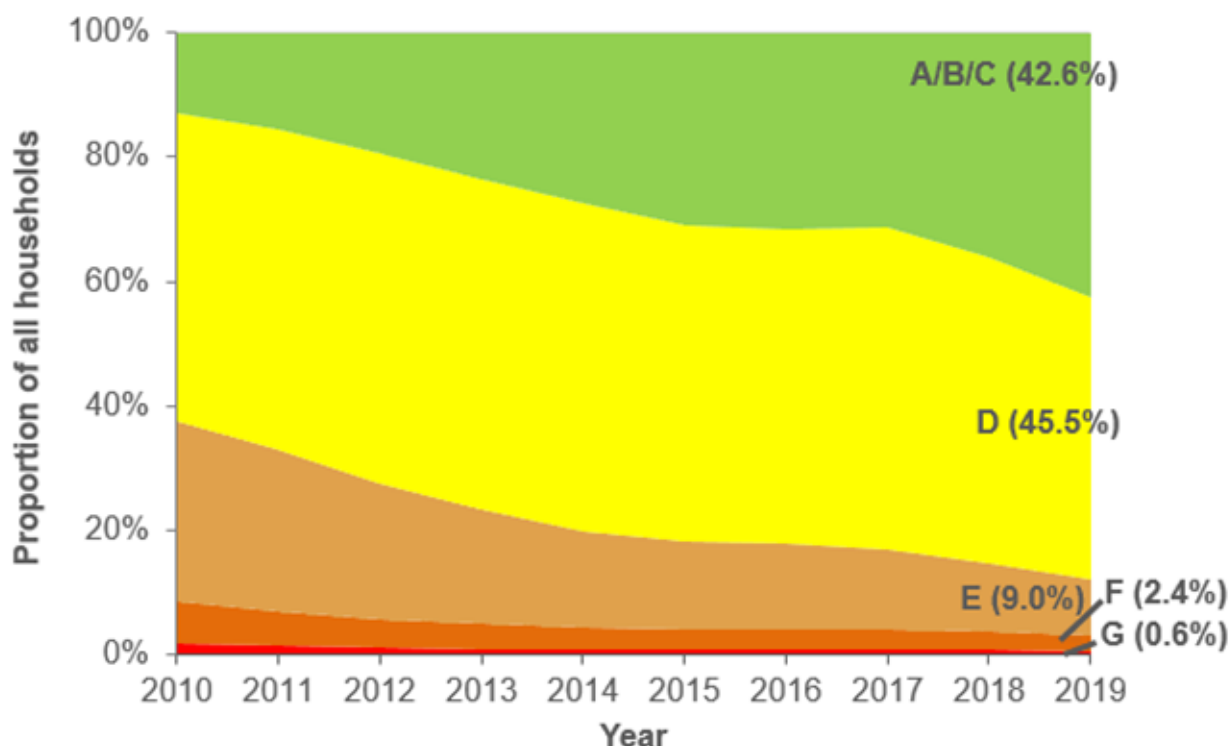
Annex B: Fuel Poverty under Low Income High Costs metric

B.1 LIHC headline summary

The Low Income High Cost indicator was first used to report fuel poverty statistics in 2015 following the previous fuel poverty strategy for England[62].

Fuel poverty in England was measured using the Low Income High Cost (LIHC) indicator, which considers a household to be fuel poor if:

- they have required fuel costs[63] that are above average (the national median level); and

- were they to spend that amount, they would be left with a residual income[64] below the poverty line[65].

This is no longer the official metric to measure fuel poverty in England but the headline results under this metric are summarised for continuity. We plan to discontinue reporting against this metric in the future.

- The **proportion of households in England** in fuel poverty was estimated to have increased by 0.1 percentage points from 2018 to 10.4 per cent in 2019 (approximately 2.45 million households).

- In 2019, the **average fuel poverty gap** (the reduction in fuel bill that the average fuel poor household needs in order to not be classed as fuel poor) in England was estimated at £341, a slight decrease from £342 in 2018 in real terms.

- The **aggregate fuel poverty gap** for England increased in 2019 (by 1.8 per cent in real terms) to £836 million.

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[62] https://www.gov.uk/government/publications/cutting-the-cost-of-keeping-warm

[63] Fuel costs required to have a warm, well-lit home, with hot water and the running of appliances. An equivalisation factor is applied to reflect that households require different levels of energy depending on who lives in the property. Further information on how fuel costs are calculated can be found in Section 5 of the Methodology Handbook: https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

[64] Residual income is defined as equivalised income after housing costs, tax and National Insurance. Equivalisation reflects that households have different spending requirements depending on who lives in the property. Further information on how income is modelled can be found in Section 3 of the Methodology Handbook (above).

[65] The poverty line (relative income poverty) is defined as an equivalised disposable income of less than 60% of the national median, more information on the methodology can be found in the following infographic: https://www.gov.uk/government/publications/how-low-income-is-measured

Table B.1: In 2019 the level of fuel poverty under LIHC was virtually unchanged since 2018

Headline measure	2010	2018	2019
Average gap[66] (£)	373	342	341
Aggregate gap (£ millions)	918	821	836
Proportion of households in fuel poverty (%)	11.4	10.3	10.4
Number of households in fuel poverty (millions)	2.46	2.40	2.45

Figure B.1: The average LIHC gap decreased each year between 2014 and 2017 with a slight increase in 2019, whilst the proportion of households in fuel poverty under LIHC has slightly increased to 10.4 per cent in 2019 [67]
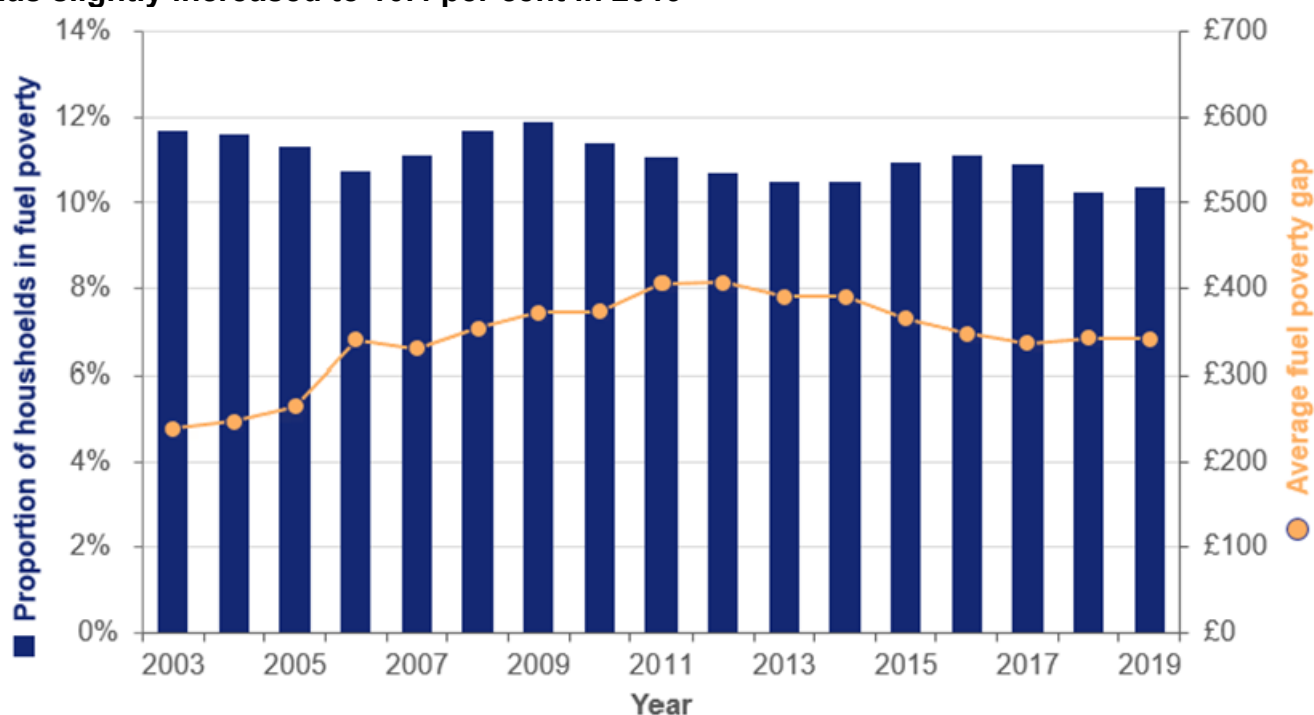
Due to the relative nature of the LIHC measure, the proportion of households in fuel poverty has remained broadly stable over time, fluctuating between 10 and 12 per cent since 2003.

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[66] Produced using the Gross Domestic Product (GDP) deflators (December 2020), published in January 2021 and available at the following link: https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-december-2020-quarterly-national-accounts
[67] Left axis: blue bars show the proportion of households in fuel poverty. Right axis: orange dots show the average fuel poverty gap.

B.2 Key drivers

The fuel poverty status of a households depends on the interaction between three key drivers[68]:
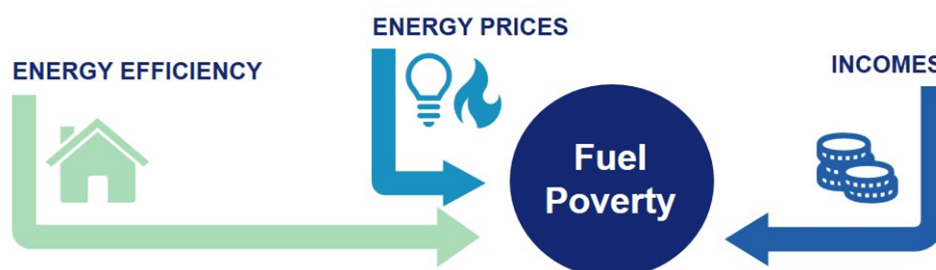
Higher incomes, *increased* energy efficiency and *lower* energy prices would each have a positive impact on a fuel poor household.

The relative nature of the LIHC fuel poverty indicator makes it difficult to accurately isolate individual reasons for change. For any factor to affect the number of households in fuel poverty, it must change by a greater amount for those in fuel poverty, than for those not in fuel poverty. For example, a change in income will only have an impact on the number of households in fuel poverty if households with low incomes and high fuel costs (LIHC households) see relatively larger or smaller income changes compared to those who are not in fuel poverty.

The main reason for the slight increase in fuel poor households in 2019 was that fuel bills increased for some low income households due to the higher increase in the price of electricity for prepayment meters than other tariffs, and as a result marginally more households are classed as having higher than average fuel costs.

As for LILEE, the proportion of households classed as low income only changed slightly from 24.7% in 2018 to 25.0% in 2019 because the growth in incomes between 2018 and 2019 in the 3rd and 4th deciles is very similar to the median income growth. The definition of household income for LILEE is slightly different to the traditional method used for LIHC where certain disability benefits are excluded from the income calculation. This is explained in more detail in the updated Fuel Poverty Methodology Handbook for LILEE[69].

The rate of improvement in energy efficiency ratings was similar between low income households and high income households between 2018 and 2019.

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[68] See Annex D: Measuring fuel poverty in England, for further explanation of how changes to key drivers affect fuel poverty figures.
[69] Fuel Poverty Methodology Handbook https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Annex C: Comparison between Fuel Poverty under Low Income High Costs and Low Income, Low Energy Efficiency metric

This annex compares the headline results for 2019 for both the new LILEE metric and former LIHC metric.

The figures below indicate that there are an additional 723,000 low income households living in a property under the LILEE metric with a fuel poverty energy efficiency rating of band D or below compared with those that have fuel costs above the median (under LIHC).

**Table C.1: Comparison of fuel poverty statistics under LIHC and LILEE**

Headline measure for 2019	LIHC	LILEE
Average gap[70] (£)	341	216
Aggregate gap (£ millions)	836	687
Proportion of households in fuel poverty (%)	10.4%	13.4%
Number of households in fuel poverty (millions)	2.45	3.18

As shown in Figure C.1, under both the LIHC and LILEE metrics place households within four quadrants based on whether their [equivalised income + fuel costs] is below the poverty threshold. The difference is that under LILEE an absolute threshold of energy efficiency rating band C is used rather than having modelled costs above the median.

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[70] The calculation of the gap under LIHC and LILEE are slightly different. Both though represent the change in fuel costs from a household's current position to the point that it exits the fuel poor quadrant. Please refer to the methodology documentation on each.

Figure C.1: Diagrams to show the quadrants under LIHC and LILEE metrics.
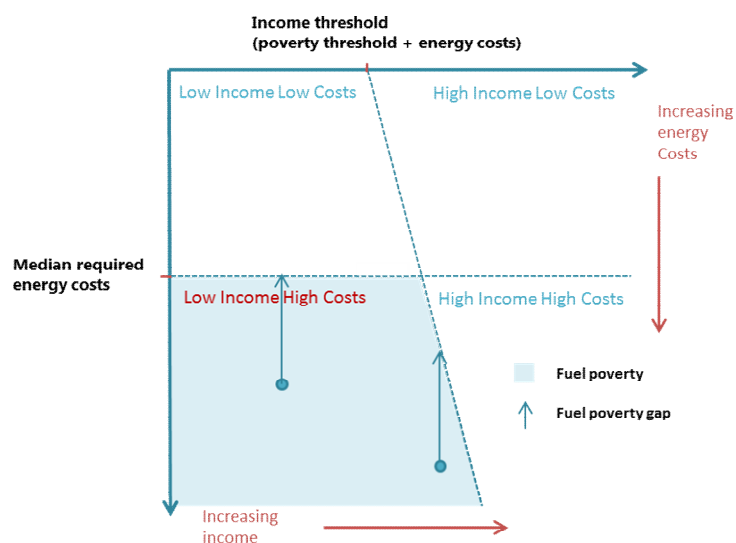
Low Income High Costs (LIHC)   **Low Income Low Energy Efficiency (LILEE)**
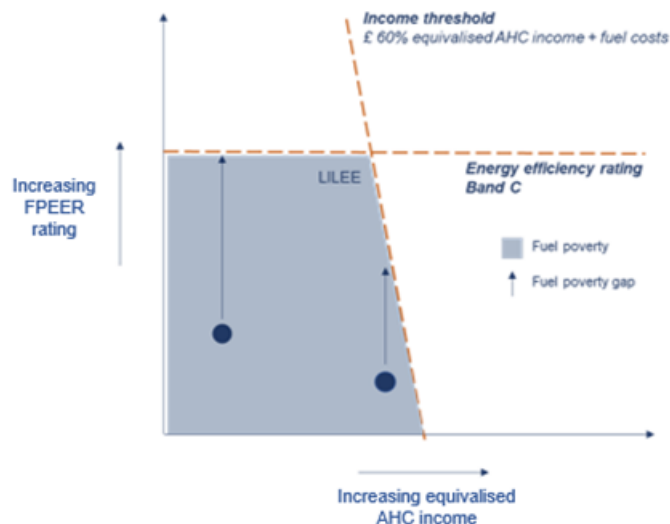
Figure C.2 compares the number of households in each equivalent quadrant. Under LILEE 25.7 per cent of households fall within one of the low income quadrants (dark blue), compared with 25.0 per cent under LIHC. This slight difference is because under the LILEE disability payments are not counted as income leading to some households having lower incomes under LILEE.

Figure C.2: Under LILEE there is a net increase of 3.1% of all households which move from the low income low costs quadrant to low income low energy efficiency hence increasing the share of households in fuel poverty under LILEE.
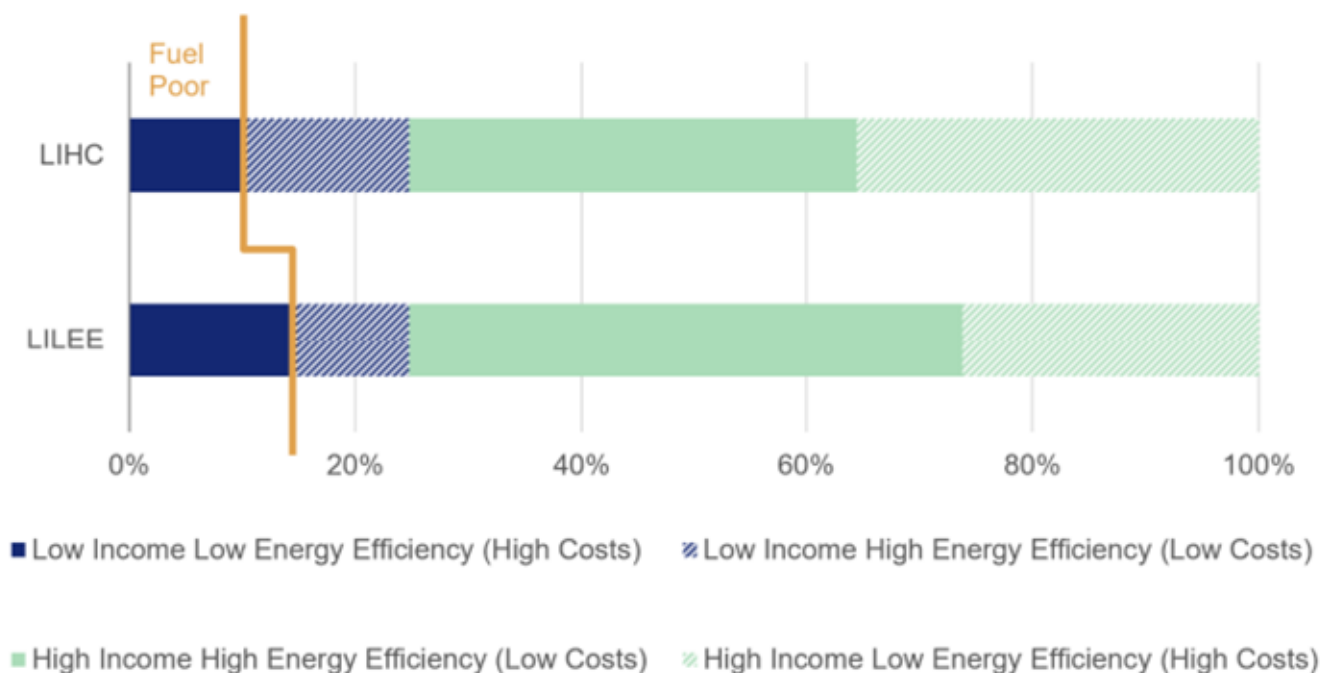
Figure C.3: Over the period 2010-2019 the share of households in fuel poverty has fallen steadily under the LILEE metric compared to small year on year changes under LIHC[71].
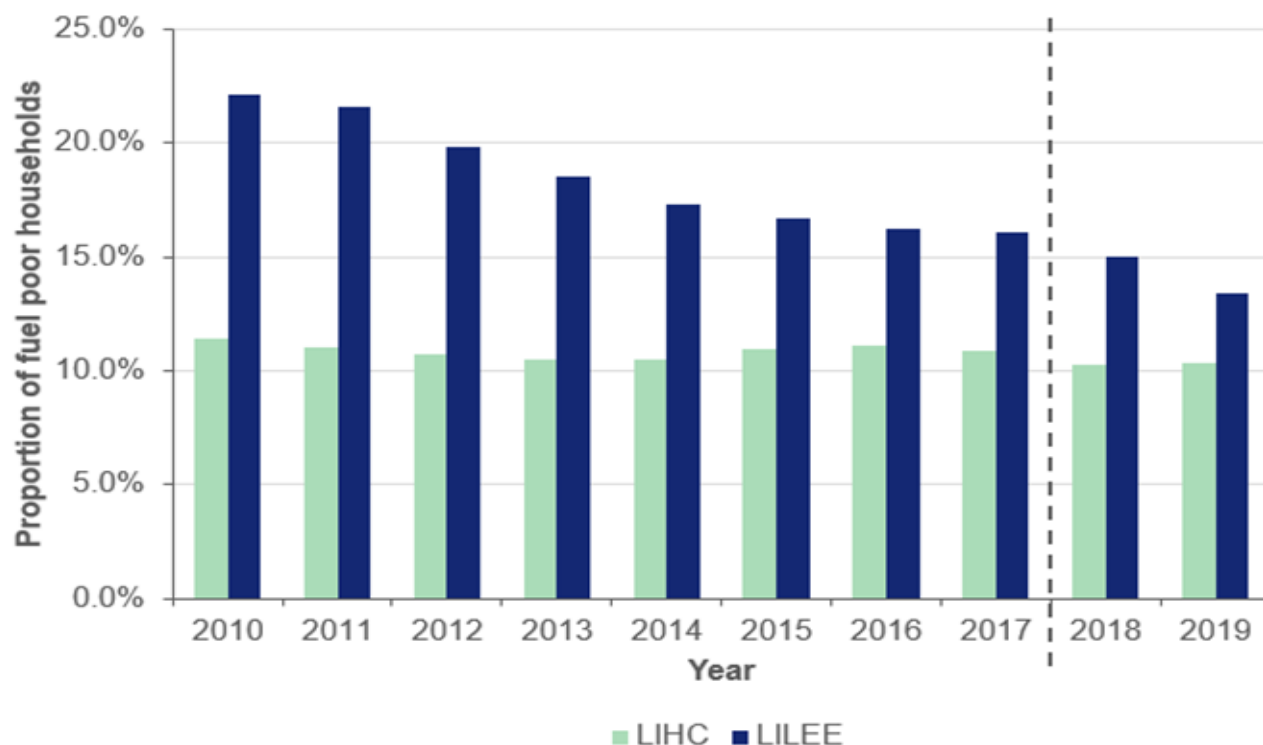
Figure C.4: The fuel poverty gap is lower throughout 2010-2019 under LILEE and has decreased more due to energy efficiency compared with LIHC

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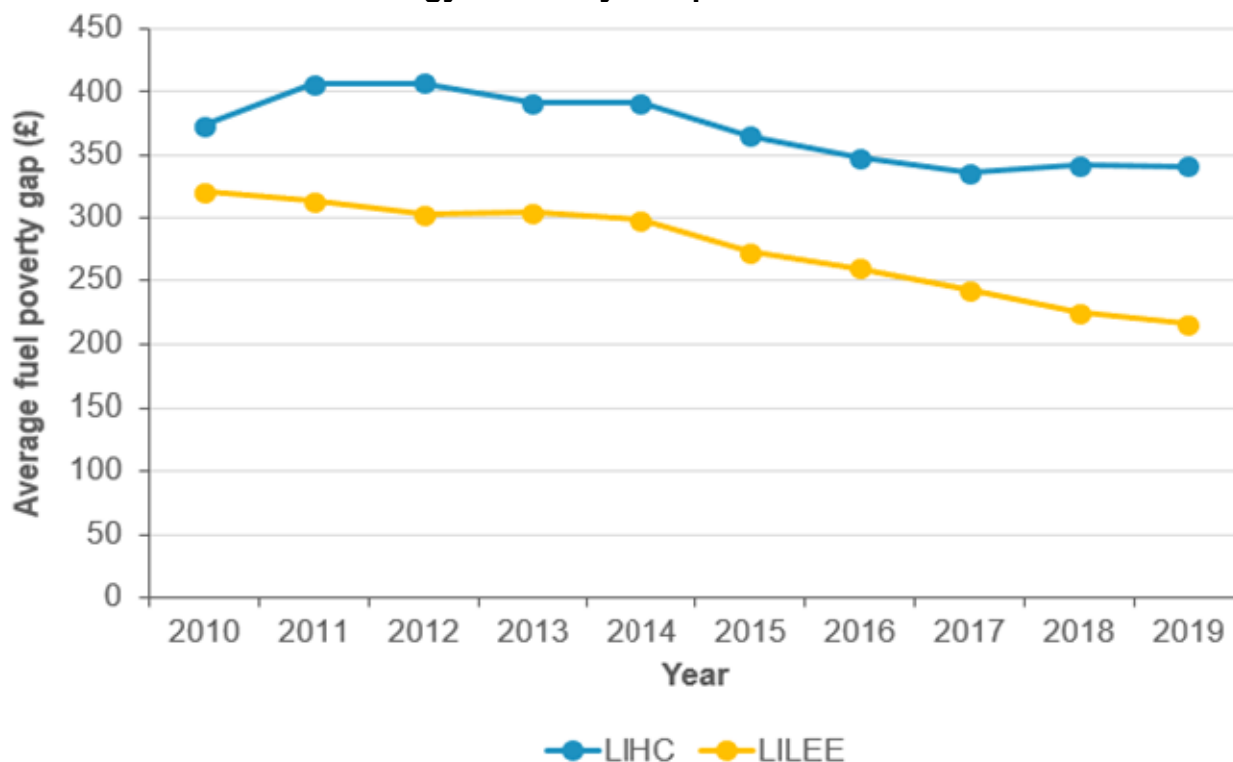
[71] Due to a change in the assumptions used to calculate SAP there is a discontinuity in the time series. This affects both LIHC and LILEE but the impact on LIHC is minimal. In 2017, we estimate that the share of fuel poor households under LILEE would be around 1 percentage point lower under the new assumptions.[71] Estimates for 2018 are partially affected by this change with the full effect seen in 2019.

54

The majority (79 per cent) of households that were assessed as fuel poor in 2019 under a LIHC measures were also fuel poor under LILEE in 2019. Of the remaining 522k households which are not fuel poor under LILEE, 448k households (86 per cent) had an energy efficient rating of band A-C and therefore are no longer fuel poor.

The largest increase is in D rated homes in fuel poverty which have nearly doubled from 1.4m to 2.5m.

Across band E-G there is little change with an additional 30k households (5 per cent) being classified as fuel poor only under LILEE.

In total 8.2 per cent of all households in England are classed as fuel poor under both LIHC and LILEE metrics in 2019, with an additional 2.2 per cent only fuel poor under LIHC and 5.3 per cent only fuel poor under LILEE.

Figure C.5: There are almost twice as many fuel poor households in FPEER Band D under LILEE than LIHC in 2019 but households at Band C or above are not fuel poor under LILEE.
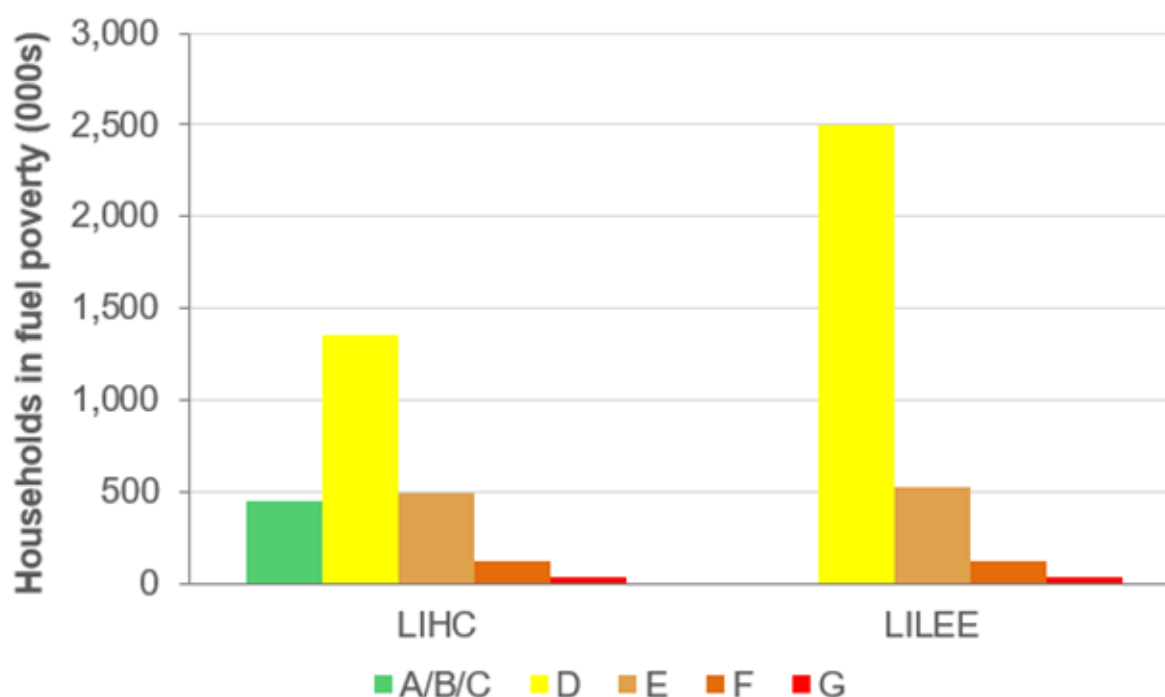
Modelled fuel costs under FPEER are a function of energy efficiency rating and floor area with fuel poor homes under LIHC typically being either in band E or below or in band D in above average size homes. Figure C.6 shows that there are less homes greater than 110m^2 classed as fuel poor under LILEE but a substantial rise in homes less than 90m^2 who were not considered fuel poor under LIHC but fall in band D-G so are fuel poor under LILEE.

Figure C.6: The largest increase in the number of fuel poor households is from households occupying smaller homes. The number of fuel poor homes under 50m^2 is 2.5 times higher under LILEE in 2019.
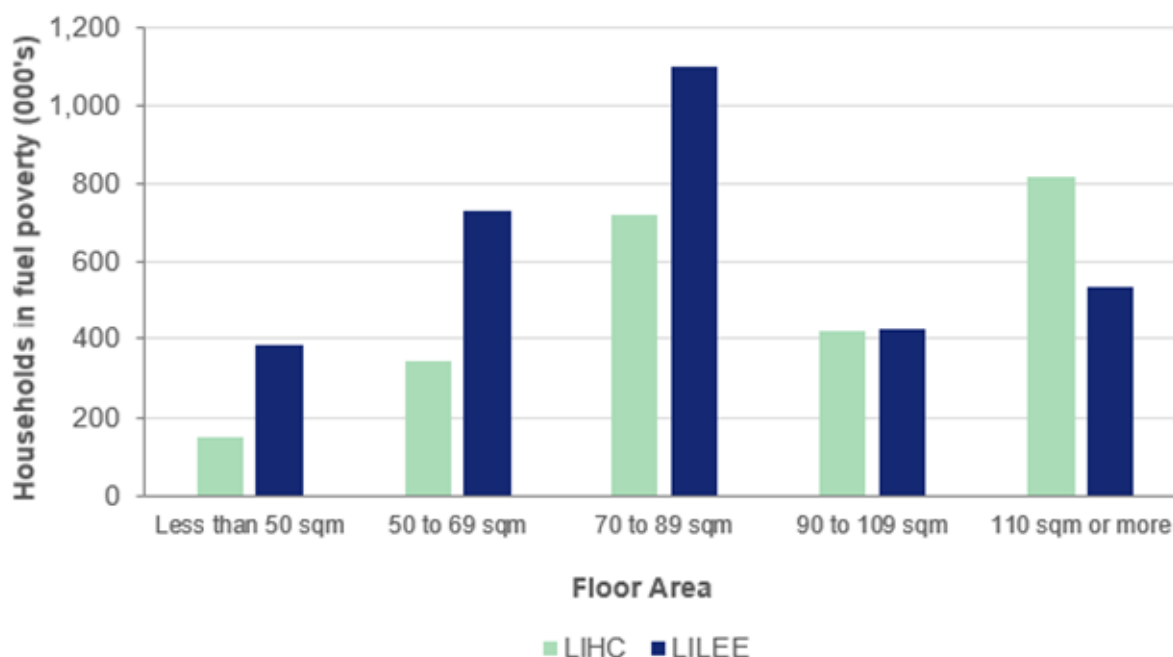
Overall the number of fuel poor households in detached properties fell slightly between LIHC and LILEE. Increases were seen in all other property types with the largest proportional increases in fuel poverty under LILEE were in flats with smaller increases in semi and terraced housing.

Figure C.7: The largest proportional increases in fuel poverty under LILEE in 2019 were in flats with smaller increases in semi and terraced housing and a slight decrease in detached homes.
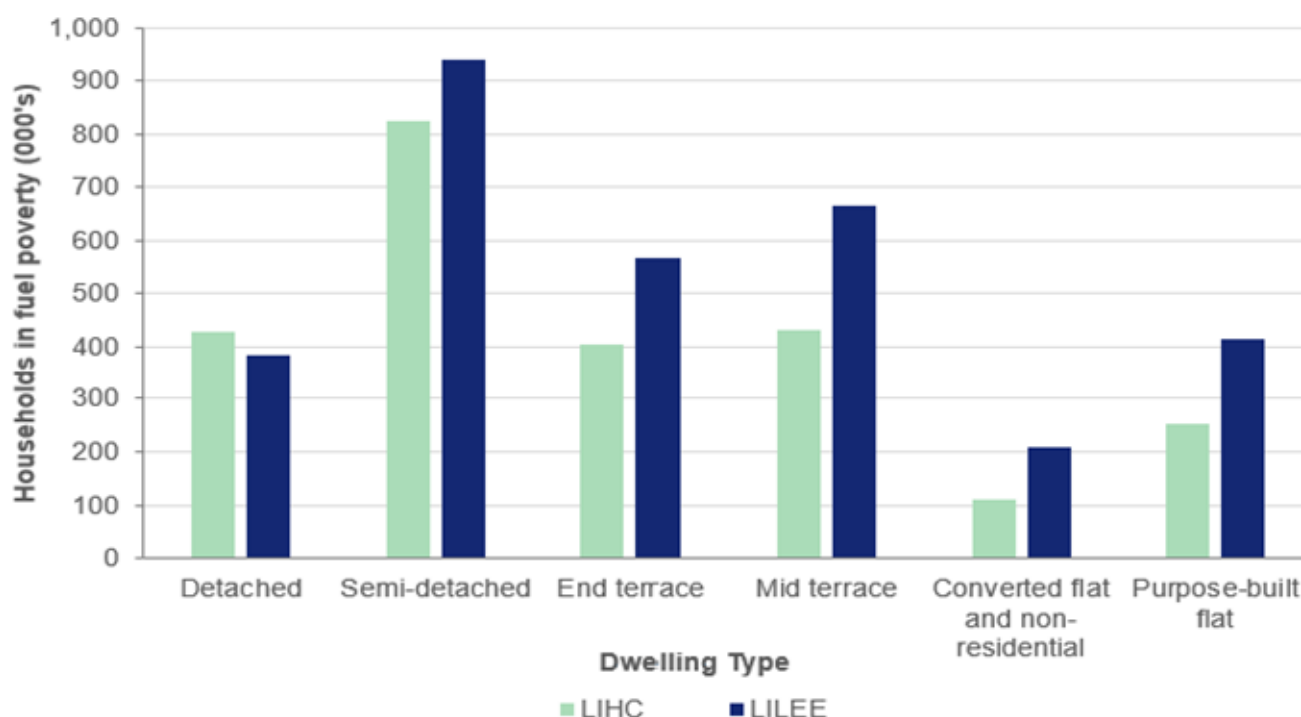
Overall, under the LIHC metric, 46 per cent of fuel poor households were in rented homes in 2019. Under LILEE this share increased to 61 per cent with largest increase in social rented homes where the number of households in fuel poverty more than doubled. While overall social housing sees the highest median energy efficiency rating it also has a high concentration of low income households who were not previously considered fuel poor due to relatively low fuel costs due to smaller homes.

Figure C.8: The largest increases in the number of fuel poor households under LILEE in 2019 is from households in the private rented and social rented tenures

Under LIHC the highest rate of fuel poverty was seen in rural areas (13.4 per cent of rural households compared to 10.4 per cent in urban areas). Under LILEE the highest rate of fuel poverty is in urban areas (13.8 per cent of rural households compared to 13.2 per cent in rural areas). This change reflects that urban homes are typically smaller (median 81m^2) compared to rural homes (median 116m^2).

The share of fuel poor homes in urban and rural areas under LILEE is similar in 2019, with the median higher incomes of rural households (£28,795 compared to £22,795 for rural households) offsetting a 10 point difference in median energy efficiency rating of 68 for urban households and 58 for rural.

Figure C.9: Most of the net change in fuel poor households has been in urban areas between LIHC and LILEE in 2019
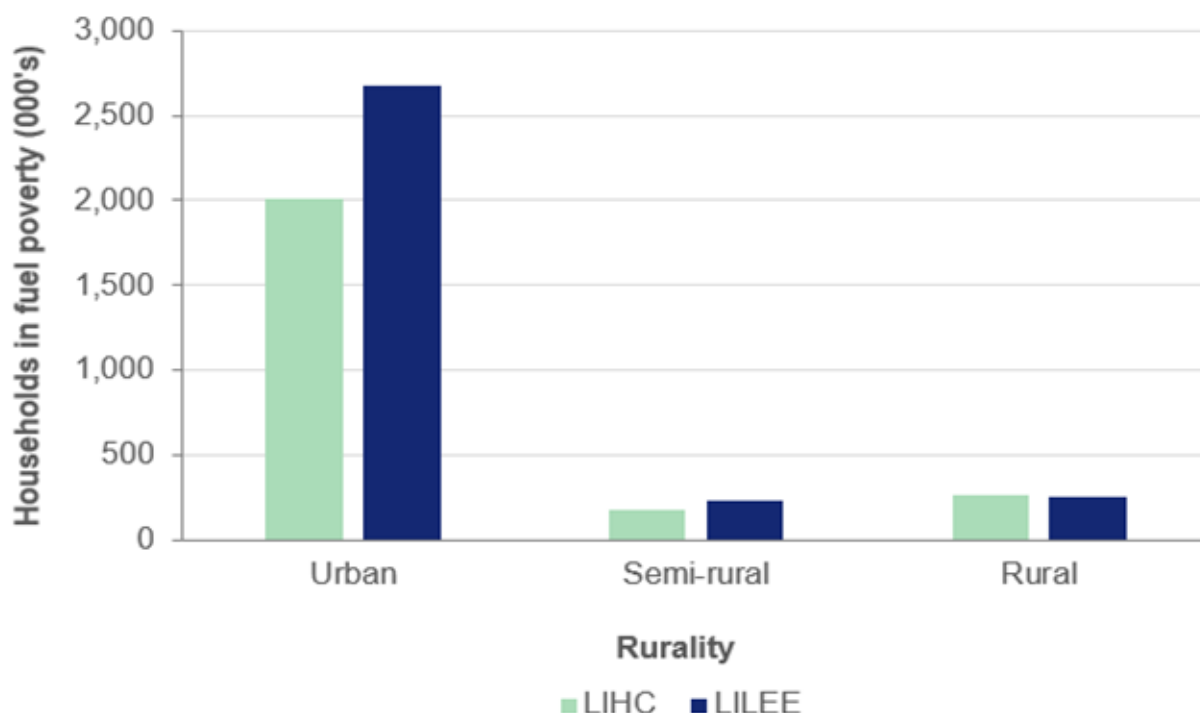
The number of households increased under LILEE in all age groups measures based on the age of the oldest person in the households. The largest increases were in the younger age groups reflecting that these households typically lived in smaller properties with lower fuel costs.

Figure C.10: The number of households increased under LILEE in 2019 in all age groups. The largest increases are in the younger age groups.
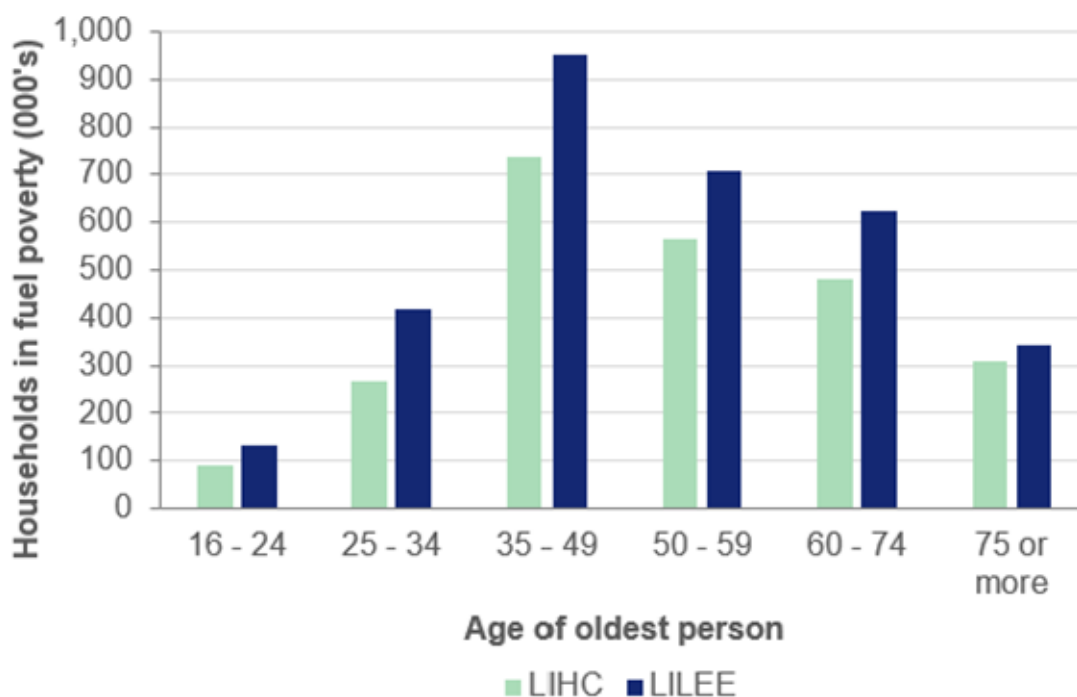
The largest increase in the rate of fuel poverty between LIHC and LILEE in 2019 was for households with prepayment electricity meters. On average, prepayment customers lived in smaller homes (median 70m^2) and lower fuel costs (median £1,116) which increased the likelihood of these households being fuel poor. Overall, for households with prepayment electricity meters the share of fuel poor households increased from 19.7 per cent under LIHC to 29.7 per cent under LILEE.

Figure C.11: The largest increase in the rate of fuel poverty between LIHC and LILEE in 2019 was for households with prepayment electricity meters
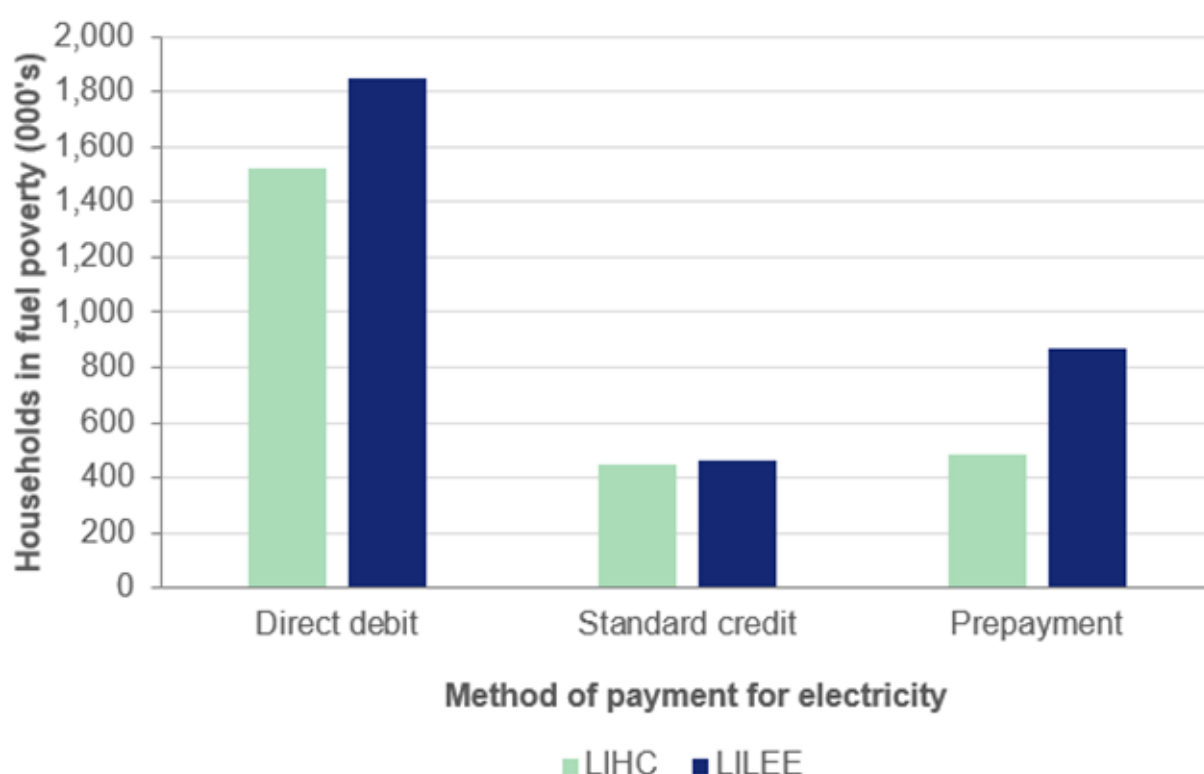
In summary, the share of fuel poor households has increased from 10.4 per cent of households under LIHC to 13.4 per cent of homes under LILEE in 2019 but as shown in Figure C.3 the share of fuel poor homes under LILEE has decreased steadily over the last decade driven by energy efficiency.

As many of these comparisons have shown, the LILEE measurement classifies more households living in smaller homes as fuel poor who were previously not considered fuel poor because they had below average required fuel costs.

Annex D: Measuring Fuel Poverty in England

This annex provides more detailed information on the following: how the Low Income Low Energy Efficiency (LILEE) indicator of fuel poverty works, and understanding the drivers of fuel poverty, data sources, and methodological updates for the 2019 estimates. A glossary of key terms used throughout this report and supporting links can be found of the end of the Annexes.

D.1 Introduction to Low Income Low Energy Efficiency

Fuel poverty in England is now measured using the Low Income Low Energy Efficiency (LILEE) indicator[72], which considers a household to be 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)[73] Methodology - this is depicted by the horizontal threshold in Figure D1; and

- its disposable income (after housing costs and energy needs) would be below the poverty line[74] as depicted by the sloping line threshold in Figure D1.

Low Income Low Energy Efficiency is a *dual* indicator, which allows us to measure not only the *extent* of the problem (how many fuel poor households there are), but also the *depth* of the problem (how badly affected each fuel poor household is). The depth of fuel poverty is calculated by taking account of the **fuel poverty gap**. This is a measure of the additional fuel costs (in pounds) faced by fuel poor households to compared with the required fuel costs at the threshold that would make them non-fuel poor. This is illustrated in Figure D1, where the indicator consists of:

- the **number** of households that have both low incomes *and* low energy efficiency (shown by the shaded area in the bottom left-hand quadrant in D1; and

- the **depth** of fuel poverty among these fuel poor households. This is measured through a **fuel poverty gap** (shown by the vertical arrows in Figure D1), which represents the difference between the required energy costs for each household and the nearest fuel poverty threshold (in pounds).

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[72] The calculation of the LILEE metric is set out in detail in the LILEE Fuel Poverty Methodology Handbook https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook
[73] More information on FPEER can be found here.
[74] The poverty line (income poverty) is defined as an equivalised disposable income of less than 60% of the national median (Section 2): https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/articles/persistentpovertyintheukandeu/2015

To get a sense of the depth of fuel poverty at a national level, the fuel poverty gap for each individual household is aggregated across all fuel poor households to produce an overall **aggregate fuel poverty gap**.

The fuel poverty indicator contains a *relative* measure, as it compares households to national income thresholds but also uses an absolute energy efficiency rating. A change in income will only have an impact on fuel poor households when they see relatively larger income changes (increase or decrease) than the overall population. The *absolute* measure of energy efficiency means that improving the energy efficiency rating to at least band C will remove the household from fuel poverty regardless of income and fuel costs.

Figure D1: Fuel poverty under the Low Income Low Energy Efficiency indicator
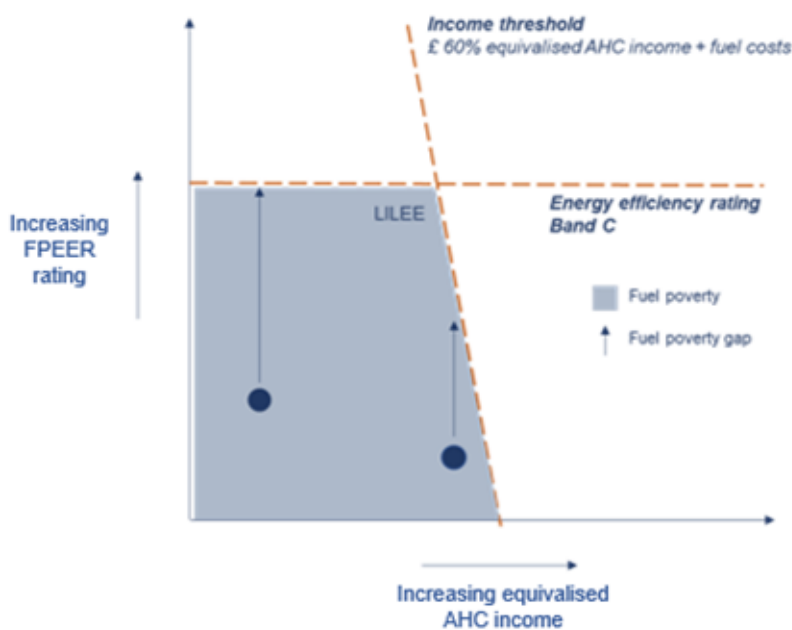
Fuel poor households (bottom left-hand quadrant of Figure D1) include some households who may not traditionally be considered poor but are pushed into fuel poverty by their high energy requirements and low energy efficiency (this is reflected in the gradient of the income threshold).

Those in the bottom right-hand quadrant also have low energy efficiency but their relatively high incomes mean that they are not considered to be fuel poor.

Those in the top right-hand quadrant have both high incomes and high energy efficiency, and are therefore not fuel poor.

While it is recognised that households in the top left-hand quadrant have low incomes, they also have high energy efficiency and so are not considered to be *fuel* poor.

D.2 How the Low Income Low Energy Efficiency (LILEE) indicator of fuel poverty works

Fuel poverty is estimated by calculating each household's position relative to two thresholds (illustrated in Figure D.2). The first is an absolute energy efficiency threshold whereby a household cannot be considered fuel poor if it has an FPEER rating of band C or above. The second threshold is a relative measure which considers a household's disposable income; After Housing Cost (AHC) income[75]. The AHC income is defined by equivalising a household's income after deducting their housing costs. The low income threshold is then calculated by taking 60% of the median income value having ranked all the AHC incomes in the dataset and adding on the household's equivalised required fuel costs. To be fuel poor under the LILEE indicator, a household's energy efficiency rating must be below FPEER band C *and* their equivalised AHC income much be below the income threshold.

As with the LIHC indicator, for incomes or fuel costs to affect the number of households in fuel poverty under the LILEE measure, they must change by a greater or lesser amount for those *in* fuel poverty, than for those *not* in fuel poverty. Fuel price changes have a limited effect compared with changes to income on the number of households in fuel poverty. This is because fuel costs are relatively small for most households relative to a household's income and thus unlikely to move across the income threshold for fuel poverty. The fuel prices through do have a significant effect on the fuel poverty gap.

While the energy efficiency rating threshold and income thresholds under the LILEE metric define the number of fuel poor households, the depth of fuel poverty is measured through the fuel poverty gap. This is the monetary difference between a household's current fuel costs and the fuel costs they need to not be considered fuel poor. The fuel poverty gap is indicated by the upward pointing arrows in the LILEE quadrant in Figure D1, which show households can exit fuel poverty by either attaining a band C energy efficiency or through the income threshold by which their fuel costs have decreased to a value that they are no longer under the low income threshold.

Figure D2, below, illustrates how fuel poor households may move out of fuel poverty, either due to an increase in disposable income and/or an increase in household energy efficiency rating.

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[75] As set out in section 3 of the Fuel Poverty Methodology Handbook for LILEE, benefit payments made specifically to the HRP and any partner to cover the additional costs of living with a disability including Disability Living Allowance (DLA), Personal Independence Payments (PIP) and Attendance Allowance (AA) are excluded from the household income used for LILEE.

Figure D2: Movement across the income and fuel costs threshold due to either increases in income, reductions in energy consumption or a combination of both
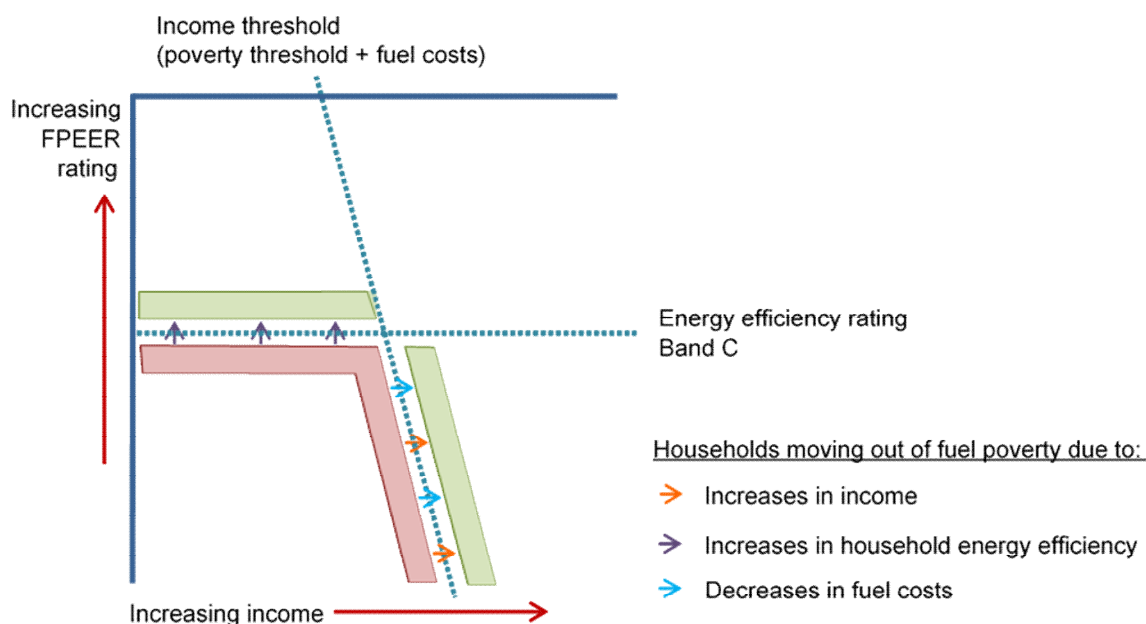
D.3 Drivers of Fuel Poverty

There are three key elements in determining whether a household is fuel poor: Household Income, Energy Efficiency Rating, and Fuel Prices.

Measuring household income

The Low Income Low Energy Efficiency indicator is based on modelled incomes calculated after housing costs and council tax have been taken into account, since money spent on housing costs cannot be spent on fuel. Mortgage payments, rent payments and council tax are deducted from the full income of each household to give an After Housing cost (AHC) measure of income.

Once housing costs are deducted, incomes are then equivalised to reflect the fact that different household types will have different spending requirements. For example, a single person on a given income will usually have more disposable income than a family of four on the same income. The equivalisation factors used for income calculations are the same as in the Department for Work and Pensions (DWP) Households Below Average Income (HBAI) statistics[76]. These equivalisation factors were devised by the Organisation for Economic Co-operation and Development (OECD), and are widely used across Europe.

Measuring household energy requirements

The fuel poverty definition uses household energy requirements in two ways. Firstly the energy efficiency rating sets the low energy efficiency thresholds. Secondly, the required fuel costs which includes fuel for heating the home, heating water, lighting, appliance usage and cooking.

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[76] https://www.gov.uk/government/collections/households-below-average-income-hbai--2

In calculating the required fuel costs, the energy costs are modelled, dependent on the following factors:

- The economic circumstances of householders (for example, if they are unemployed or retired they will be at home for longer periods of the day);

- the heating system and the type of fuel(s) used, and

- the dwelling characteristics.

This allows energy requirements to be standardised to ensure households maintain an adequate standard of warmth[77] based on their household composition and energy set-up. In reality, households may under or over-heat their home, relative to the recommended levels.

Measuring fuel prices

Detailed fuel prices are allocated to each household in the data, based on reported fuel type, regional location and method of payment. This allows us to model the *unit* cost of energy for each household based on their energy set-up and assign the appropriate standing charge.

In order to calculate fuel poverty a household's required energy costs must be modelled. This is calculated by taking the number of units of energy consumed, multiplying by the cost of a unit of energy, and adding the required standing charge for each household.

Similar to incomes, fuel costs are then equivalised by the number of people in the household, to reflect the fact that different sizes of households will have different energy requirements. For example, a family of four will need to spend more on energy than a single person living in the same home.

D.4 Data Sources

The English Housing Survey (EHS)[78]

Fuel poverty is modelled using data from the English Housing Survey (EHS). The EHS is an annual national survey of people's housing circumstances, household income and the condition and energy efficiency of housing in England. It is commissioned by the Ministry of Housing, Communities and Local Government (MHCLG), covers all tenures (private and social) and involves a detailed physical inspection of properties by professional surveyors.

The two key components of the English Housing Survey for fuel poverty modelling are:

- the interview survey with the householders living in the dwelling; and

- the physical survey (survey of the physical features and condition of the dwelling).

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[77] An adequate standard of warmth is defined as 21ºC for the main living area and 18 ºC for other occupied rooms. Further detail can be found in the Methodology Handbook at: https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook
[78] https://www.gov.uk/government/collections/english-housing-survey

Each year, approximately 12,000 households take part in the interview. Around half of these properties are selected for the follow-up physical survey (key to fuel poverty energy modelling), involving a physical inspection of the property by professional surveyors.

Two years' worth of EHS data from households selected for both the interview *and* physical surveys are combined to ensure an adequate sample size for fuel poverty modelling. For the 2019 data, this covers the period between 1 April 2018 and 31 March 2020, and comprises 12,203 households over two consecutive data collection years (2018/19 and 2019/20). Therefore, users are advised to use caution when looking at year on year changes in fuel poverty, as the samples will not be independent. Headline results from the 2013 EHS were published on 19 December 2020[79]. Full data relating to the 2018 EHS, will be made available by MHCLG later this year through the UK Data Service.

Fuel Prices Data

The English Housing Survey does not collect information on fuel prices for households. Therefore, to estimate them for each household in the EHS, fuel price information is modelled using data from other sources including: BEIS Quarterly Energy Prices[80]; ONS Consumer Price Index[81]; and Sutherland Tables[82]. Further information on modelled fuel price data is available in the Methodology Handbook[83].

D.5 Methodological Updates

Changes to the BREDEM model

There have been no changes to underlying methodology used to model household energy requirements using the Building Research Establishment Domestic Energy Model used for the fuel poverty modelling (BREDEM 2012 version 1.1[84]) incorporating the latest U-value assumptions from RdSAP (version 9.93).

The assumptions for chimneys, fans and flues were revised in methodology update for SAP first introduced for the 2018/19 data so partially affected the 2018 figures and now affects the whole dataset for 2019. It is estimated that this increased the average SAP rating by 0.7 points between 2017 and 2019 with around half of this between 2017 and 2018. In 2017, we estimate that the share of fuel poor households would be around 1 percentage point lower under the new assumptions. Estimates for 2018 are partially affected by this change with the full effect seen in 2019.

Changes to the English Housing Survey (EHS)

In 2019 there were no major form changes to the EHS interview or physical survey. All the interview surveys used in this modelling were completed by 10 March 2020, before the start of Covid-19 restrictions in England.

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[79] https://www.gov.uk/government/statistics/english-housing-survey-2019-to-2020-headline-report
[80] https://www.gov.uk/government/collections/quarterly-energy-prices
[81] http://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/previousReleases
[82] http://www.sutherlandtables.co.uk/
[83] https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook
[84] http://www.bre.co.uk/filelibrary/bredem/BREDEM-2012-specification.pdf

Changes to income methodology

The calculation of household income has been revised for statistics derived under the LILEE metric. The 2021 fuel poverty strategy confirmed that, disability benefits paid to the household reference person or their partner are no longer included in the calculation of a household's income. The LIHC analysis for 2019 has been calculated on the old methodology. More detail can be found in the Methodology Handbook[85].

Changes to fuel prices methodology

In 2019, there were no major changes to the fuel prices methodology.

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[85] Fuel Poverty Methodology Handbook https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Annex E: Fuel Poverty across the devolved nations

Fuel poverty is a devolved issue, with each nation in the UK having its own fuel poverty definition, targets and policies to tackle the issue. This is set out in brief below, alongside the latest available estimates produced by each devolved nation.

Scotland[86]

The Fuel Poverty (Targets, Definition and Strategy) (Scotland) Bill[87] was introduced to the Scottish Parliament on 26 June 2018 and the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019[88] received Royal Assent on 18th July 2019. This includes a new definition of fuel poverty in Scotland based on advice from an independent panel of experts and further scrutiny and amendment by the Scottish Parliament.

As set out in section 3 of the Act, a household is in fuel poverty if[89]:

- in order to maintain a satisfactory heating regime, total fuel costs necessary for the home are more than 10 per cent of the household's adjusted (after housing costs) net income; and

- if after deducting fuel costs, benefits received for a care need or disability and childcare costs, the household's remaining adjusted net income is insufficient to maintain an acceptable standard of living. The remaining adjusted net income must be at least 90 per cent of the UK Minimum Income Standard (MIS) to be considered an acceptable standard of living, with an additional amount added for households in remote rural, remote small town and island areas (RRRSTI).

Extreme fuel poverty follows the same definition except that a household would have to spend more than 20% of its adjusted net income (after housing costs) on total fuel costs to maintain a satisfactory heating regime.

Where a household is in fuel poverty, the fuel poverty gap is the annual amount that would be required to move the household out of fuel poverty. This is either:

- the amount required so that the fuel costs necessary for the home are no longer more than 10% of the household's adjusted net income (after housing costs), or

- the amount required which, after deducting fuel costs, benefits received for a care need or disability and childcare costs, means the household's remaining adjusted net income is sufficient to maintain an acceptable standard of living.

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[86] Scottish House Condition Survey - gov.scot (www.gov.scot)
[87] https://www.parliament.scot/parliamentarybusiness/Bills/108916.aspx
[88] http://www.legislation.gov.uk/asp/2019/10/contents/enacted
[89] See section 4 of the SHCS 2019 methodology notes for further details https://www.gov.scot/publications/scottish-house-condition-survey-methodology-notes-2019/

The figure taken to determine the gap for each household is the lower of the two options.

In addition to a new definition of fuel poverty, the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019 also set targets to eradicate fuel poverty. The 2040 targets are that:

- no more than 5 per cent of households in Scotland are in fuel poverty

- no more than 1 per cent of households in Scotland are in extreme fuel poverty

- the median fuel poverty gap of households in Scotland in fuel poverty is no more than £250 adjusted to take account of changes in the value of money.

Scotland publishes fuel poverty data in the annual Scottish House Condition Survey (SHCS) Key Findings report. The figures presented in the 2019 report[90] are a best estimate of fuel poverty rates, extreme fuel poverty rates and the median fuel poverty gap under the new definition of fuel poverty as set out in the Act. They reflect amendments made to the legislation during the Bill process up to and including Stage 2.

The first set of fuel poverty estimates fully compatible with all of the elements of the new definition in the Act, including the Fuel Poverty (Enhanced Heating) (Scotland) Regulations 2020[91] and Fuel Poverty (Additional Amount in respect of Remote Rural Area, Remote Small Town and Island Area) (Scotland) Regulations 2020[92] which came into force on the 26th February 2020, requires additional information to be collected from 2020 onwards[93] and the production of a new MIS for RRRSTI areas.

In 2019, 613,000 households (24.6 per cent of all households in Scotland) were in fuel poverty, a similar level to 2018 (619,000 households or 25.0 per cent). The 2019 fuel poverty rate (24.6%) is lower than that recorded between 2012 and 2015 (ranging between 27.7 per cent - 31.7 per cent).

It is estimated that 311,000 households (or 12.4 per cent) were living in extreme fuel poverty in 2019. This is similar to the previous year (279,000 households or 11.3 per cent) but a decrease from the peak of 384,000 households (or 16.0 per cent) in 2013.

The actual median fuel poverty gap for fuel poor households in 2019 was £750. This is higher than the median fuel poverty gap between 2015 and 2018. The median fuel poverty gap (adjusted for 2015 prices) for fuel poor households in 2019 (£700) is higher than in 2018 (£610) but similar to the median gap in 2012 to 2017.

Wales[94]

Wales use a 10 per cent indicator. Households that need to spend more than 20 per cent of their income on fuel costs are also defined as being in severe fuel poverty. However, their methodology differs from Scotland in relation to the heating assumptions used. Wales had a

[90] https://www.gov.scot/publications/scottish-house-condition-survey-2019-key-findings/
[91] https://www.legislation.gov.uk/ssi/2020/58/contents/made
[92] https://www.legislation.gov.uk/ssi/2020/59/contents/made
[93] 2020 SHCS fieldwork has been suspended since March 17th due to COVID-19 This affected both the social interview and the physical survey. Therefore it will be 2021 or later until all additional information is collected to fully account for all the elements of the new definition in the SHCS fuel poverty estimates.
[94] https://gov.wales/fuel-poverty-estimates-wales

target to eradicate fuel poverty, as far as reasonably practicable, by 2018. The Welsh Government is planning to consult on a new plan to tackle fuel poverty, which is expected to take place in 2020.

In 2018, 155,000 households in Wales were living in fuel poverty, equivalent to 12 per cent of all households. Of these, 32,000 households were living in severe fuel poverty, equivalent to 2 per cent of all households. The percentage of households in fuel poverty has decreased from 26 per cent in 2008. Initial indications show that this is a result of increased household incomes and reduced household energy requirements due to energy efficiency improvements outweighing increases in fuel prices.

Northern Ireland[95]

Northern Ireland uses a 10 per cent indicator but has no statutory target. The approach has been to assist those households most at risk of fuel poverty through schemes such as Affordable Warmth. In 2016, an estimated 160,000 households were fuel poor, 22 per cent of the total. This represents a significant improvement since 2011 when the figure was 42 per cent (294,000) of the total. This improvement is a result of a focus from the Northern Ireland Housing Executive (NIHE) and the Department for Communities (DfC) to tackle poor energy efficiency in the housing stock since 2011 and lower than average fuel prices (particularly gas and electricity – depending on payment method) and a decrease in household energy use.

In order to provide more up to date figures, NIHE commissioned the Building Research Establishment (BRE) to model estimates of the levels of fuel poverty in Northern Ireland in 2017 and 2018. Using 2016 Northern Ireland House Condition Survey (NIHCS) data as a base, BRE adjusted fuel prices and household incomes, and simulated the installation of energy efficiency improvement measures, all to 2017 and 2018 levels. The number of fuel poor households in 2017 was estimated to be 128,0000, equivalent to 17 per cent of all households. In 2018, the estimated fuel poverty figure is 131,000, equivalent to 18 per cent of all households.

The 2016 NIHCS reported[96], for the first time, on the 'Low Income High Costs' fuel poverty indicator. The findings show that 7 per cent of households were in fuel poverty under this definition. The average fuel poverty gap for all Northern Ireland households was estimated at £436.

Summary

Due to both definition and methodological differences in fuel poverty for each devolved nation, the figures are non-additive (i.e. should not be combined) in relation to a UK total. More details of the devolved surveys and fuel poverty measures in each of the devolved nations can be found in Section 1.3 of the Methodology Handbook[97].

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[95] https://www.nihe.gov.uk/getmedia/1f9e55a1-66c2-46b7-bf92-9ee192ce355f/estimates-of-fuel-poverty-northern-ireland-2017-and-2018-revised.pdf.aspx?ext=.pdf
[96] https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey
[97] https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Annex F: Relevant Links

F.1 Income Indicators

Households below average income
https://www.gov.uk/government/collections/households-below-average-income-hbai--2

Winter fuel payments
https://www.gov.uk/government/collections/winter-fuel-payments-caseload-and-household-figures

Cold weather payments
https://www.gov.uk/government/collections/social-fund-cold-weather-payments

F.2 Fuel Price Indicators

Actual expenditure on fuel (as percentage of total income)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487649/table_261.xls

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487650/table_262.xls

Fuel prices
https://www.gov.uk/government/collections/domestic-energy-prices

Number of customers on prepayment
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/511476/table_242.xls
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/511479/table_252.xls

Average annual bills by payment method

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/875737/table_222.xlsx

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/875743/table_232.xlsx

Consumer vulnerability
https://www.ofgem.gov.uk/about-us/how-we-work/working-consumers/protecting-and-empowering-consumers-vulnerable-situations/consumer-vulnerability-strategy/consumer-vulnerability-strategy-reporting-progress

Switching stats

https://www.gov.uk/government/statistical-data-sets/quarterly-domestic-energy-switching-statistics

F.3 Housing Indicators

Indicator SAP rating https://www.gov.uk/guidance/standard-assessment-procedure

Number of insulated homes
https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics

Local Authority housing investment on energy efficiency improvements
https://www.gov.uk/government/collections/local-authority-housing-data

F.4 Excess winter deaths

Excess winter deaths
https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/previousReleases

Annex G: Accompanying tables

The following tables are available in Excel and ODS format on the department's statistics website https://www.gov.uk/government/collections/fuel-poverty-statistics:

Detailed tables LILEE (2019 data):
https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2021

Trends tables LILEE (2010-2019):
https://www.gov.uk/government/statistics/fuel-poverty-trends-2021

Supplementary tables (2019 data):
https://www.gov.uk/government/statistics/fuel-poverty-supplementary-tables-2021

Detailed tables LILEE (2010 - 2018 datasets):
https://www.gov.uk/government/collections/fuel-poverty-statistics

Detailed tables LIHC (2019 data):
https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2021

Trends tables LIHC (2003-2019):
https://www.gov.uk/government/statistics/fuel-poverty-trends-2021

A fuel poverty dataset containing the underlying data will be made available on the UK Data Service in summer 2021:
https://ukdataservice.ac.uk/

Annex H: Technical information

An updated methodology handbook has been published alongside this publication. This sets out the method for calculating the headline statistics using the LILEE indicator and the detailed methodology for calculating the income, energy efficiency and fuel prices for each household. It is available at:
https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Annex I: Definitions

Term / Acronym	Definition
Adequate standard of warmth	is defined as 21ºC for the main living area and 18 ºC for other occupied rooms.
Aggregate fuel poverty gap	The *fuel poverty gap* for each individual household is aggregated across *all* fuel poor households to produce a national total
AHC	After Housing Costs
Average fuel poverty gap	The average (mean) *fuel poverty gap* across *all* fuel poor households.
BEIS	Department for Business, Energy an Industrial Strategy
BREDEM	Build Research Establishment Domestic Energy Model
CW	Cavity Wall
DWP	Department for Work and Pensions
ECO	Energy Company Obligation
EHS	English Housing Survey
Equivalisation	An adjustment factor to standardise spending and energy requirements across households
Equivalised AHC income	After housing costs income equivalised by household composition
Equivalised fuel costs	Household fuel costs equivalised by the number of people in the house
FiTs	Feed in Tariffs
FPEER	Fuel Poverty Energy Efficiency Rating
Fuel Poverty (LILEE)	A household is considered to be fuel poor if: they are living in a home below band C and were they to spend the required amount on fuel costs for the home, they would be left with a residual income below the official poverty line.

Term / Acronym	Definition
Fuel poverty gap (LILEE)	The difference in pounds between the required energy costs for each fuel poor household and the nearest fuel poverty threshold
LILEE	Low Income, Low Energy Efficiency
MHCLG	Ministry of Housing Communities and Local Government
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics
Percentage points	The arithmetic difference between two percentages
Real terms	An adjusted financial number after correcting for the effect of inflation
RHI	Renewable Heat Incentive
RPI	Retail Price Index
SAP	Standard Assessment Procedure
SW	Solid Wall

Annex J: Further information

Revisions policy

The BEIS statistical revisions policy sets out the revisions policy for these statistics, which has been developed in accordance with the UK Statistics Authority Code of Practice for Statistics.

User engagement

Users are encouraged to provide comments and feedback on how these statistics are used and how well they meet user needs. Comments on any issues relating to this statistical release are welcomed and should be sent to: fuelpoverty@beis.gov.uk

The BEIS statement on statistical public engagement and data standards sets out the department's commitments on public engagement and data standards as outlined by the Code of Practice for Statistics.

National Statistics designation

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

The continued designation of these statistics as National Statistics was confirmed in August 2017 following a compliance check by the Office for Statistics. The statistics last underwent a full assessment against the Code of Practice for Statistics in 2014.

Pre-release access to statistics

Some ministers and officials receive access to these statistics up to 24 hours before release. Details of the arrangements for doing this and a list of the ministers and officials that receive pre-release access to these statistics can be found in the BEIS statement of compliance with the Pre-Release Access to Official Statistics Order 2008.

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