Annual Fuel Poverty Statistics in England, 2019 (2017 data)

13 June 2019   **National Statistics**

Headline Statistics

- In 2017, 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 £321, down from £333 in 2016 and continues the steady downward trend since 2014.

- The **aggregate fuel poverty gap** for England also continued to decrease in 2017 (by 4.3 per cent in real terms) to £812 million.

- The **proportion of households in England** in fuel poverty was estimated to have decreased by 0.2 percentage points from 2016 to 10.9 per cent in 2017 (approximately 2.53 million households).

- In 2017, further progress was made towards the interim 2020 **fuel poverty target**, with 92.2 per cent of all fuel poor households living in a property with a fuel poverty energy efficiency rating of Band *E* or above.

Target year	Fuel poverty target	2010 (%)	2017 (%)	Percentage point change
2020	Band E or above	81.1	92.2	11.1
2025	Band D or above	32.7	65.9	33.2
2030	Band C or above	1.5	10.0	8.5

Summary of Key Drivers

- The relative nature of the fuel poverty indicator makes it difficult to accurately isolate individual reasons for change.

- **Energy efficiency** – improvement in energy efficiency has slowed in recent years.

- **Fuel prices** – prepayment price cap has contributed to the reduction of energy prices for mainly low income households.

- **Incomes** – incomes increased at a faster rate for low income households, partly due to the introduction of the National Living Wage.

Contents

Chapter 1: Introduction

The aim of this annual publication is to provide a comprehensive view of the latest statistical trends and analysis of fuel poverty in England in 2017.

Fuel poverty in England is measured using the Low Income High Costs (LIHC) indicator[1], which considers a household to be fuel poor if:

- they have required fuel costs[2] that are above average (the national median level); and

- were they to spend that amount, they would be left with a residual income[3] below the poverty line[4].

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*[5,6] by 2030, with interim targets of Band *E* by 2020, and Band *D* by 2025.

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[7].

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 2003 and 2017) in Chapter 3. Chapter 4 explores fuel poverty headline figures projected to 2018 and 2019. Detailed data tables are published alongside this report (see Annex E 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[8]

- Inform Clean Growth Strategy ambitions[9]

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[1] Further information on the LIHC indicator works can be found in Annex B.

[2] 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

[3] 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).

[4] 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

[5] Energy efficiency rating is measured using Fuel Poverty Energy Efficiency Rating (FPEER), see Section 2.3.3 and glossary for more detail.

[6] Household energy efficiency ratings are banded from *G* (lowest) to *A* (highest).

[7] Fuel poverty gap is the reduction in fuel bill that a fuel poor household needs in order to not be classed as fuel poor.

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

[9] https://www.gov.uk/government/publications/clean-growth-strategy

- - Develop, monitor and evaluate key policies including the Energy Company Obligation (ECO)[10], Warm Homes Discount[11] and Private Rented Sector Minimum Energy Efficiency Standards[12]

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. We therefore measure fuel poverty based on *required* energy bills rather than *actual* spending. This ensures that we do not overlook 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.

A methodology handbook has been published alongside this publication. This sets out the method for calculating the headline statistics using the LIHC 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

Data

These statistics are based on data collected by 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 2016 and March 2018 (a mid-point of 1st April 2017). The sample comprises 11,963 occupied dwellings where a physical inspection and a household interview was carried out, this is hereby referred to as the 2017 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 2017 fuel poverty dataset will be made available later this year via the UK Data Service, where previous year's data are also available. 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/

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[10] https://www.ofgem.gov.uk/environmental-programmes/eco
[11] https://www.gov.uk/the-warm-homes-discount-scheme
[12] https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents

Chapter 2: Key Drivers of Fuel Poverty in England, 2017[13]

2.1 Overview: fuel poverty in England

In 2017, 10.9 per cent of households in England (2.532 million households) were classed as fuel poor, a reduction of 0.2 percentage points[14] (18,000 households) from 2016. The average fuel poor household required a reduction of £321 to their fuel costs to move them out of fuel poverty – the average fuel poverty gap (referred to hereafter as simply the *gap*). The average gap in 2017 is 3.6 per cent lower than 2016 and 10.6 per cent lower than 2010[15]. We recommend using the gap as an indication of fuel poverty at the national level.

The aggregate fuel poverty gap, which is the total of all fuel poverty gaps for households in England decreased by 4.3 per cent between 2016 and Table 2.1 below summarises these figures.

Table 2.1: In 2017 the average and aggregate gap, and proportion of households in fuel poverty have decreased compared to 2010 and 2016

| Headline measure	2017	*2016*	*2010*
Average gap[16] (£)	321	333	355
Aggregate gap[16] (£ millions)	812	848	873
Proportion of households in fuel poverty (%)	10.9%	11.1%	11.4%
Number of households in fuel poverty (millions)	2.53	2.55	2.46

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[13] 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).
[14] This reduction is not statistically significant, see Annex A.
[15] This is reduction in real terms, adjusted to account for inflation.
[16] The average gap figures are adjusted to 2017 prices.

Figure 2.1: The average gap has decreased each year since 2014 whilst the proportion of households in fuel poverty has remained stable[16,17,18]
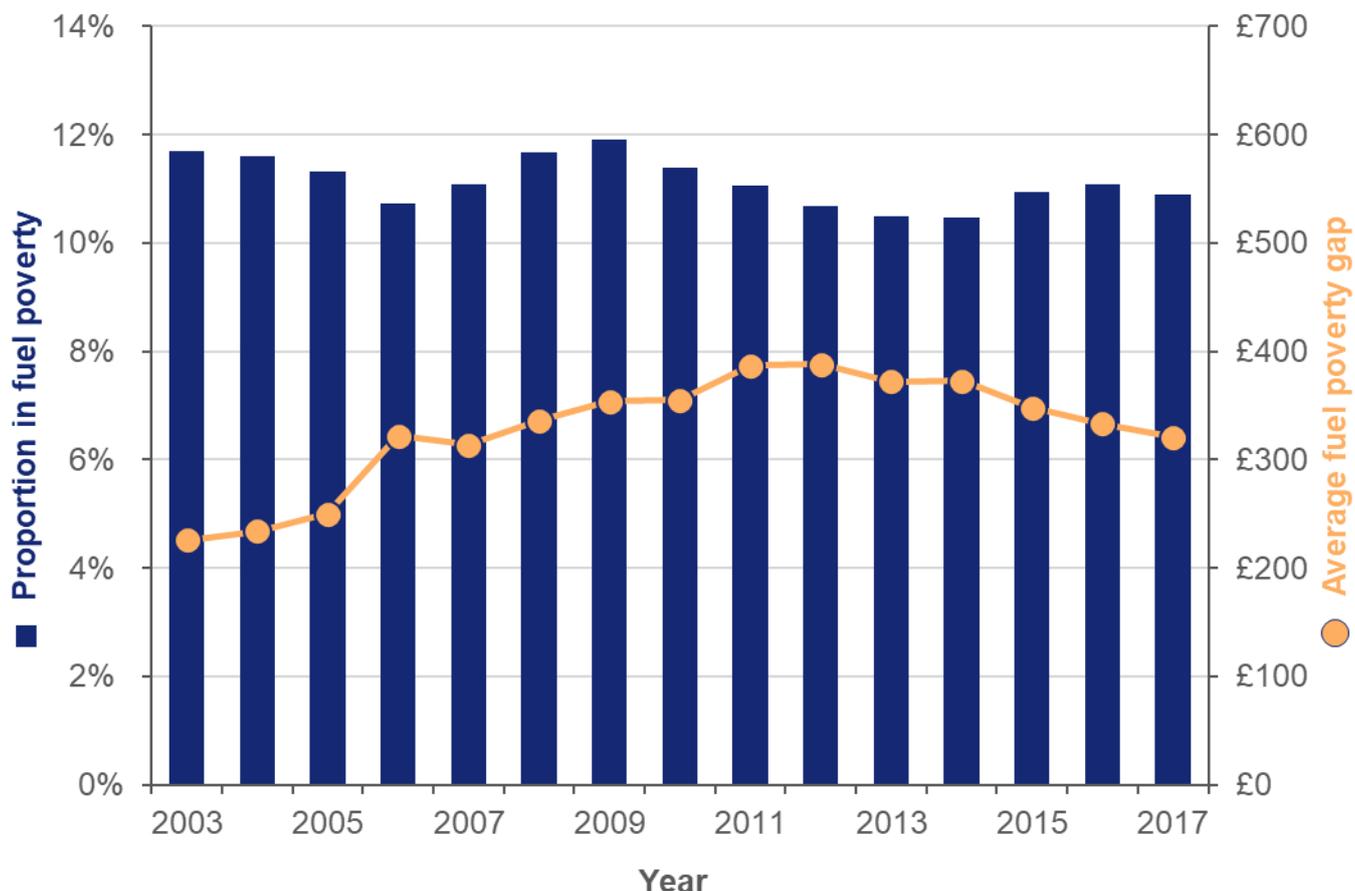
Due to the relative nature of the LIHC measure, the proportion of households in fuel poverty has remained broadly stable over time, fluctuating between 10 and 12 per cent since 2003.

In 2017, we have seen a large change in one of the key drivers of fuel poverty, as the effect of the prepayment price cap[19] is reflected in our statistics for the first time, following its introduction in April 2017. The prepayment price cap has contributed to the positive progress we are seeing across all three headline figures (Table 2.1). The effect of fuel prices on fuel poverty is explored further in Section 2.3.5.

In last year's publication, we presented evidence that the proportion of fuel poor households and the gap *can* be negatively correlated, as seen above in Figure 2.1[20]. That is, when the proportion of fuel poor households decreases, the gap increases. This is due to the relative nature of the measure which means that households cluster close to the fuel poverty thresholds[21]. We explained that this would generally occur if there was not a large change to one of the key drivers of fuel poverty that year.

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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] https://www.ofgem.gov.uk/energy-price-caps/about-energy-price-caps/price-my-energy-bill-capped/prepayment-energy-price-cap
[20] See Page 12 of the 2018 annual report for more detail: https://www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018
[21] In 2017, 28.7 per cent of all fuel poor households had an average gap of less than £100
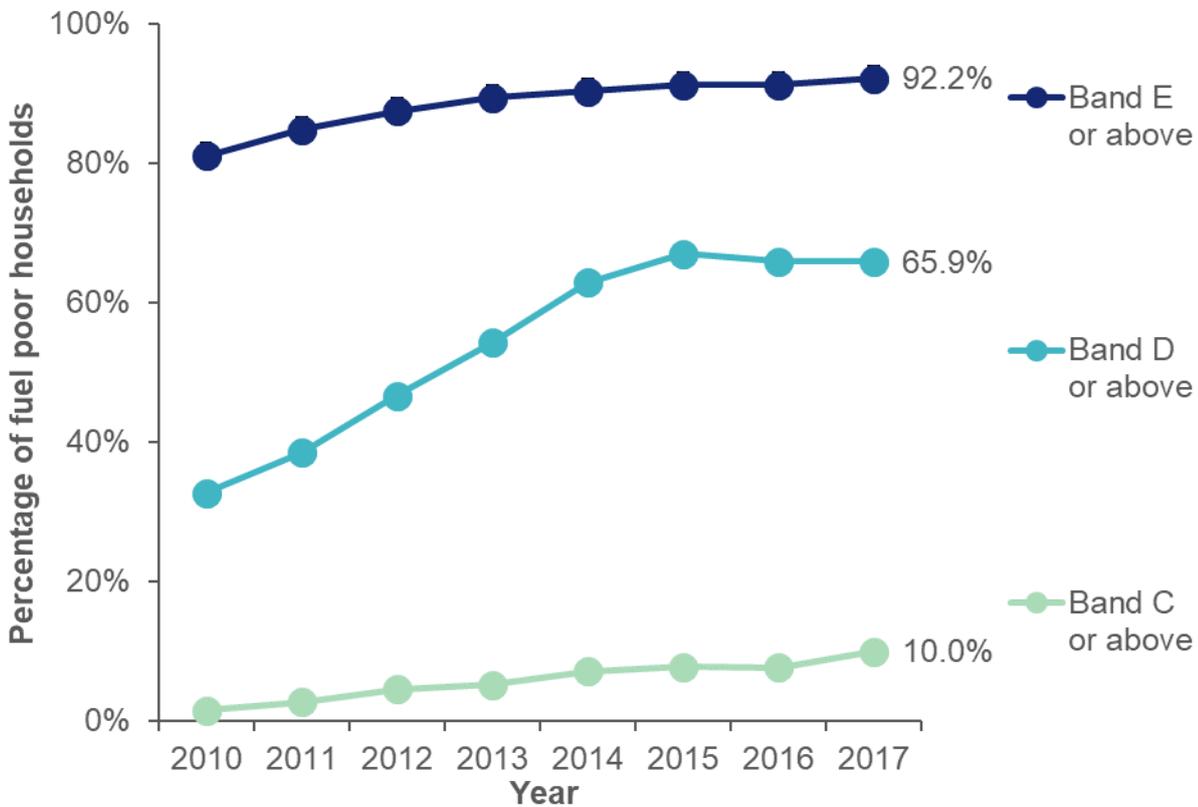
2.2 Progress against the target

Figure 2.2: England's statutory fuel poverty target
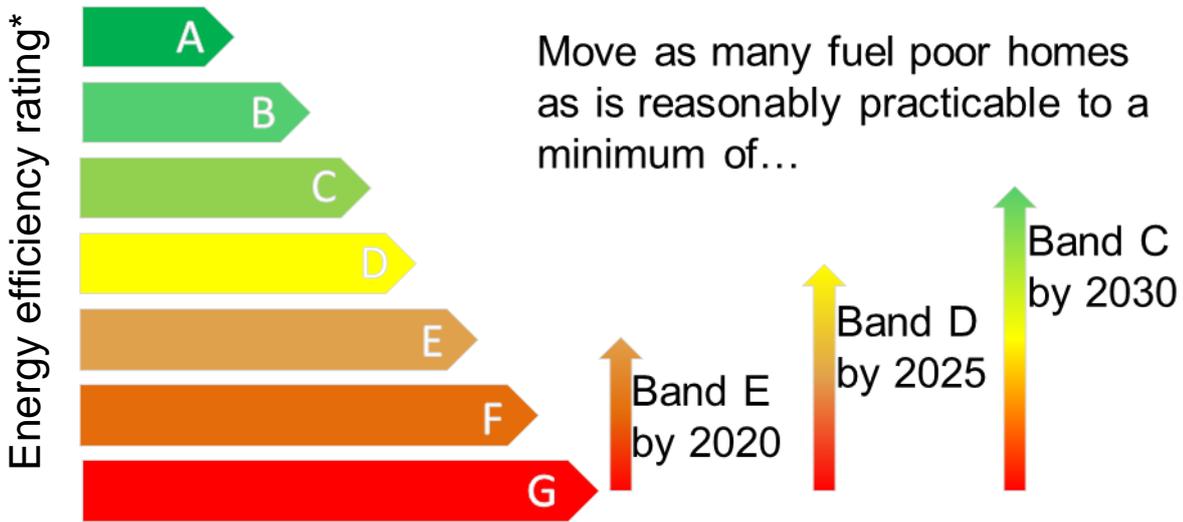
*Fuel Poverty Energy Efficiency Rating[22]

Figure 2.3: Percentage of fuel poor households in Band F and G decreased to 7.8 per cent in 2017[23,24]

2020 interim target progress – 92.2 per cent of fuel poor households were living in properties rated Band E or above. In 2017, 7.8 per cent of fuel poor households (200,000 households) were living in properties rated Band F or G, this has reduced from 18.9 per cent in 2010. This is compared to all households where only 4.1 per cent of properties are Band F or G.

2025 interim target progress – 65.9 per cent of fuel poor households were living in properties rated Band D or above. There has been little change in the proportion of fuel poor households in Band D or above compared to 2016, with the absolute number of Band D or above households decreasing between 2016 and 2017 by 12,000. There was a reduction in the proportion from 67.0 per cent to 65.9 per cent between 2015 and 2016. The reasons for this change were explored in detail in the 2016 annual fuel poverty report[25].

The reduction in the absolute number of Band D fuel poor households is partly due to the relative nature of fuel poverty. For more information on households changing fuel poverty status this, please refer to the special feature article published in December 2018: *Do households move in and out of fuel poverty?*[26]

2030 target progress –10.0 per cent of fuel poor households were living in properties rated Band C or above, an increase of 8.5 percentage points since 2010 and 2.3 percentage points since 2016.

Median annual fuel costs for all households have reduced by £19 from £1,177 in 2016 to £1,158[27] in 2017. Band C and above households have lower fuel costs on average than households below Band C. As median fuel costs reduce, more households with *lower* fuel costs will be classed as fuel poor. Therefore, the reduction in median fuel costs will have contributed to the rise in the number of Band C and above households being classed as fuel poor.

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[22] The Fuel Poverty Energy Efficiency Rating is defined in Section 2.3.3.
[23] Annex A contains the raw data in this chart.
[24] 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.
[25] Page 15: https://www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018
[26] https://www.gov.uk/government/publications/energy-trends-december-2018-special-feature-article-do-households-move-in-and-out-of-fuel-poverty
[27] Figures are in nominal terms.

2.3 Key drivers

The fuel poverty status of a households depends on the interaction between three key drivers[28]:
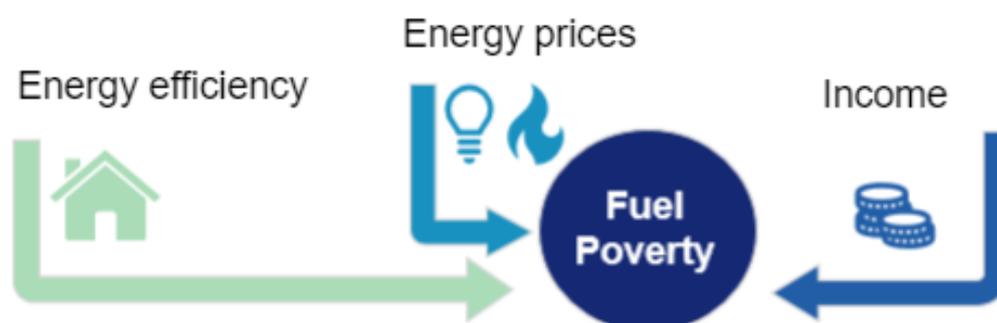
The key drivers will be assessed in turn to explore their effect on headline fuel poverty figures in 2017. *Higher* incomes, *increased* energy efficiency and *lower* energy prices would each have a positive impact on a fuel poor household.

The relative nature of the 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.

2.3.1 Summary of key drivers

In 2017, we have seen little to no change in energy efficiency ratings. We have seen a lower increase in fuel costs for the fuel poor population, compared to all households, combined with a greater increase in disposable incomes for fuel poor households compared to all households. Fewer households are therefore classified as fuel poor in 2017, and those that are fuel poor require a smaller reduction in their fuel costs to not be classed as fuel poor.

These findings are summarised in the table below:

| Key driver	Change	Impact on fuel poverty headline figures
Energy efficiency	No change	Little, to no impact
Incomes	Increased for low income households, more than for all households	Reduction in the number of households in fuel poverty, and the gap
Energy prices	Increased for low income households, less than the increase for all households	

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

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. Changes to the key drivers in 2018 and 2019, and looking forward, are explored in Chapter 4.

2.3.2 The Low income high costs quadrant

Fuel poverty in England is measured using the LIHC indicator, which is defined in Chapter 1. Based on a combination of a household's 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.

Figure 2.4: 10.9 per cent of all households classified as fuel poor (LIHC) in 2017[29]
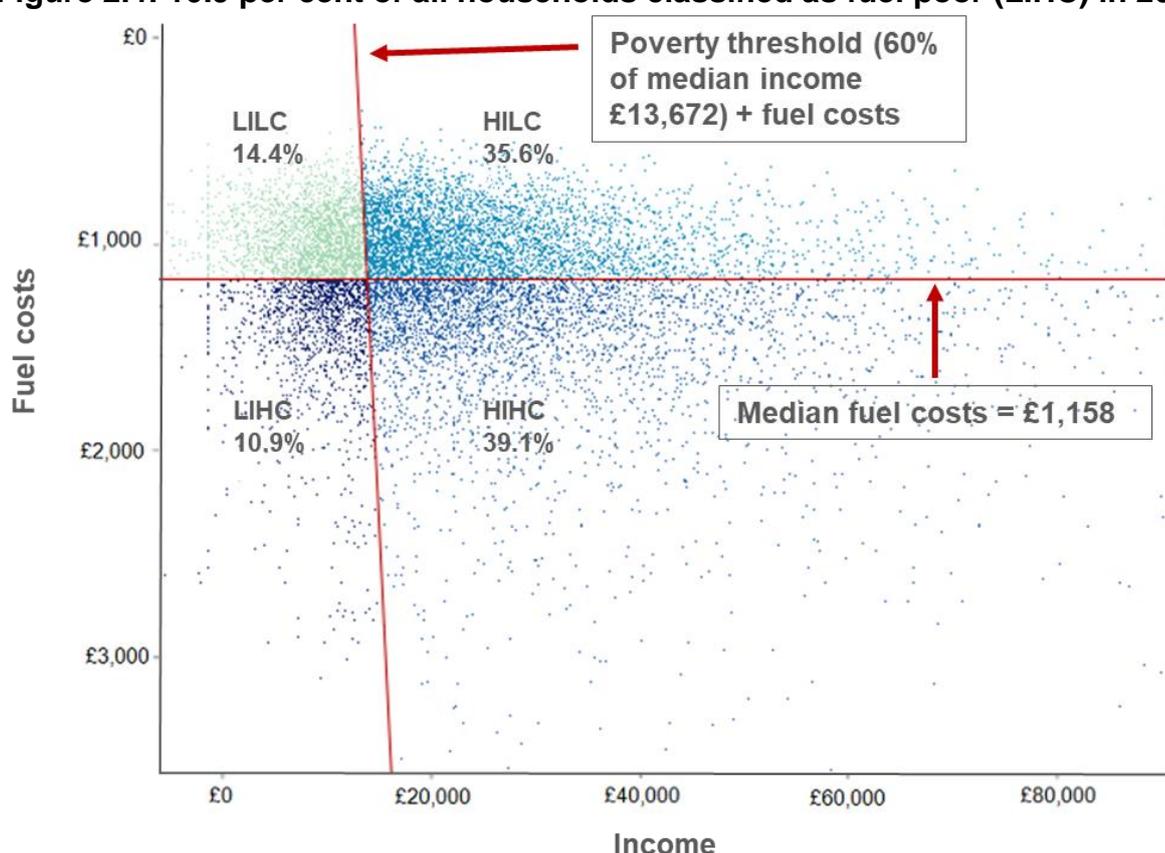
In 2017, 25.3 per cent of households were classed as having a low income (with 74.7% having a high income) and 50 per cent of households were classed as having high fuel costs. Of those households with low incomes 43.2 per cent were classed as fuel poor and of those households with high fuel costs, 21.8 per cent were classed as fuel poor.

Fuel costs on the vertical axis refers to *required* 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. We therefore measure fuel poverty based on *required* fuel costs rather than *actual* spending. This ensures that we do not overlook those households who have low energy bills simply because they actively limit their use of

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[29] 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.

energy at home, for example, by not heating their home. An equivalisation factor is applied to reflect the different levels of energy required depending on the number and age of people living in the property. Hereafter this will be referred to as fuel costs (unless otherwise specified).

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. Hereafter this will be referred to as income (unless otherwise specified).

Further information on how fuel costs and income are calculated can be found in Section 5 and 3 of the Methodology Handbook: https://www.gov.uk/government/publications/fuel-poverty-statistics-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 and as a result a household is less likely to be classified as "high costs". As fuel poor households get more energy efficient, they have lower costs required to heat their homes and so the gap also decreases.

Figure 2.5: Fuel costs for the least efficient[30] properties (Band G) are three times higher than costs for the most efficient properties (Band A-C) in 2017
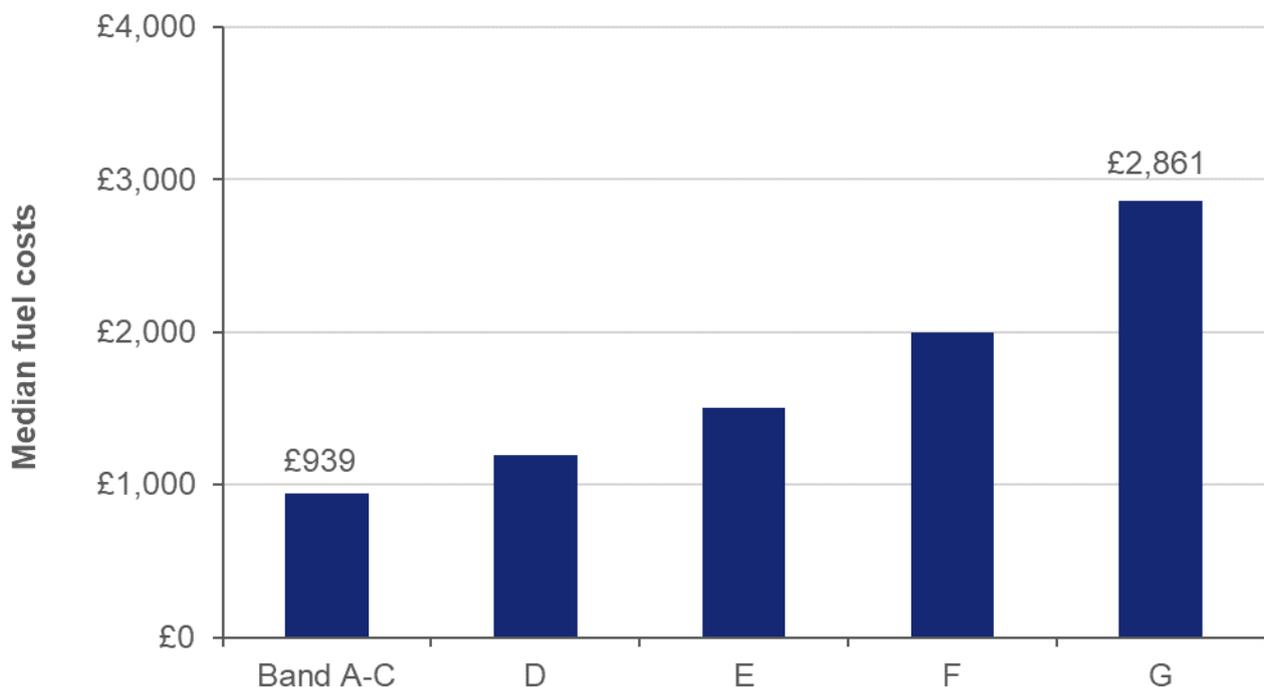
A special feature article which compared theoretical energy consumption and actual usage[31] was published in March 2019. The analysis suggests that in properties rated Band C or lower actual consumption is, on average, lower than the theoretical value. This difference increases as the energy efficiency of a property decreases.

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[30] Energy efficiency measured using FPEER.
[31] https://www.gov.uk/government/publications/energy-trends-march-2019-special-feature-article-comparison-of-theoretical-energy-consumption-with-actual-usage

The Standard Assessment Procedure (SAP) is used[32] 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 like SAP, but accounts for the impact of policies which discount households' energy bills (e.g. the Warm Home Discount[33])[34]. For example, if a household has 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: The improvement in median energy efficiency ratings between 2010 and 2015 has levelled off in recent years for fuel poor households and all households
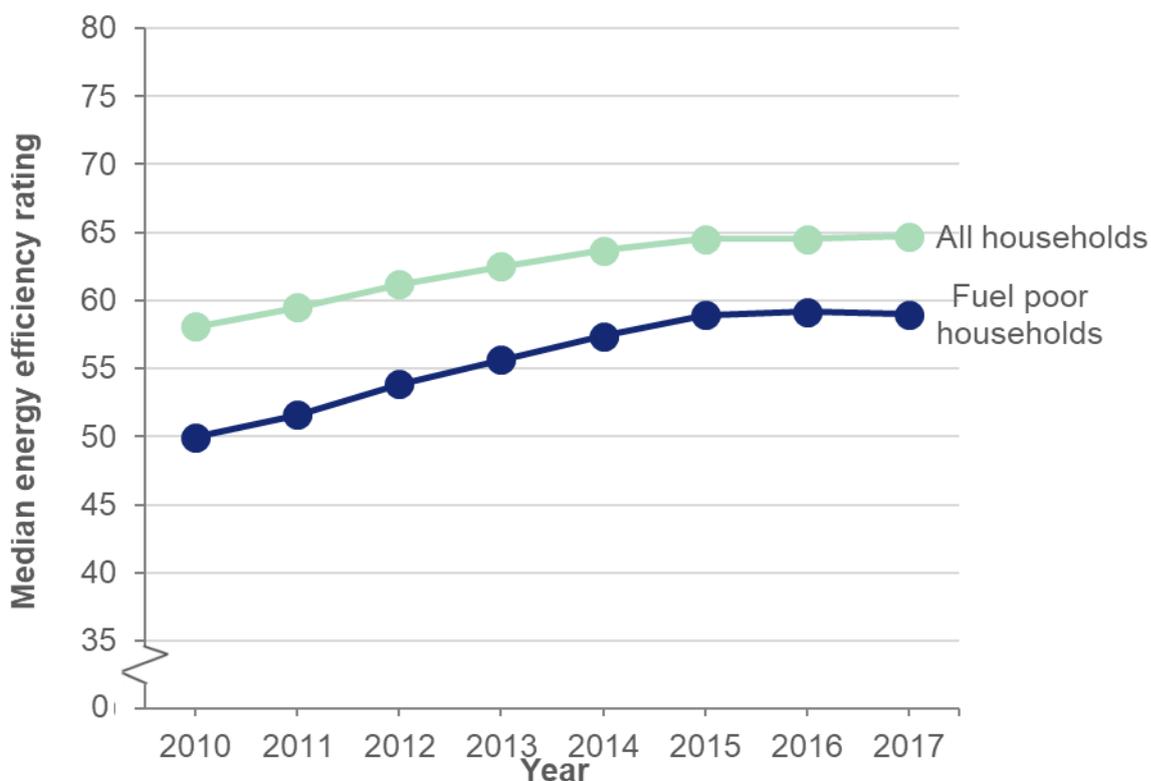
The median energy efficiency rating for fuel poor households levelled off between 2015 and 2017 (decreasing by 0.2 points between 2016 and 2017[35]). In comparison, the energy efficiency improvement for fuel poor households was 1.5 points per year between 2010 and 2015. Changes to energy efficiency therefore will have had a smaller effect on the headline fuel poverty figures. The changes to incomes and energy prices between 2016 and 2017 (discussed in Sections 2.3.4 and 2.3.5) are the main contributing factors to the changes in fuel poverty headline figures.

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[32] 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.
[33] https://www.gov.uk/the-warm-home-discount-scheme
[34] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332236/fpeer_methodology.pdf
[35] This is not a statistically significant difference.

The levelling off for median energy efficiency ratings since 2015 is partly due to the decrease in the number of measures installed between 2015 and 2017[36] compared to previous years in England through the Energy Company Obligation (ECO) and the Green Deal, as reported in the Household Energy Efficiency National Statistics[37].

2.3.4 Income

Income is one of the three key driver of fuel poverty and determines whether we class a household as "low income" or "high income". Changes to occupants' earnings, benefits and housing costs all affect household income. In 2017, we categorise households as low income if their equivalised income (less tax and National Insurance), once they've paid their housing and fuel costs (definition can also be found on Page 11) is less than £13,672 (60 per cent of median income for all households)[38]

Figure 2.7: Lower income deciles saw a greater increase in their income[11] between 2016 and 2017 than higher income deciles[13]
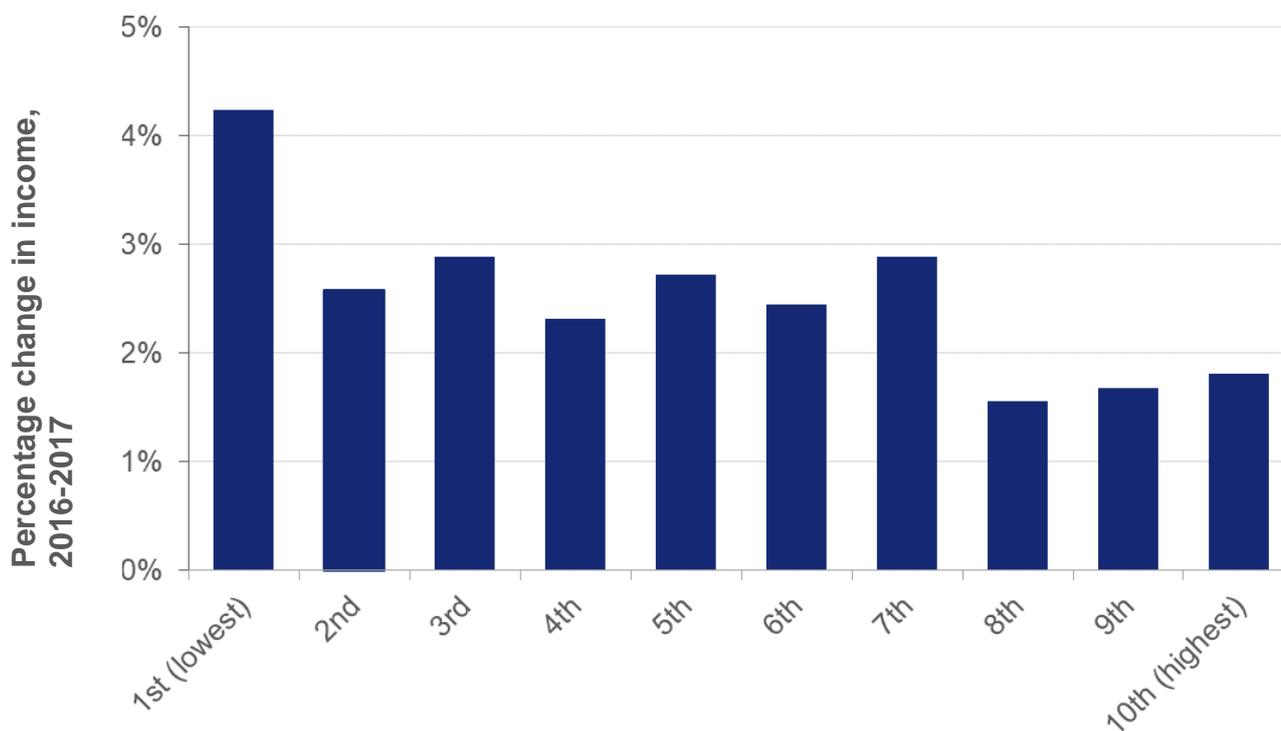
Incomes rose relatively more for those at the lower deciles which is partly due to the National Living Wage, introduced in April 2016[39].

As discussed in Section 2.3, when we see a larger change for households in fuel poverty than for the whole population, we will see changes to the fuel poverty headline figures. The larger relative increase in income for lower income households will have caused households to shift out of fuel poverty, reducing the proportion of households in fuel poverty.

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[36] The combined year dataset used for fuel poverty statistics is explained in Chapter 1.
[37] https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics
[38] 60 per cent of £22,787 (median after housing costs equivalised income for all households) = £13,672.
[39] https://www.gov.uk/national-minimum-wage-rates

2.3.5 Energy prices

Energy prices are used to calculate how much the required energy[40] for each household would cost for that specific year. The required energy bill for each household then determines whether we classify a household as "high costs" or "low costs", and so affects the proportion of households in fuel poverty.

In 2017, fuel poor households were required to spend a median cost of £1,351 on their energy bills, 38.8 per cent more (£378) compared to Low Income Low Cost households. Characteristics of the dwelling and household which contribute to these higher costs are explored in detail in Chapter 3.

Figure 2.8: There was broadly a close relationship between fuel prices and the gap between 2003 and 2012, but this has weakened in recent years[41]
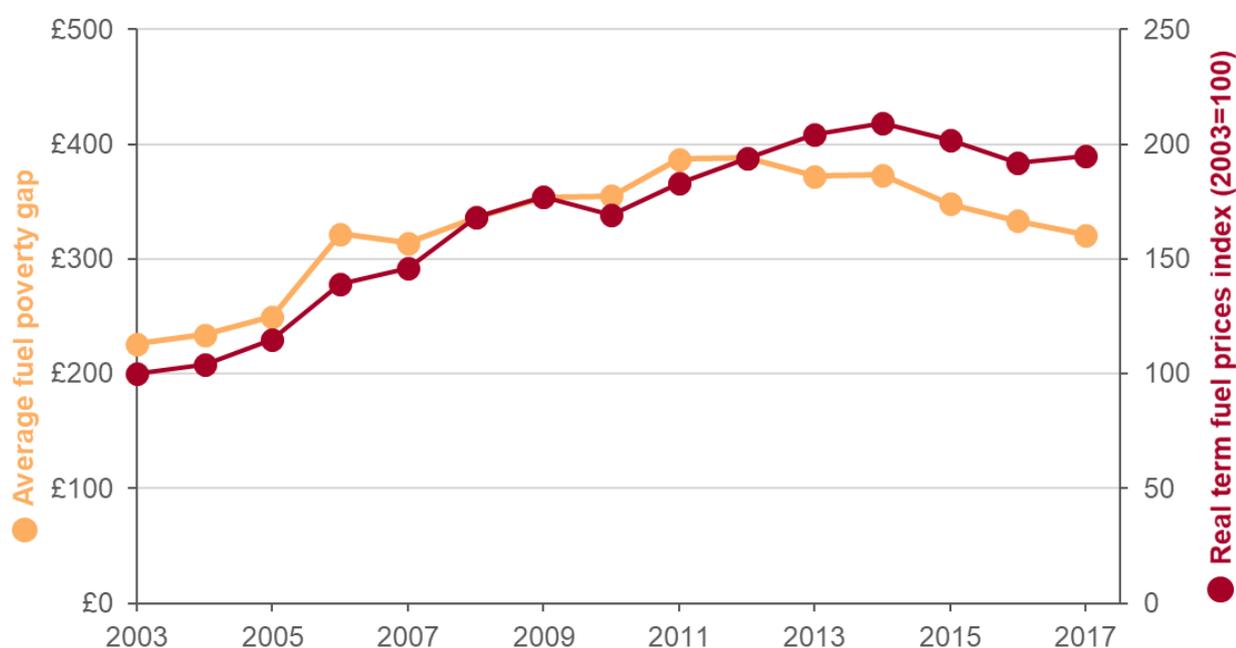
The relationship between the gap and fuel prices depends on changes to the other key drivers of fuel poverty. Between 2012 and 2014 a divergence in the trend emerged, this is likely related to the downward trend in household energy requirements, a result of improving energy efficiency, which outweighed price increases in these years.

In 2017, domestic energy prices increased by approximately 1.6 per cent in real terms compared to 2016. All else being equal, an increase in energy prices would increase the average fuel poverty gap. This is because households with higher energy requirements are more affected by energy price changes (see Figure B.4, Annex B, for a full explanation). However, in 2017 we saw a decrease in the gap, partly because of the prepayment price cap. The impact of the prepayment price cap has meant that energy bills for those households on a

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[40] Fuel costs defined on Page 10.
[41] Real term fuel prices index source: 2.1.2: https://www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics

prepayment meter have fallen. This explains the divergence in the trend seen again between 2016 and 2017, where the fuel prices index increases while the gap decreases.

The average total bill for households for their energy by prepayment meter decreases by £84 (6.3%) between 2016 and 2017, making standard credit the most expensive form of payment[42]. Direct debit remained the cheapest method.

Twice as many fuel poor households pay their energy bills by prepayment compared to all households (27.1 per cent vs 14.4 per cent respectively[43]). As discussed in Section 2.3 – if a key driver changes more for those households in fuel poverty compared to the rest of the population, this will impact the fuel poverty headline figures. More fuel poor households pay by prepayment compared to the rest of the population and these households have seen a reduction in their bills between 2016 and 2017. This has therefore had a positive impact on the three fuel poverty headline figures and is one of the main contributing factors to the reduction in the proportion of households in fuel poverty, and a reduction in size of the gap.
The effect of the prepayment price cap is explored further in Chapter 3, Section 3.4.

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[42] Source: Quarterly Energy Prices: March 2018, Page 5
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/695128/QEP_Q417.pdf
[43] These figures are for electricity method of payment, figures for gas follow a similar pattern.

# Chapter 3: Detailed Analysis of Fuel Poverty in England, 2003-2017[13]

Fuel poverty in England is affected by multiple characteristics, many of which are inter-related. 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[44].

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

3.1 Property characteristics

3.1.1 Fuel Poverty Energy Efficiency Rating (FPEER)[45]

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 2017
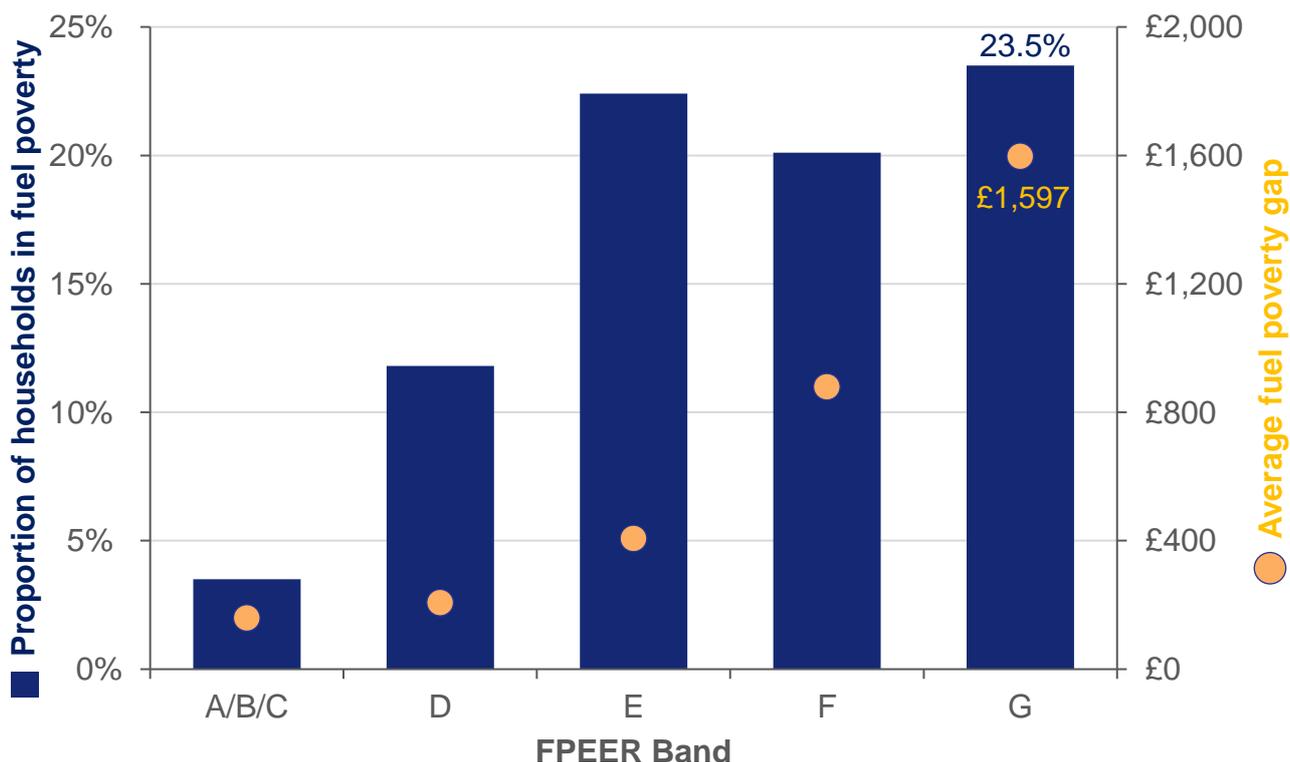

As fuel poor households become more energy efficient, they have lower costs required to heat their homes. Therefore, households living in properties with lower energy efficiency bands are

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[44] The Ministry for Housing, Communities and Local Government published a report on variations in housing circumstances which can be found at the following link:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/724642/Variations_in_housing_circumstances_report.pdf
[45] The Fuel Poverty Energy Efficiency Rating is defined in Section 2.3.3.

16

more likely to have both a higher proportion of households in fuel poverty and larger average gaps. In 2017, the only exception to this is Band E, which has a higher proportion of households in fuel poverty than Band F, at 22.4 and 20.1 per cent respectively. This could be due the movement between Bands, as seen in Figure 3.2 or due to sampling error[46,47].

Figure 3.2: The proportion of fuel poor households in Bands A-D has increased while Bands E-G has decreased between 2010 and 2017
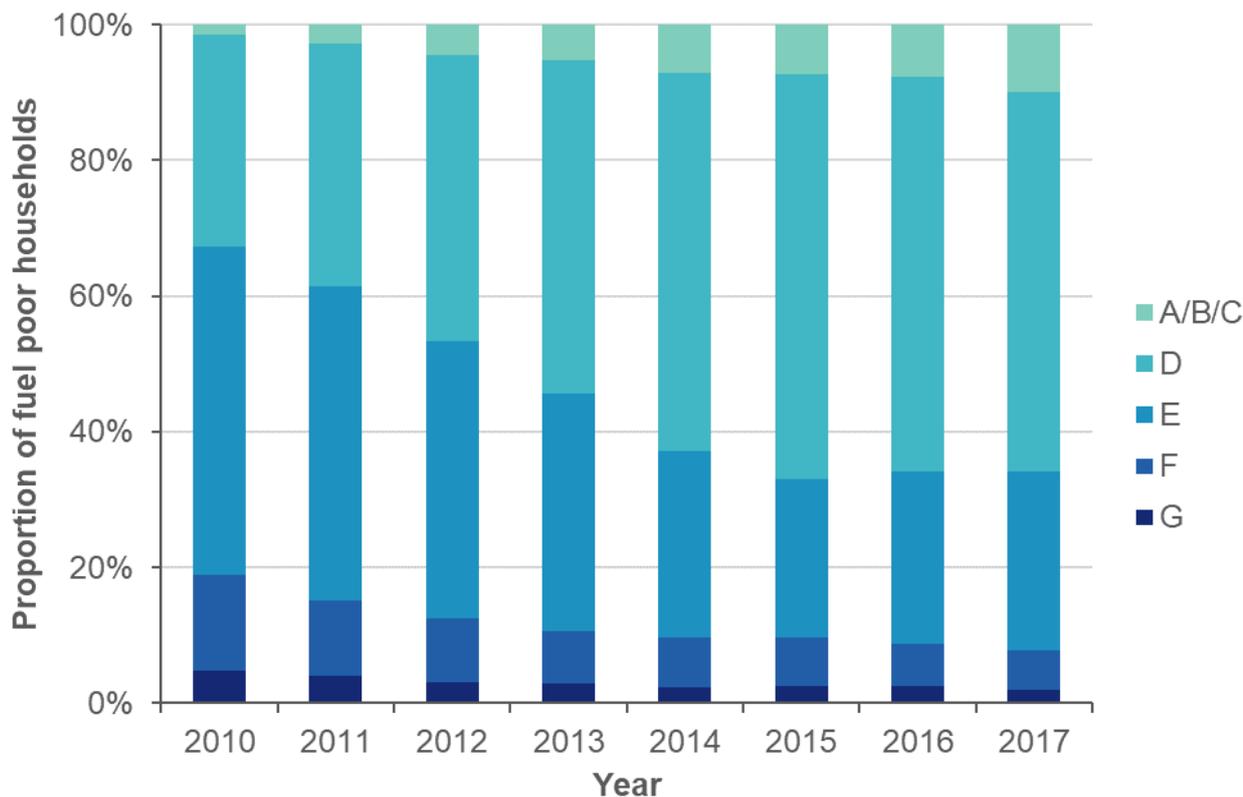
There has been an overall increase in fuel poor households living in Band A-D properties and an overall decrease in fuel poor households living in Band E-G properties between 2010 and 2017. The rate of change levelled off between 2015 and 2017 and in 2017 the majority of fuel poor households live in Band D properties (55.9%).

There has also been an increase in *all households* living in Band A-D properties, with a steeper increase in Band C properties, and reduction households living in in Band E-G properties between 2010 and 2017 (see Figure A.4 in Annex A). Similar to fuel poor households, *all* households see the rate of change levelling off between 2015 and 2017 (see Figure 2.6).

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[46] Sampling error is variation in a statistical analysis arising from the unrepresentativeness of the sample.
[47] 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.

Table 3.1: As energy efficiency decreases (from A to G) median income and median floor area tends to increase

Energy efficiency band	Median income (£)	Median floor area (m^2)
A/B/C	20,310	77
D	23,593	85
E	24,748	91
F	23,737	94
G	30,667	102
All households	**22,790**	**84**

There is a correlation between the energy efficiency rating of a property and the median floor area, with small properties tending to be more energy efficient. Households with high incomes tend to live in larger properties that are less energy efficient.

Table 3.2: Median income for households in private housing living in a Band A-C property is 66.9 per cent higher than households in social housing in a Band A-C property

Median floor area (m^2)	Social housing (local authority and housing association)	Private housing (private rented and owner occupied
Band A-C	63	84
Band E-G	67	95
Median income (£)		
Band A-C	14,650	24,450
Band E-G	15,230	25,170

There is a relationship between *decreasing* income, *decreasing* floor area and *increasing* energy efficiency for all households (Table 3.1). However, those living in Band A-C rated private housing have a median income of £24,450, which is 66.9 per cent higher than those living in Band A-C social housing (£14,650), highlighting the disparity in income between those living in Band A-C rated properties. Similarly, those living in Band A-C rated private housing have a median floor area of 84m^2 compared to 63m^2 for those living in social housing. Similar disparities in income and floor area are apparent between social housing and private housing in lower energy efficiency properties (Bands E-G). Therefore, it is not simply the case that

increasing incomes and floor area are associated with lower energy efficiencies. Further detail on tenure type is discussed in Section 3.2.1.

3.1.2 Floor area

Figure 3.3: Larger properties are more likely to be occupied by the fuel poor and properties over 110m^2 have the largest average gap (£505) in 2017
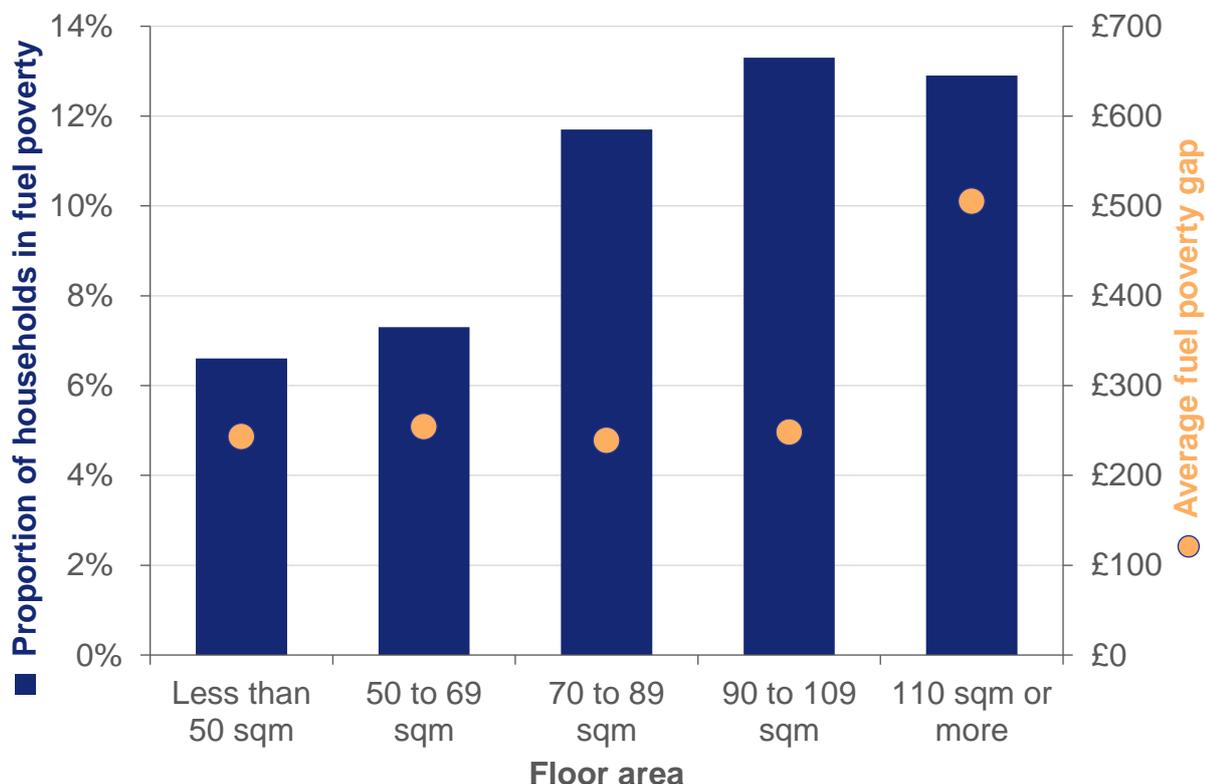

The depth and likelihood of a household being in fuel poverty tends to increase as floor size increases. The likelihood of a household being fuel poor rises from 6.6 per cent for the smallest dwellings (less than 50 m^2) to 13.3 per cent for dwellings that are 90 to 109 m^2. The likelihood of fuel poverty for those living in properties 110 square metres or above is 12.9 per cent, likely due to these households having the lowest energy efficiency ratings (Table 3.3). The largest properties (110 m^2) have a lower than average median energy efficiency rating and average gap of £505.

Table 3.3: As floor area increases, median income increases and median energy efficiency rating decreases

Floor area (m²)	Median income (£)	Median energy efficiency rating
Less than 50	17,420	68
50 – 69	19,540	66
70 – 89	20,700	65
90 – 109	23,990	64
110 or more	30,860	63
All households	**22,790**	**65**

3.1.3 Wall type

Figure 3.4: In 2017 the average gap and proportion of households in fuel poverty is higher for those living in properties with uninsulated walls[48,49]
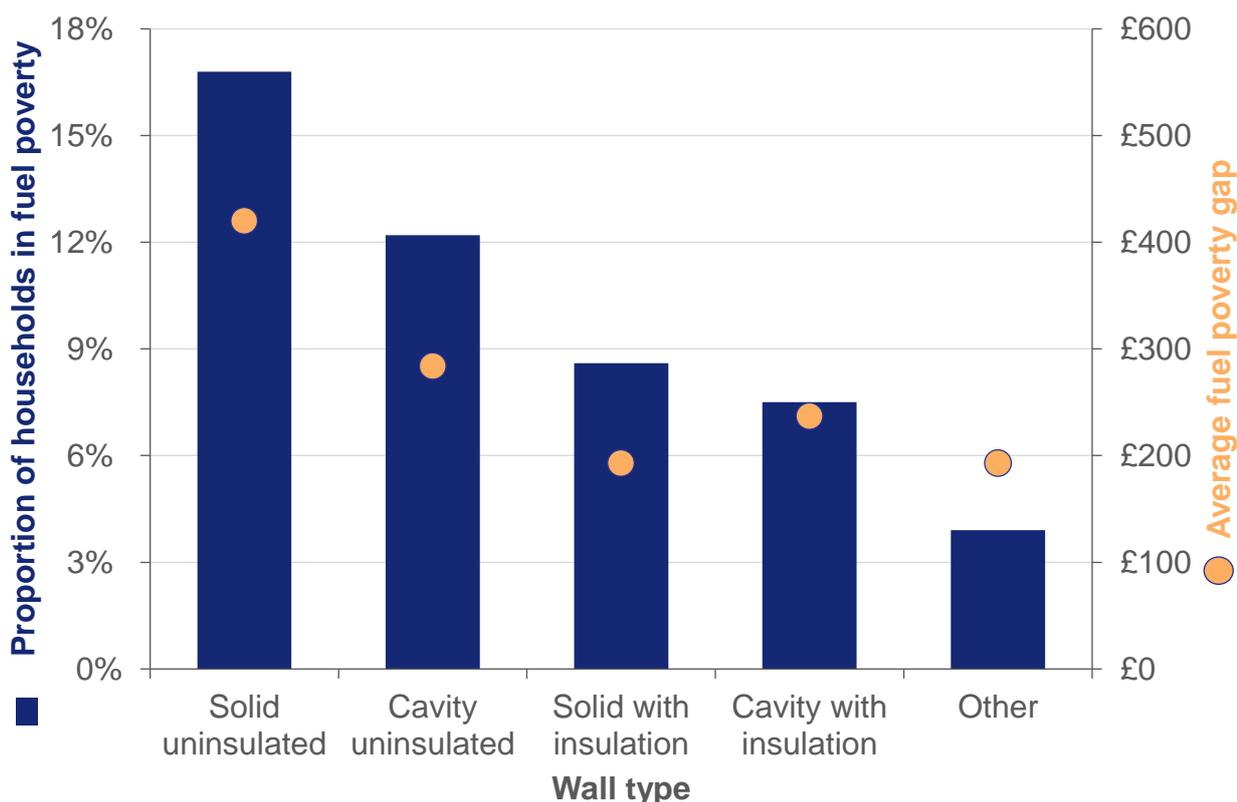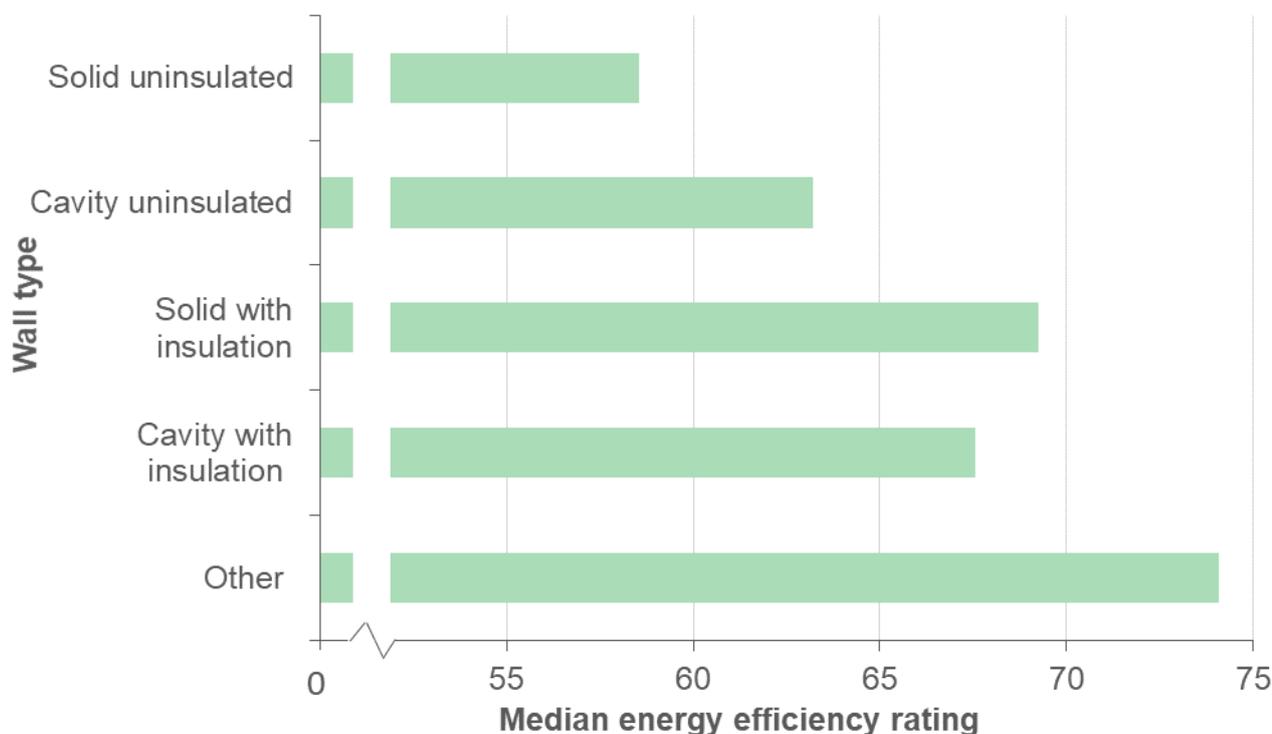

Properties with solid uninsulated walls had the highest proportion of households in fuel poverty, 16.8 per cent with an average gap of £420 - more than double that of those with insulated solid walls (£193). Properties with cavity walls follow a similar pattern - uninsulated cavity walls are

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[48] The 'Other' category includes dwellings built with stone, pre-fab, timber and other methods.
[49] 'Other' figures based on low sample count (between 10 and less than 30), inferences should not be made based on this figure.

more likely to be fuel poor and have a larger average gap than properties with insulated cavity walls.

Figure 3.5: Properties with insulated walls have a higher median energy efficiency rating[48],[49]

The larger average gaps and higher likelihood of fuel poverty in properties without wall insulation are likely, in part, due to the high fuel costs associated with a lower level of energy efficiency - 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 gas cost savings of 7.3 per cent from cavity wall insulation, and 12.4 per cent from solid wall insulation[50].

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[50] Source: National Energy Efficiency Data-Framework (NEED) report: Summary of analysis 2018
https://www.gov.uk/government/statistics/national-energy-efficiency-data-framework-need-report-summary-of-analysis-2018

Figure 3.6: The proportion of properties with cavity wall insulation increased from 25.3 per cent to 46.9 per cent between 2003 and 2017[51]
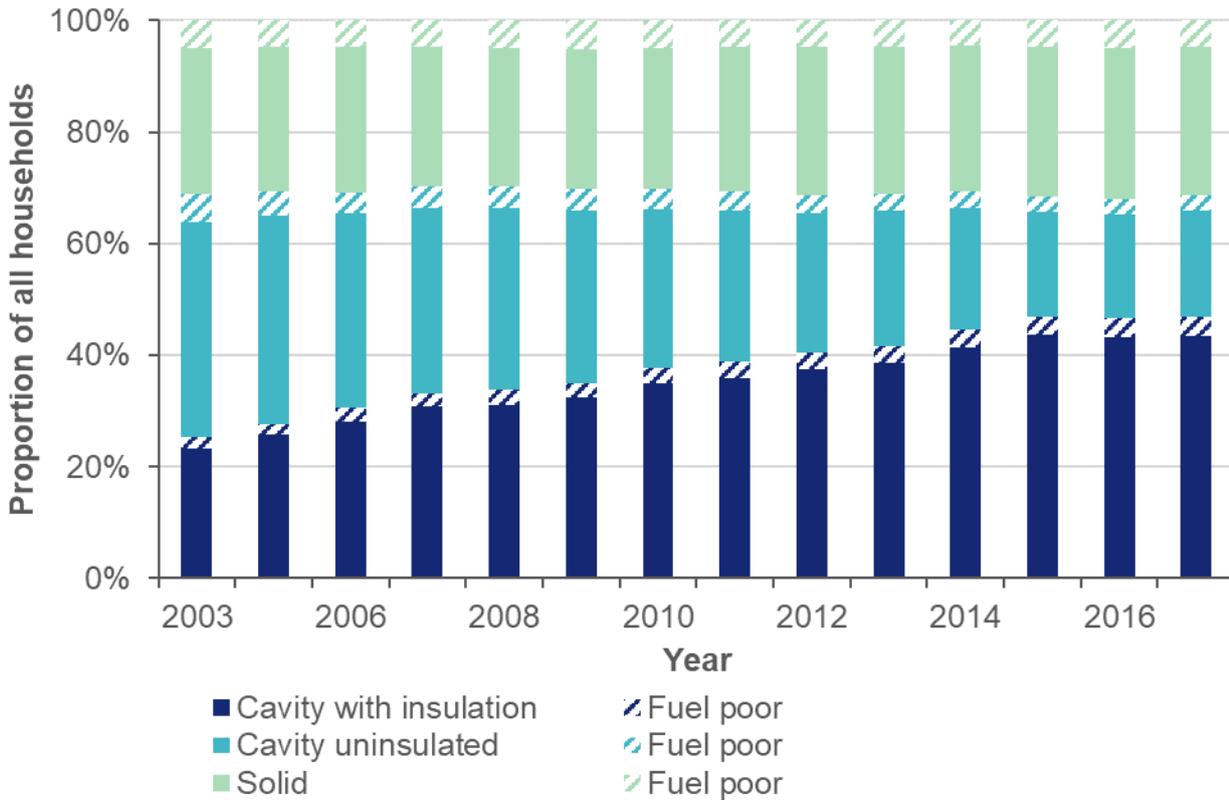

There has been an increasing proportion of properties with *insulated* cavity walls whilst the proportion of properties with *uninsulated* cavity walls has decreased from 43.6 per cent to 21.7 per cent over the same period. The increase in properties with insulated cavity walls has levelled off between 2015 and 2017 and is likely due to the decrease in the number of measures installed through the Energy Company Obligation (ECO) as reported in the Household Energy Efficiency National Statistics[3734].

---

[51] Solid' contains solid with insulation, solid uninsulated and 'other'. These categories have been merged in this FPEER graph due to small sample counts at this level.

3.1.4 Dwelling type

Figure 3.7: Households living in converted flats are more than twice as likely to be in fuel poverty than those living in purpose-built flats
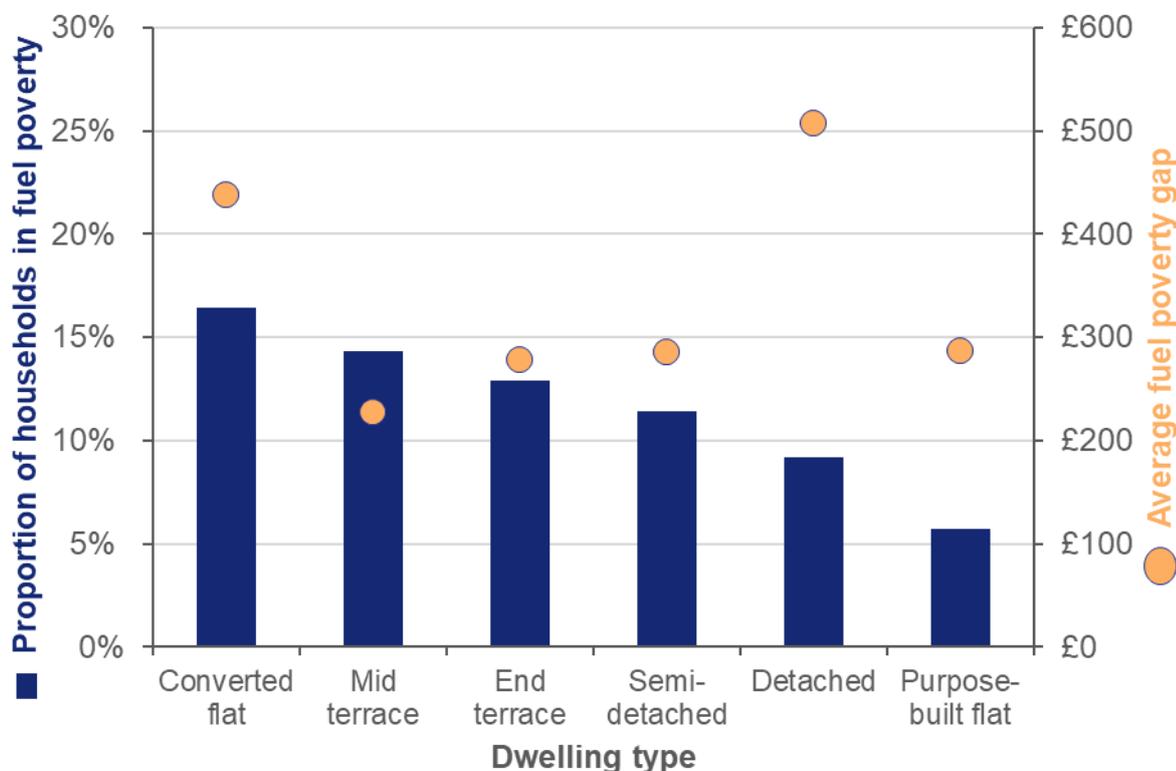
Households living in detached properties have the largest average gaps at £507, partly due to the number of exposed walls which contribute to a lower energy efficiency rating value. Detached properties also tend to be larger, with a median floor area of 120m^2, compared to semi-detached with a floor area of 80m^2 – the next largest. As outlined in Section 3.1.2, those living in properties with larger floor areas tend to have higher fuel costs, and higher average gaps.

Households living in converted flats had the highest likelihood of fuel poverty (16.4%), in contrast, those living in purpose-built flats have the lowest likelihood of fuel poverty (5.7%). This is likely due to the difference in median energy efficiency, as seen in Figure 3.8. Purpose-built flats have a median energy efficiency rating of 71, 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 3.8: Purpose-built flats have a median energy efficiency rating 9 points higher than for converted flats
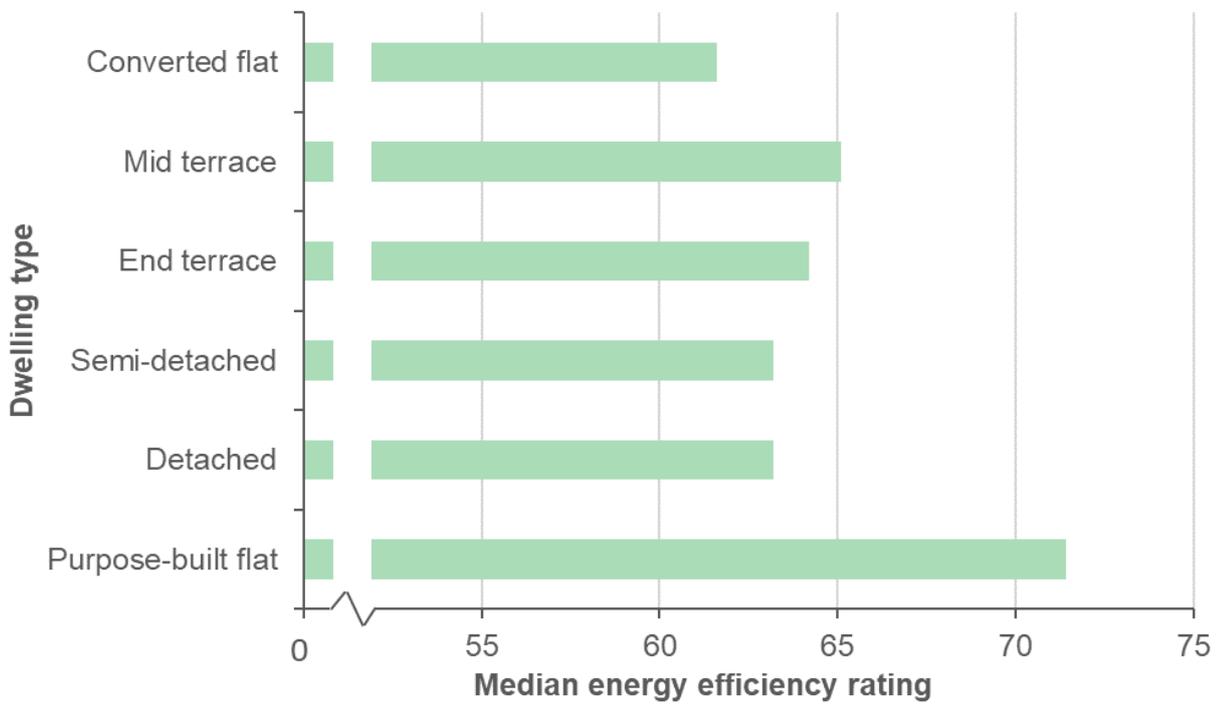
3.1.5 Property age

Figure 3.9: Households living in properties built before 1850 have the highest average gap at £1,040, more than double the average gap of those living in any other property age group
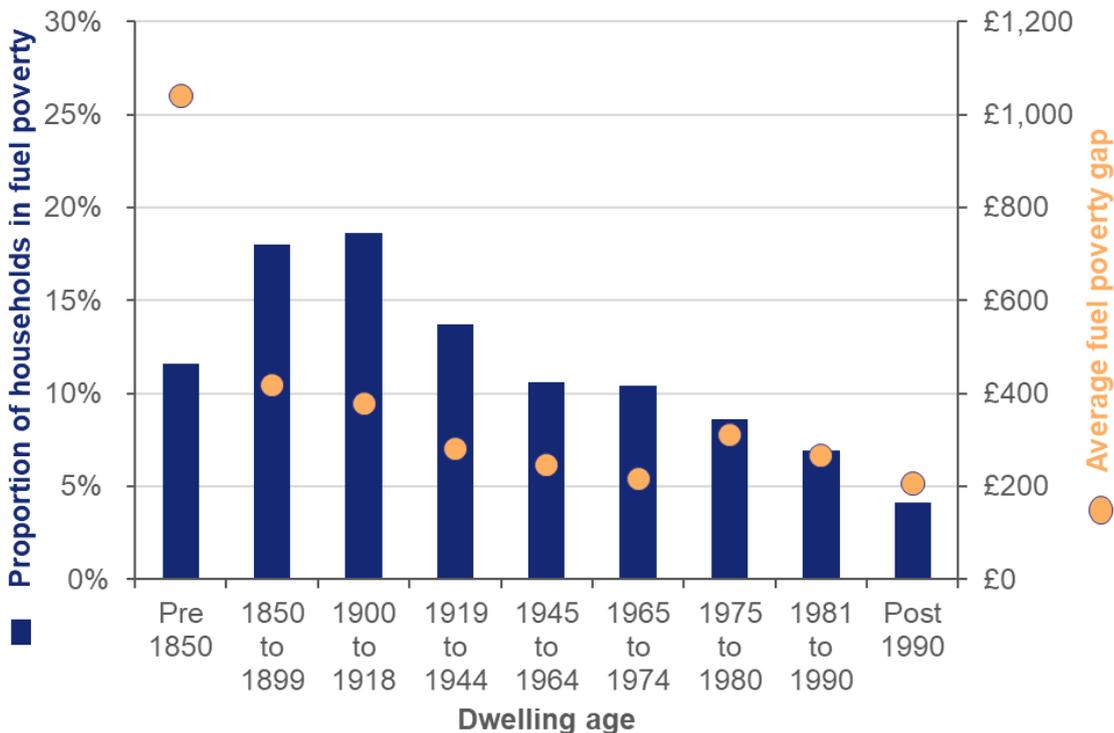
Households living in properties built before 1850 have the highest average   gap at £1,040, more than double the gap of any other age group, this is likely due to their lower than average energy efficiency rating and higher than average floor area (see Table 3.4). This trend broadly correlates to the decreasing gap in more recently built properties.

Table 3.4: Energy efficiency broadly improves with more recent property age

Property age	Median income (£)	Median energy efficiency rating	Median floor area (m²)
<1850	28,710	48	126
1850-1899	24,240	59	88
1900-1918	21,780	60	86
1919-1944	23,610	61	88
1945-1964	20,690	65	83
1965-1974	22,290	65	80
1975-1980	22,500	67	81
1981-1990	23,390	67	72
>1990	24,290	73	81
All households	**22,790**	**65**	**84**

Although households living in properties built before 1850 have the largest average gap, those living in properties built between 1850 and 1918 have the highest likelihood of being in fuel poverty (over 18%) this is linked not only to the energy efficiency rating of the property but also the incomes of those living in the property. Households that live in properties built before 1850 have a median income 26.0 per cent higher than that for all households, and the highest median income of any other property age group by 18.2 per cent.

3.1.5 Main fuel type

Figure 3.10: In 2017 households using electricity as their main fuel for heating have double the likelihood of being in fuel poverty than those using gas
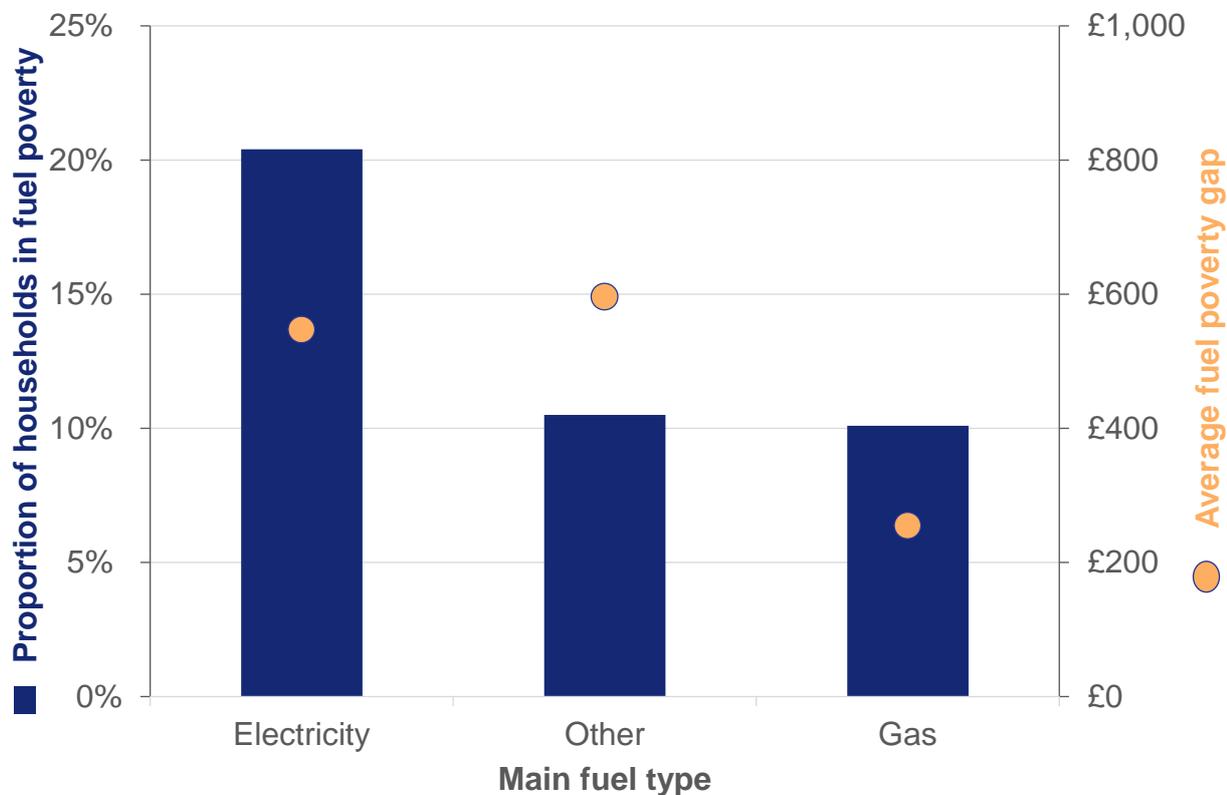
Households using electricity as a main fuel for heating have the highest likelihood of fuel poverty at 20.4 per cent, compared to gas at 10.1 per cent. The 'other' category which consists predominantly of oil or coal, has the highest average gap, at £596.

Those using electricity as a main fuel for heating make up 7.9 per cent of households in England in comparison to 85.3 per cent using mains gas, however they account for 14.8 per cent of all fuel poor households. A higher proportion of properties that use electricity as their main fuel for heating are in the lowest energy efficiency bands than for gas. Properties in Band F/G make up 0.8 per cent of properties using gas, whereas 22.9 per cent of properties using electricity as a main fuel.

Households using electricity as their main fuel are more likely to be in fuel poverty. This is likely due to the higher fuel expenditure associated with properties with a lower energy efficiency rating and the relatively higher cost of electricity than gas.

The 'other' category has a higher average gap which is partly due to a higher median floor area (103 m^2) compared to properties using gas (85 m^2) and properties using electricity (62 m^2), which will contribute to higher fuel costs. Other fuels also tend to be less efficient and more expensive means of heating properties. Of those households that live in properties using 'other' main fuels, 23.1 per cent have an energy efficiency rating of Band F/G, more than households using gas or electricity as their main fuel.

3.1.6 Rurality

Figure 3.11: In 2017 households living in urban and rural areas have roughly the same likelihood of fuel poverty
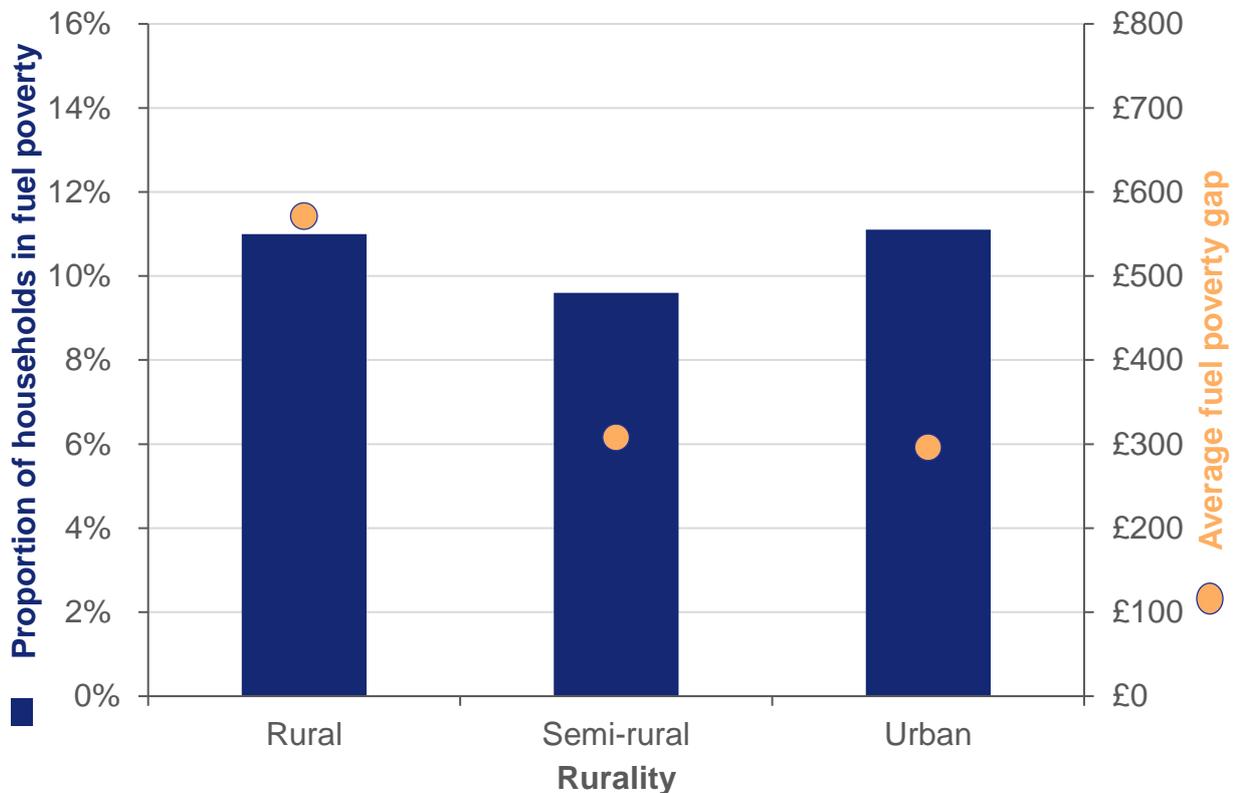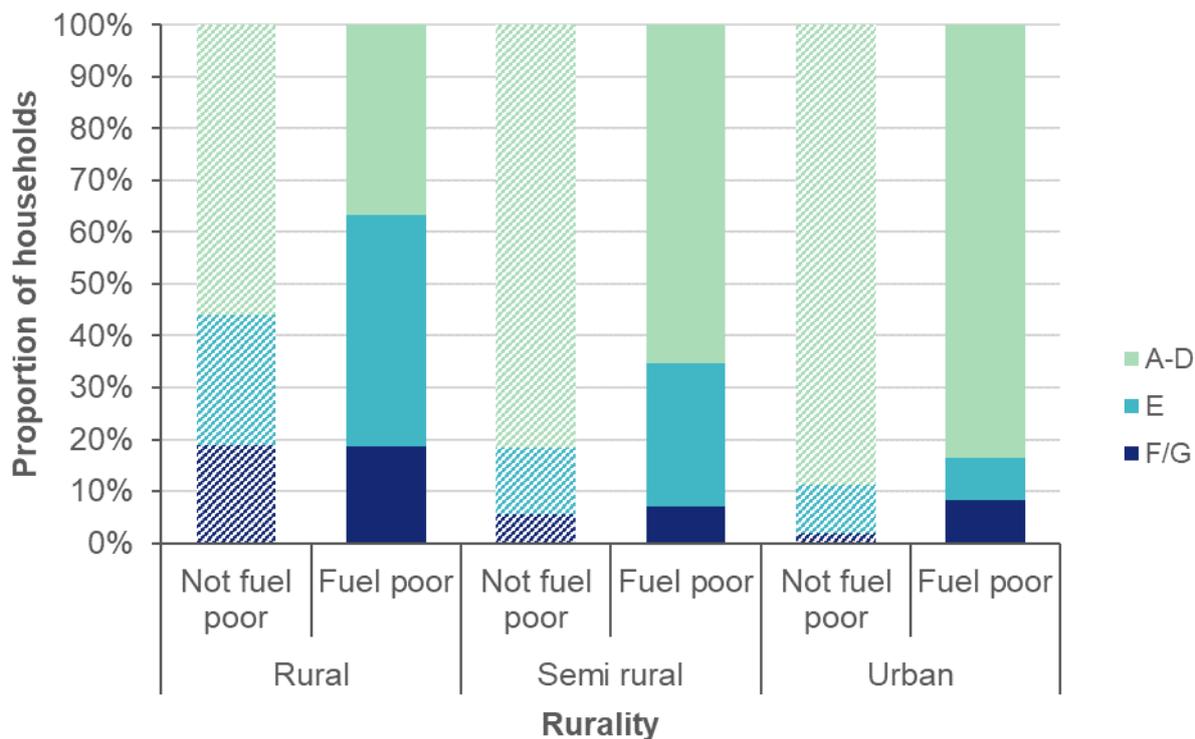

Households living in rural and urban areas have roughly the same likelihood of fuel poverty (11.0% and 11.1%), with rural areas having the highest average gap at £571. However, 82.8 per cent of the total number of fuel poor households are in urban areas (81.7% of *all* households are in urban areas).

Rural properties have a higher incidence of being off the gas grid. Of households living n properties not on the gas grid, 15.9 per cent are fuel poor compared to 10.1 per cent on the gas grid[52].

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[52] Table 10, Fuel Poverty detailed tables 2019: https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2019

Figure 3.12: In 2017 a larger proportion of properties in rural areas have lower energy efficiency ratings, this is true for both fuel poor and non-fuel poor households[53]

Households living in rural areas have, on average, less energy efficient properties but higher than average median incomes (see Table 3.5), this is likely to somewhat offset the impact of their higher fuel costs.

Table 3.5: Households living in urban areas have the lowest median income at £22,070

Rurality	Median income (£)
Rural	27,290
Semi-rural	24,320
Urban	22,070
All households	**22,790**

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[53] FP denotes households classed as living in fuel poverty. Non-FP denotes households not classed as living in fuel poverty.

3.1.7 Region

Figure 3.13: In 2017, households living in the North West had the highest proportion of fuel poor households the South East had the highest average gap
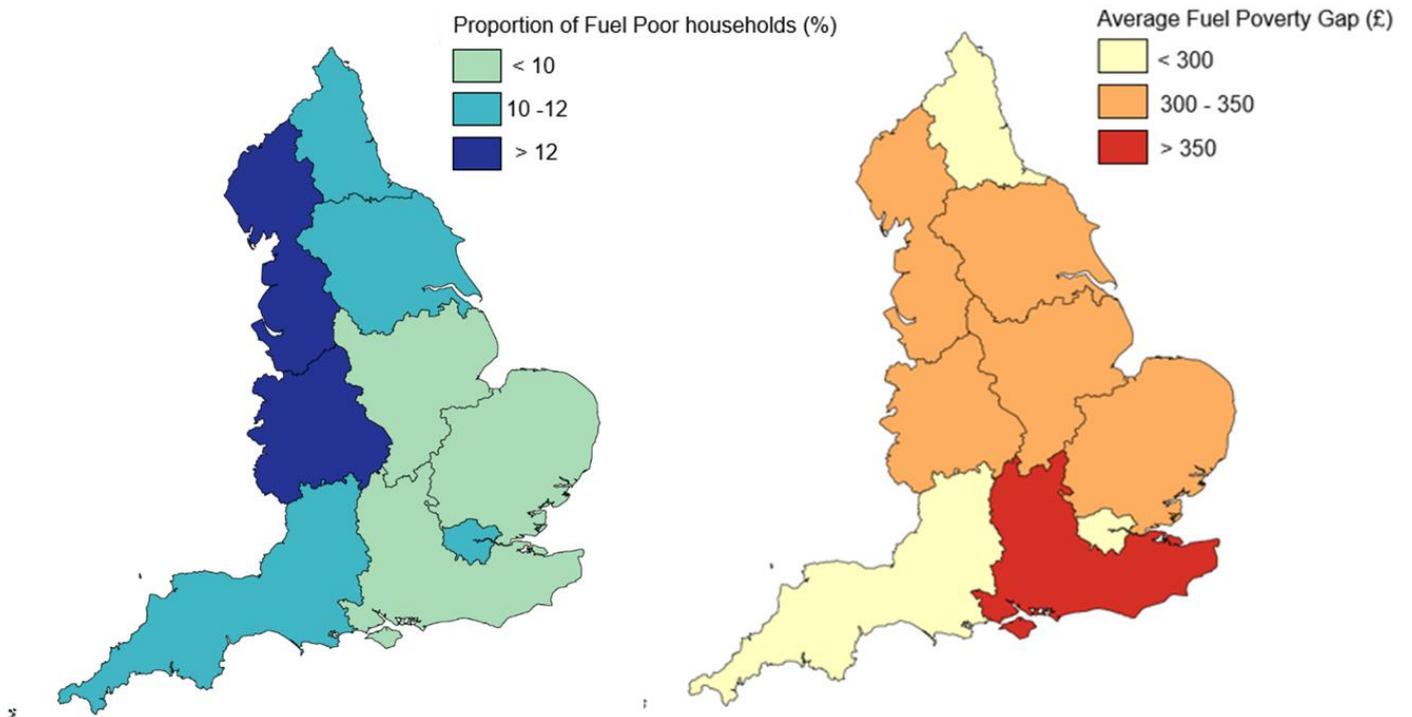
Source: Fuel poverty Statistics for England, 2017
Crown copyright 2019. You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government License. Visit ww.nationalarchives.gov.uk/doc/opengovernment-license/version/r/ or write to the Information Policy Team, The National Archives, Kew, London, TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

The North West has the highest prevalence of fuel poverty at 13.1 per cent, compared to 8.7 per cent in the South East. The South East has the highest average gap (£449) and the South West and London have the smallest average gaps (£280).

Table 3.6: Northern regions tend to have lower than average (median) incomes, whilst southern regions tend to have the largest median floor areas

Region	Median energy efficiency rating	Median income (£)	Median floor area (m^2)	Median fuel costs (£)	Fuel poverty (%)	Average Gap (£)
North East	66	20,480	81	1,130	11.8	292
North West	65	21,290	82	1,160	13.1	305
Yorkshire & The Humber	64	22,450	83	1,150	10.6	314
East Midlands	64	22,920	85	1,170	9.3	325
West Midlands	64	20,680	83	1,170	12.6	324
East	65	23,510	86	1,150	9.8	302
London	65	22,770	77	1,080	11.8	280
South East	65	24,900	89	1,180	8.7	449
South West	64	24,030	89	1,210	10.8	280
All households	**65**	**22,790**	**84**	**1,160**	**10.9**	**321**

Median incomes, the size of properties and fuel costs tend to differ depending on the region however the median energy efficiency ratings of properties are roughly similar. In general, households living in northern regions tend to have a higher likelihood of being in fuel poverty which is likely due to lower than average incomes. Whereas households in southern regions tend to have higher average gaps which is likely due to their larger than average properties resulting in higher than average fuel costs.

The West Midlands has both a higher than average likelihood of fuel poverty (12.6%) and one of the largest average gaps (£324). This is likely due to higher than average fuel costs, combined with lower than average incomes.

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 households' tenure.

Figure 3.14: Proportion of households in fuel poverty was highest for private renters at 19.4 per cent in 2017
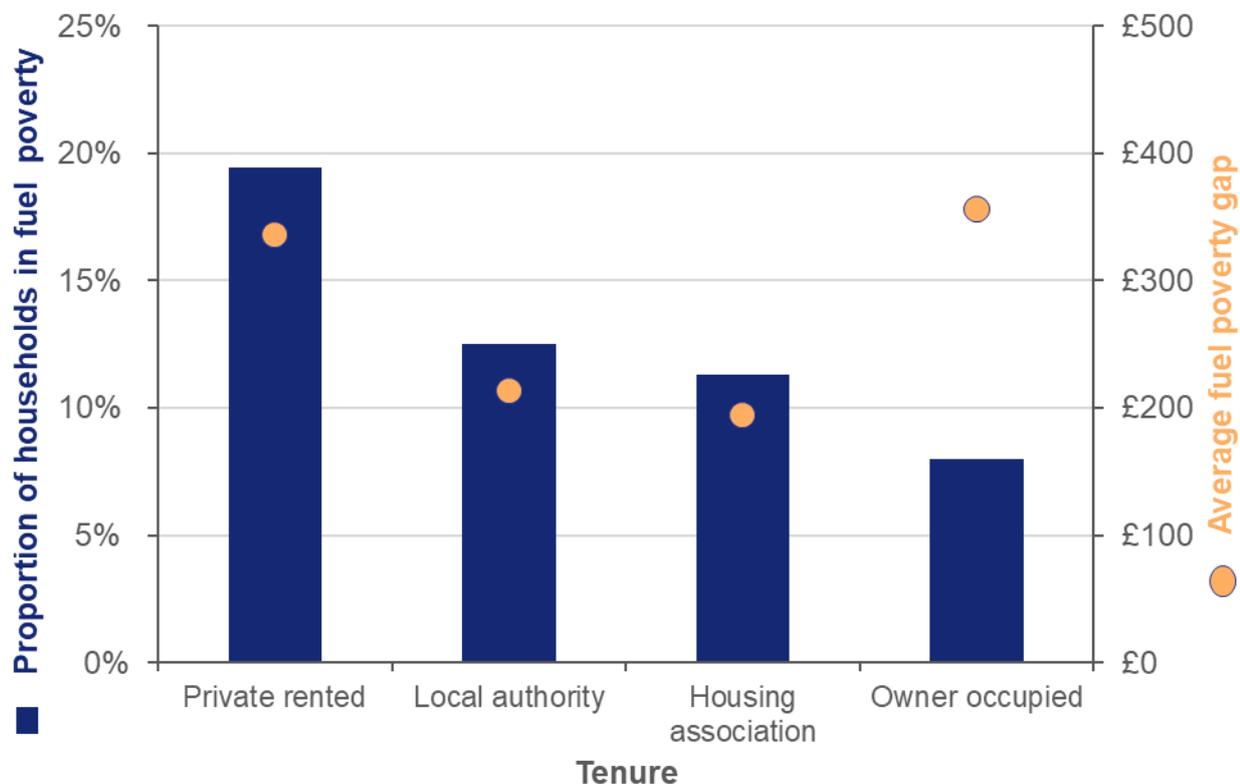
Table 3.7: Median energy efficiency rating for social housing (housing association and local authority) highest in 2017

Tenure	Median energy efficiency rating
Private rented	64
Local authority	68
Housing association	70
Owner occupied	64
All households	**65**

Social housing properties tend to be more energy efficient resulting in lower energy costs, and therefore, limiting the prevalence and depth of fuel poverty within these property types. Whereas owner occupied and private rented properties tend to be less energy efficient resulting in higher energy costs and a higher average gap.

In England, of those that are applicable, the proportion of social housing with 125mm or more of loft insulation (approximately 55%) is broadly similar to the proportion for private housing

(both private rented and owner occupied). For fuel poor households, this figure is 57.8 per cent for those in social housing and 52.1 per cent for those in private housing.

Figure 3.15: Owner occupied and private rented properties have consistently had the largest average gap between 2003 and 2017[54]

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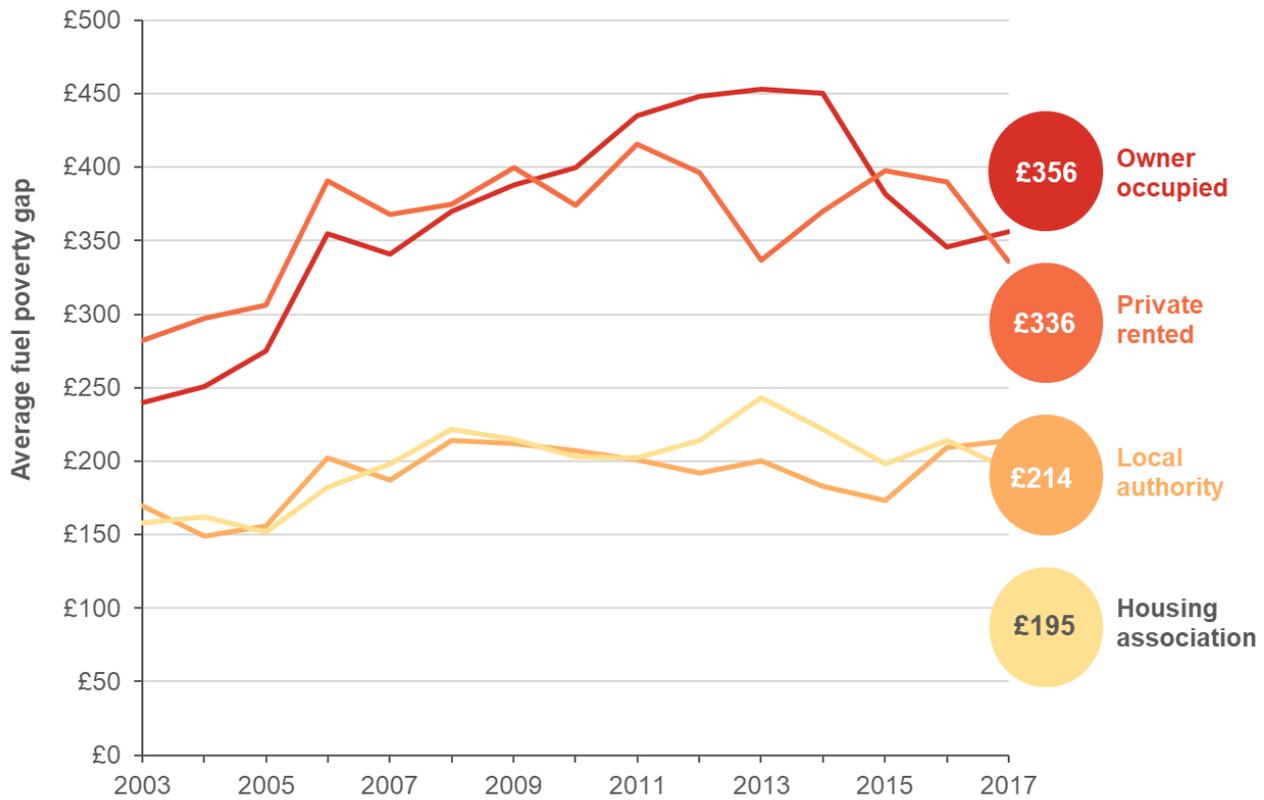
[54] Data in real terms (2017 prices), adjusting for inflation using the GDP (market prices) deflator.

3.2.2 Household composition[55]

Figure 3.16: Single parents and couples with children have the highest proportion of households in fuel poverty and the highest average gap[56]
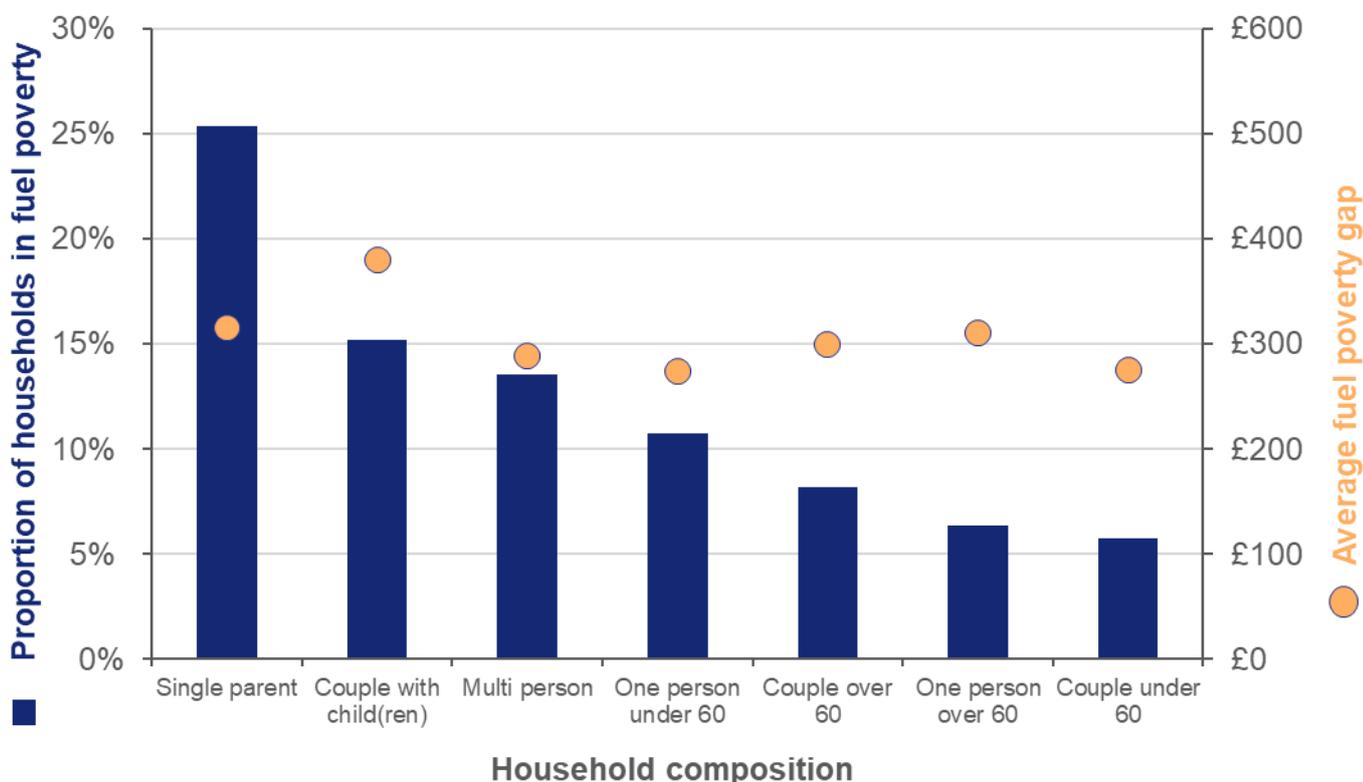

In 2017, single parents had the highest proportion of households in fuel poverty (25.4%) and an average gap of £315. Couples under 60 were the least likely to be in fuel poverty (5.8%) with an average gap of £275.

Over a quarter of single parents (26.4%), in fuel poverty, live in social housing (local authority and housing association) which has higher energy efficiency ratings thus making them more energy efficient. This partly explains why their average gap is lower than the national average.

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[55] '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

[56] https://www.gov.uk/government/statistics/fuel-poverty-trends-2018

Figure 3.17: Single parents and couples under 60 have the highest and lowest proportion of fuel poverty[57]
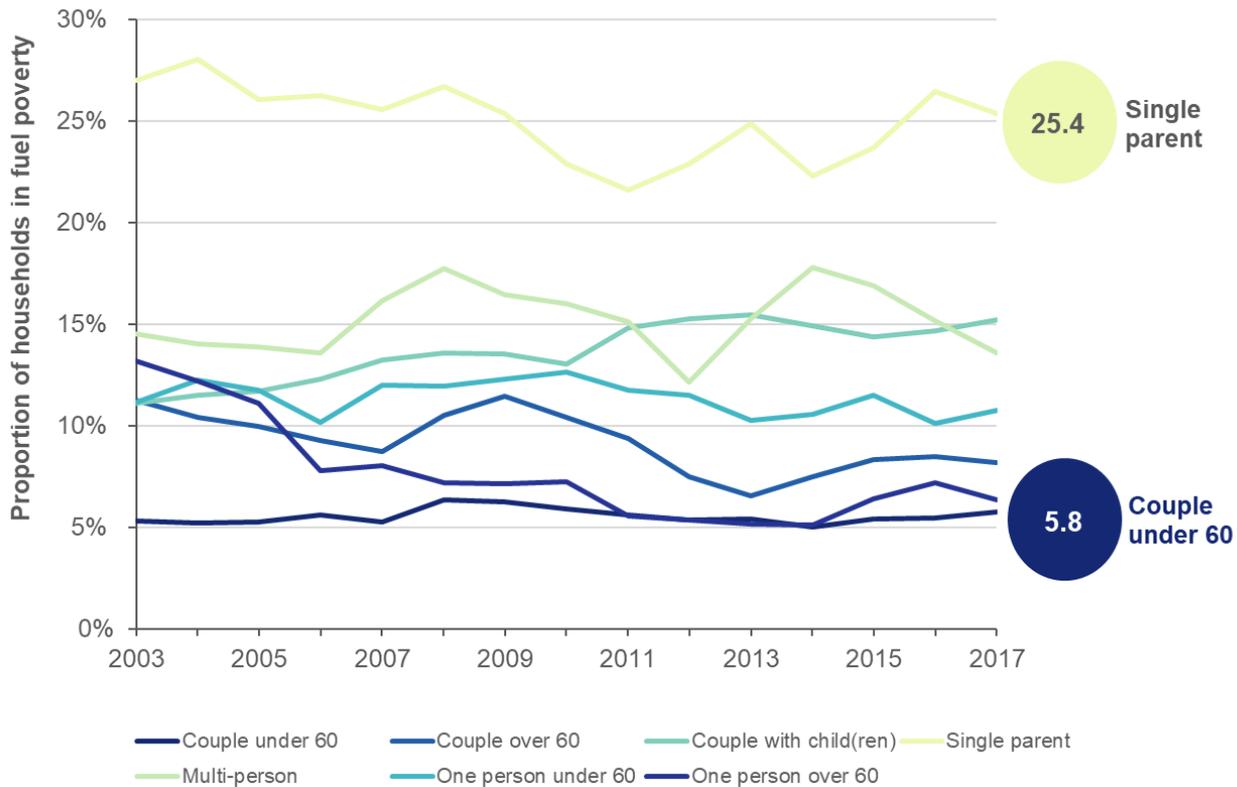

The proportion of single parent households in fuel poverty is likely related to income - their median income is £12,830, 43.7 per cent less than the median income for all households (£22,790).

In 2017, 46.1 per cent of all fuel poor households had one or more dependent children (1.17 million households). This is 5.0 per cent of all households and 17.7 per cent of all households with children[58].

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[57] https://www.gov.uk/government/statistics/fuel-poverty-trends-2018
[58] Table 20, detailed tables: https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2019

Figure 3.18: There was an overall increase in the average gap for all household compositions between 2003 and 2012, since 2013 the direction of change is mixed[54]
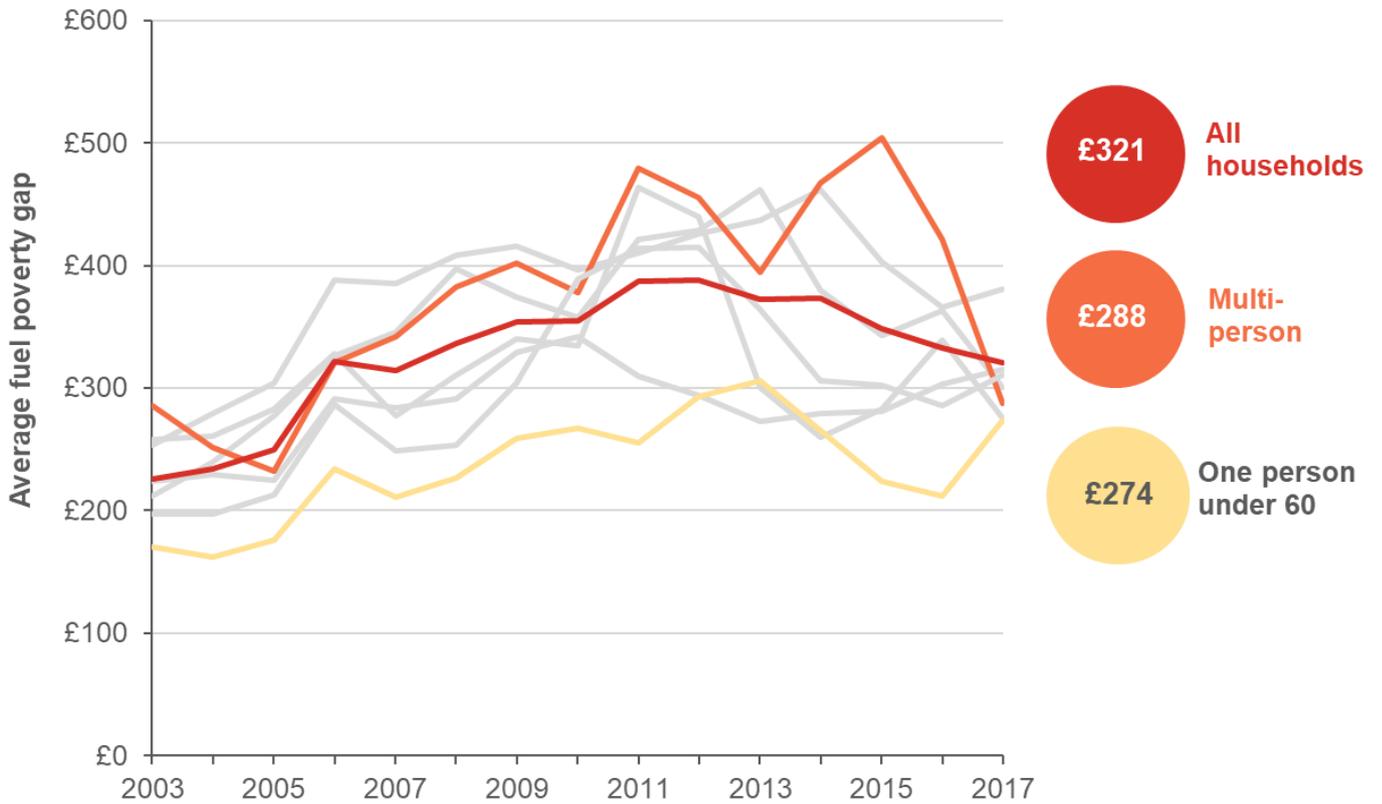

Between 2003 and 2017, the largest percentage increase in the average gap is for one person under 60, which has seen around a 61.1 per cent increase in real terms, from £170 to £274. The smallest increase within the same time period is for multi-person households, where there has been around a one per cent increase.

3.2.3 Ethnicity[59]

Data are based on the household reference person (HRP)[60]. 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 tend to have lower average gaps between 2003 and 2017, but higher rates of fuel poverty[54]
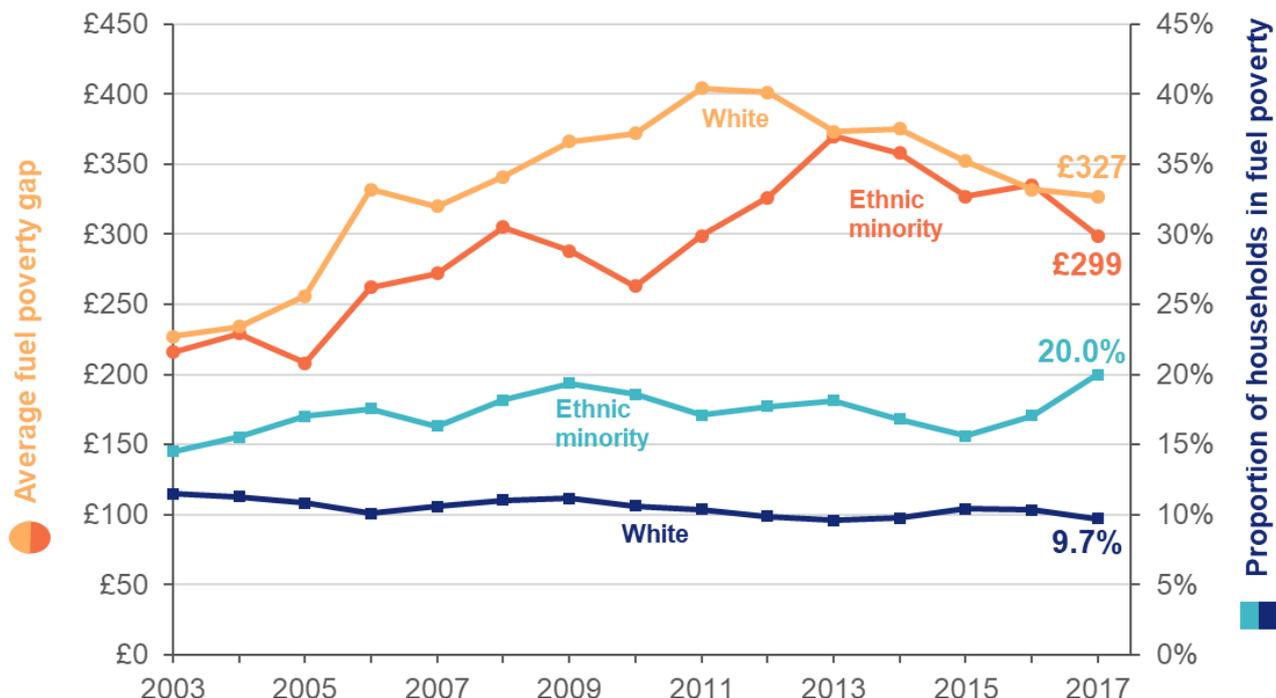
In 2017, the median income for ethnic minority households was, on average, lower than the income for white households which partly explains their higher likelihood of fuel poverty. However, ethnic minority households tend to have a higher proportion living in social housing (25% compared to 16% for white households) and tend to live in more energy efficiency properties with an energy efficiency rating of 67 compared to 65 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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[59] 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.

[60] 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.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/705821/2016-17_EHS_Headline_Report.pdf

3.2.3 Age

Age can be analysed in two different ways:

- Age of the *oldest* member of the household which identifies younger households;
- Age of the *youngest* member of the household which identifies older households.

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 (19.5%), with an average gap of £265
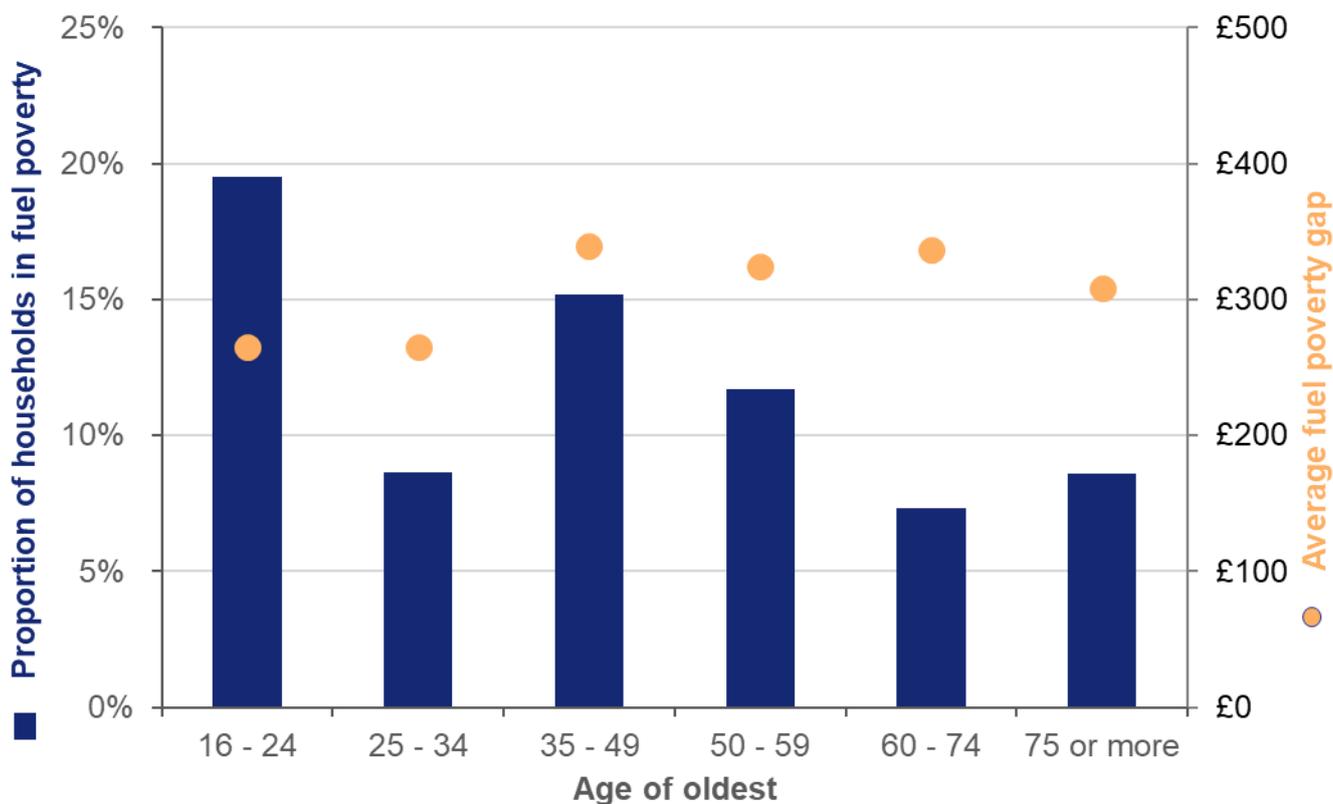

In 2017, 19.5 per cent of households where the oldest member is aged 16 to 24 years were fuel poor, which is likely to be a result of lower incomes for younger households. Table 3.8 shows that the youngest households had a median income of around £12,780 compared to £22,790 for *all* households.

Table 3.8: Households where the age of the oldest member is between 16 and 24 has the lowest median income, £10,000 lower than the average[61]

Age group	Median income (£)
16 – 24	12,780
25 – 34	20,710
35 – 49	19,930
50 – 59	24,430
60 – 74	26,070
75+	23,180
All households	**22,790**

Figure 3.21: Households where the youngest member is 15 years or under consistently have the highest proportion in fuel poverty[62]
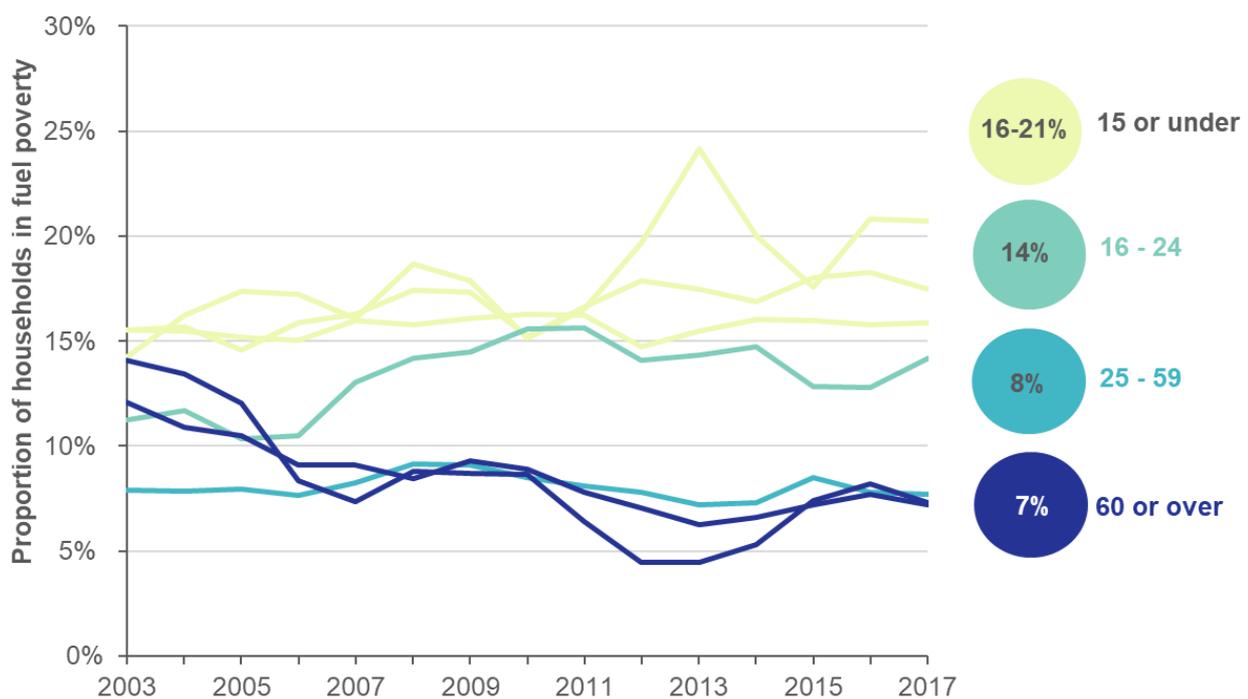
Households where the youngest member is 15 years or under has a higher prevalence of fuel poverty which is likely to be as a result of having the second lowest income and higher fuel costs.

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[61] Incomes, as defined on Page 11 are after housing costs equivalised. Housing costs and the effect of equivalisation vary between each group.
[62] Table 12: https://www.gov.uk/government/statistics/fuel-poverty-trends-2019

Households where the occupants were 60 or over saw a decrease in their likelihood of fuel poverty between 2003 and 2017. The Warm Home Discount[63] (introduced in 2011) and the Winter Fuel Payment[64] (which was introduced in 1997) are likely to have had an effect.

3.3 Household income

3.3.1 Employment status

Data are based on the household reference person (HRP)[65]. 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 31.9 per cent while households with a retired HRP have the lowest (7.6%) in 2017
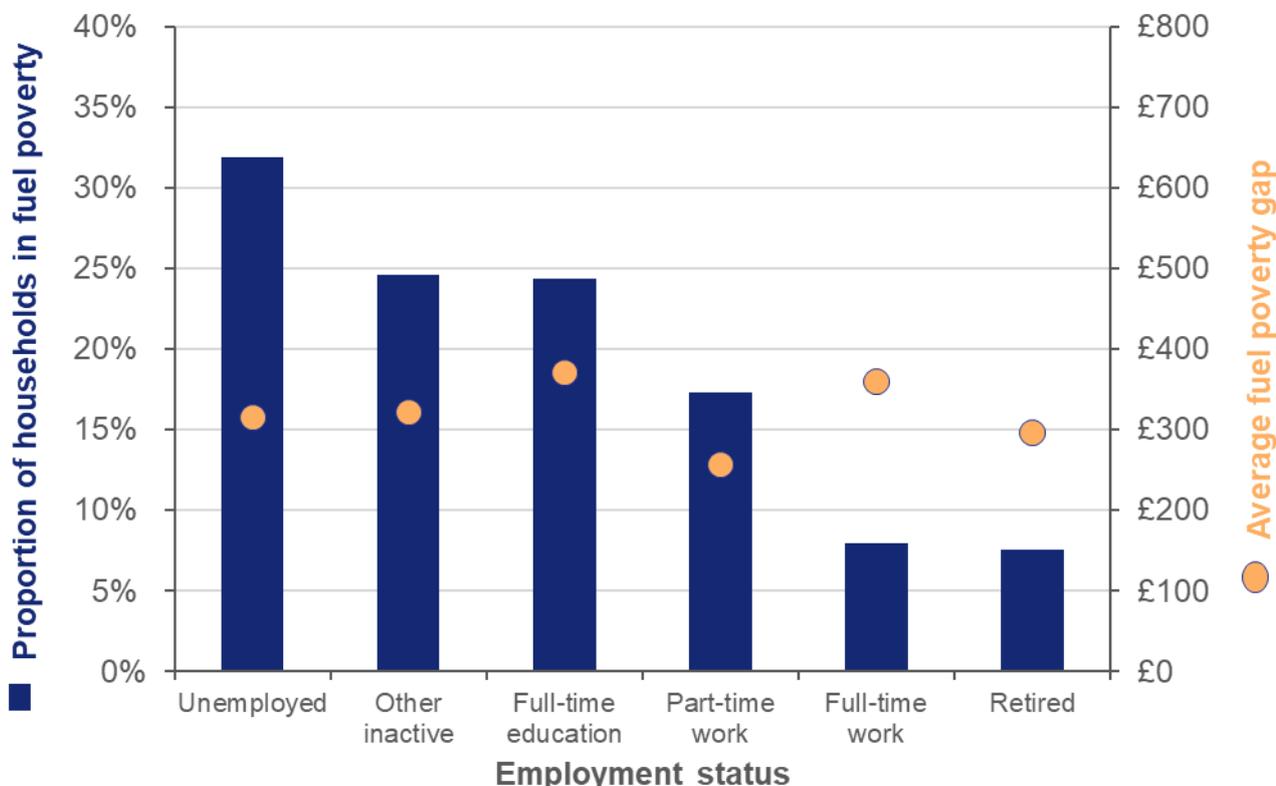
Figure 3.26 shows that although those in full-time work have the second lowest proportion that are classed as fuel poor, they have second highest average gap. Whereas, households where the HRP is unemployed have the highest likelihood of being in fuel poverty (31.9%), but an average gap of £315.

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[63] https://www.gov.uk/the-warm-home-discount-scheme
[64] https://www.gov.uk/winter-fuel-payment
[65] Please note the definition of HRP (footnote 59) would suggest there could be a bias in the figures towards those with higher incomes.

Figure 3.23: Full-time workers have the highest median income for *all* households while those in full-time education have the lowest median income for *fuel poor* households in 2017
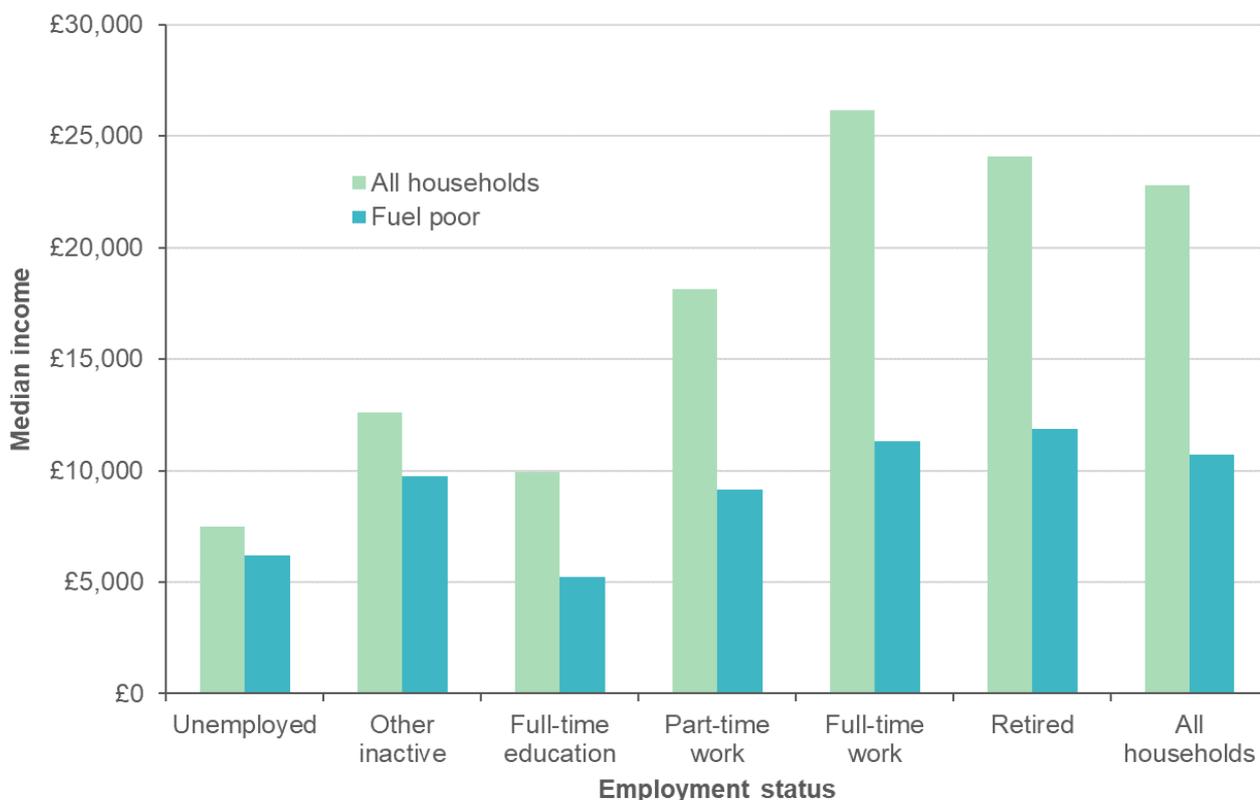
The median income for households tends to be negatively correlated with the proportion of households in fuel poverty. However, the average gap does not follow the same pattern. For example, households where the HRP is in full time work have the second lowest proportion in fuel poverty (8.0%) and an average gap of £359. This is likely due to the interaction between income and median fuel costs, (see median fuel costs in Figure 3.28, *all* households).

Figure 3.24: Households in full-time education have lowest median fuel costs among *all* households while those that are retired have the largest in 2017
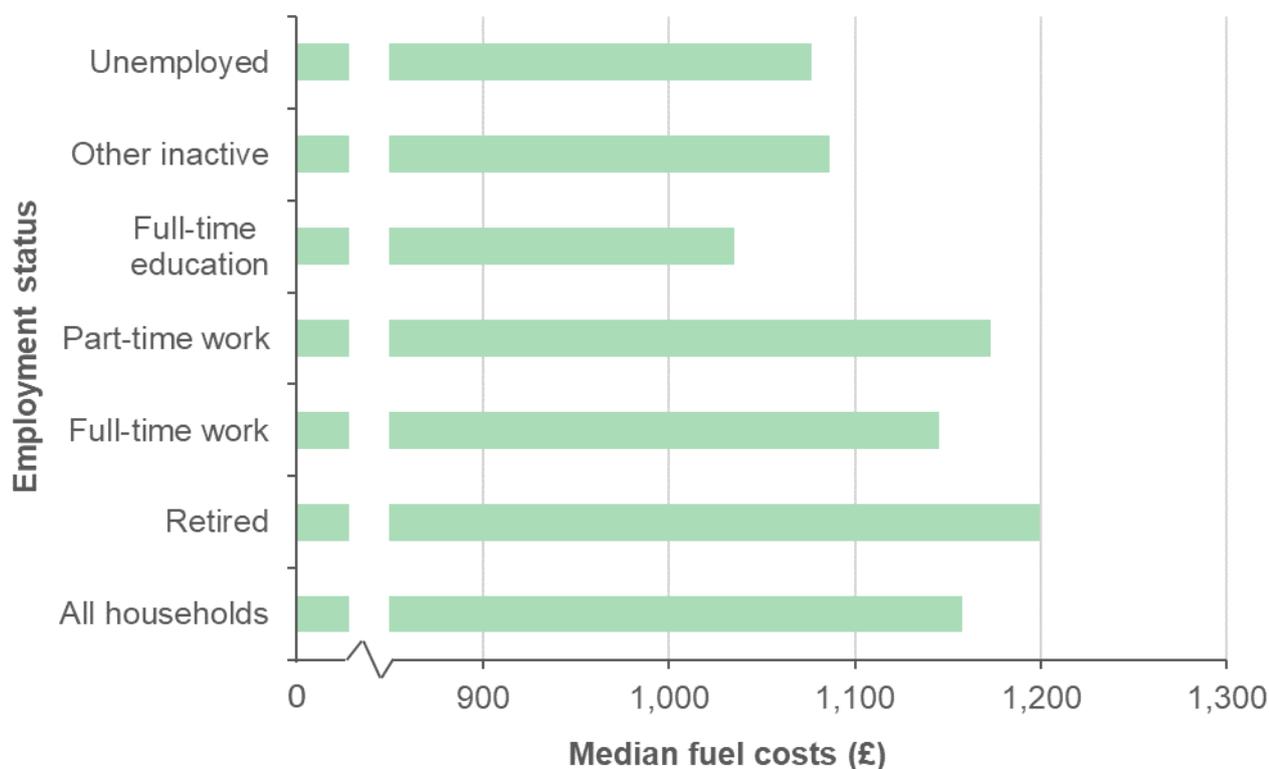
3.4 Fuel payment type

The analysis contained in this section explores the difference between fuel payment methods and fuel poverty. As such, it includes the impact of the prepayment price cap that came into force in April 2017.

An enquiry by the Competitions Market Authority (CMA)[66] on energy markets resulted in Ofgem introducing the prepayment cap. The cap is a set level of payment for those using prepayment meters and suppliers can then charge up to this as their highest price.

For example, for *all* households that pay for electricity by prepayment, their median fuel costs in 2017 were £1,090. This is around £60 lower than the median fuel costs in 2016, which were £1,150[67].

As discussed in Chapter 1, and can be seen in Figure 3.25, data relating to the fuel poverty is a combination of two English Housing Survey (EHS) years of data. The prepayment price cap was introduced at the beginning of the 2017-18 survey year, and as a result the full impact of the cap will not be seen in the data until next year's statistics relating to the fuel poverty 2018 data year.

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[66]https://www.ofgem.gov.uk/energy-price-caps/about-energy-price-caps/price-my-energy-bill-capped/prepayment-energy-price-cap

[67] Figures based required energy bills rather than actual spending (see Chapter 1 for further information)

Figure 3.25: English Housing Survey and fuel poverty data[68]
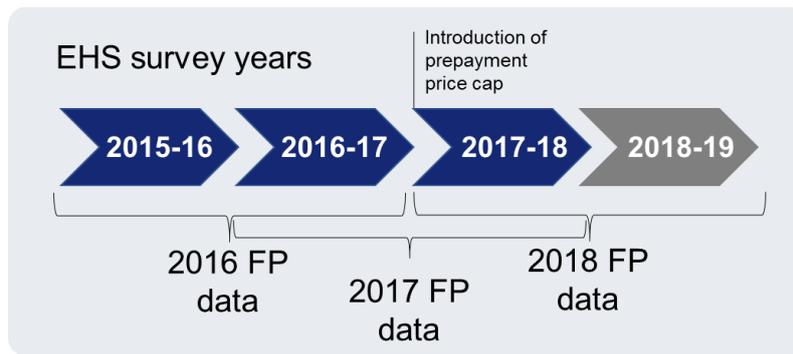
The proportion of fuel poor households using an electricity prepayment meter is around 27.1 per cent compared to 31.4 per cent in 2016. The same applies to gas which is 21.6 per cent compared to 25.0 per cent in 2016. This is likely to be as a result of the effect of the prepayment cap.

3.4.1 Electricity payment method

Figure 3.26: Households that pay for their electricity by prepayment have the highest proportion in fuel poverty but have the lowest average gap in 2017
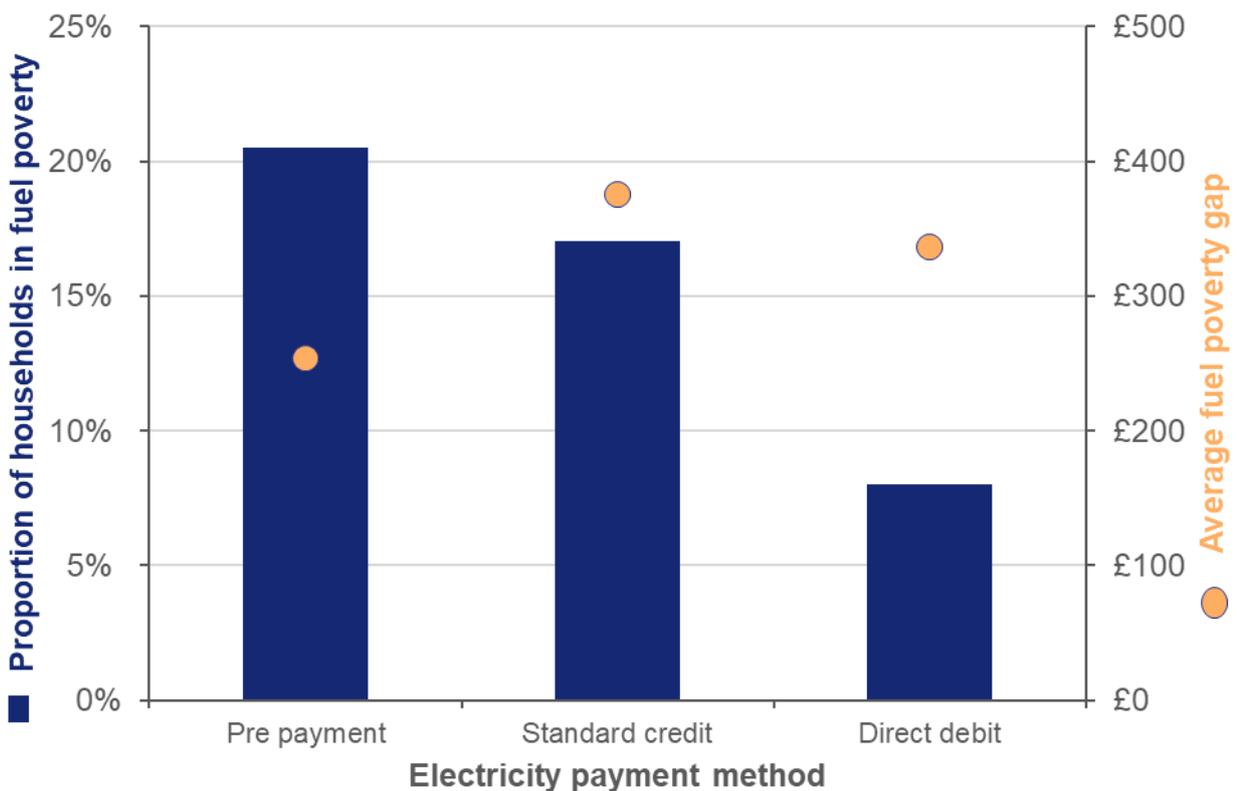
The average gap for households paying their electricity by standard credit was £375 and £254 for those paying by prepayment meter. The average gap for households paying by prepayment

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[68] FP denotes fuel poor

meter is likely due to the combination of smaller, better insulated households as well as the introduction of the prepayment cap.

Figure 3.27: Households that pay by prepayment consistently have the lowest average gap between 2003 and 2017[54]
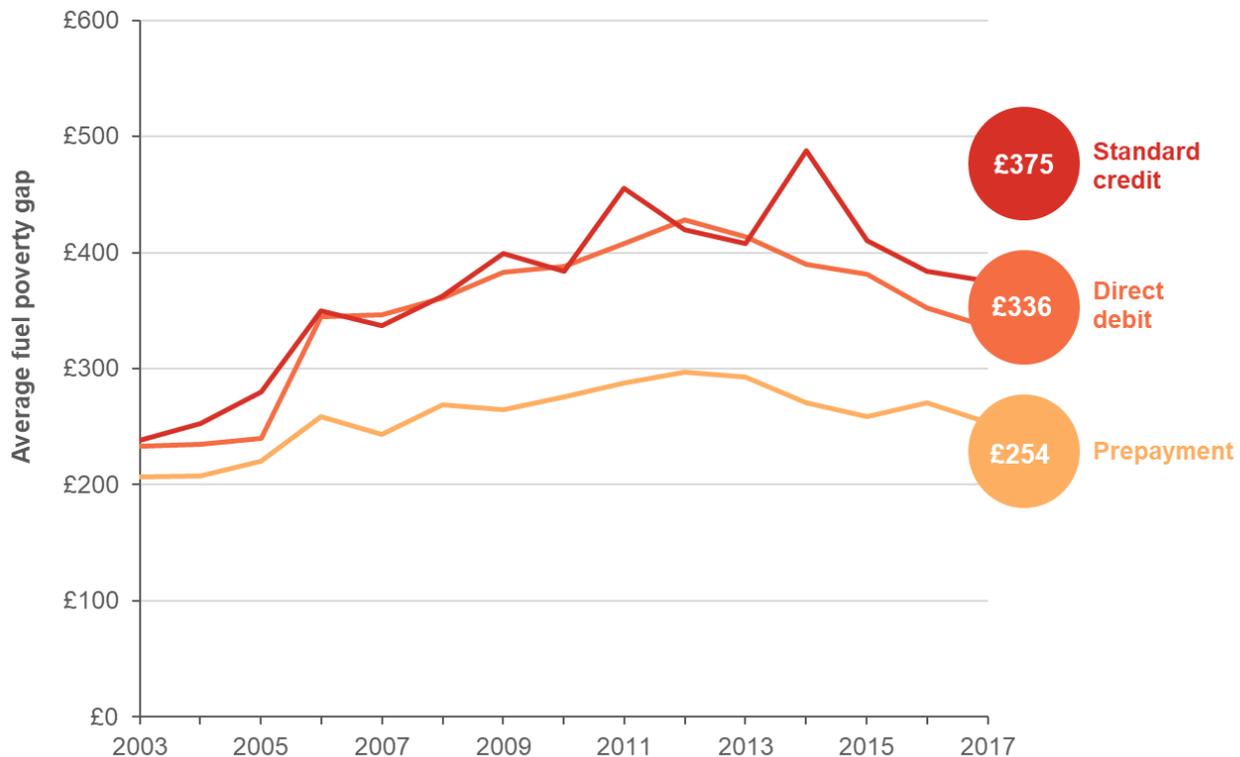
Table 3.9: Households that pay for electricity by prepayment meter tend to live in smaller properties, have a higher than average median energy efficiency rating and a lower median income in 2017

Electricity payment method	Median energy efficiency rating	Median Floor area (m²)	Median income (£)
Prepayment	67	70	14,170
Standard credit	65	78	20,050
Direct debit	64	88	25,290
All households	**65**	**84**	**22,790**

3.4.2   Gas payment method

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.

43

Figure 3.28: Households that pay for gas by prepayment have the highest proportion of households in fuel poverty but the smallest average gap in 2017

Of those that have a gas connection, the average gap was greater for households paying for gas by direct debit (£297) and smallest for households paying by prepayment meters (£205). Households without a gas connection rely on electricity or other fuels like oil or coal to heat their home which likely contributes to why their average gap is the highest at £550.
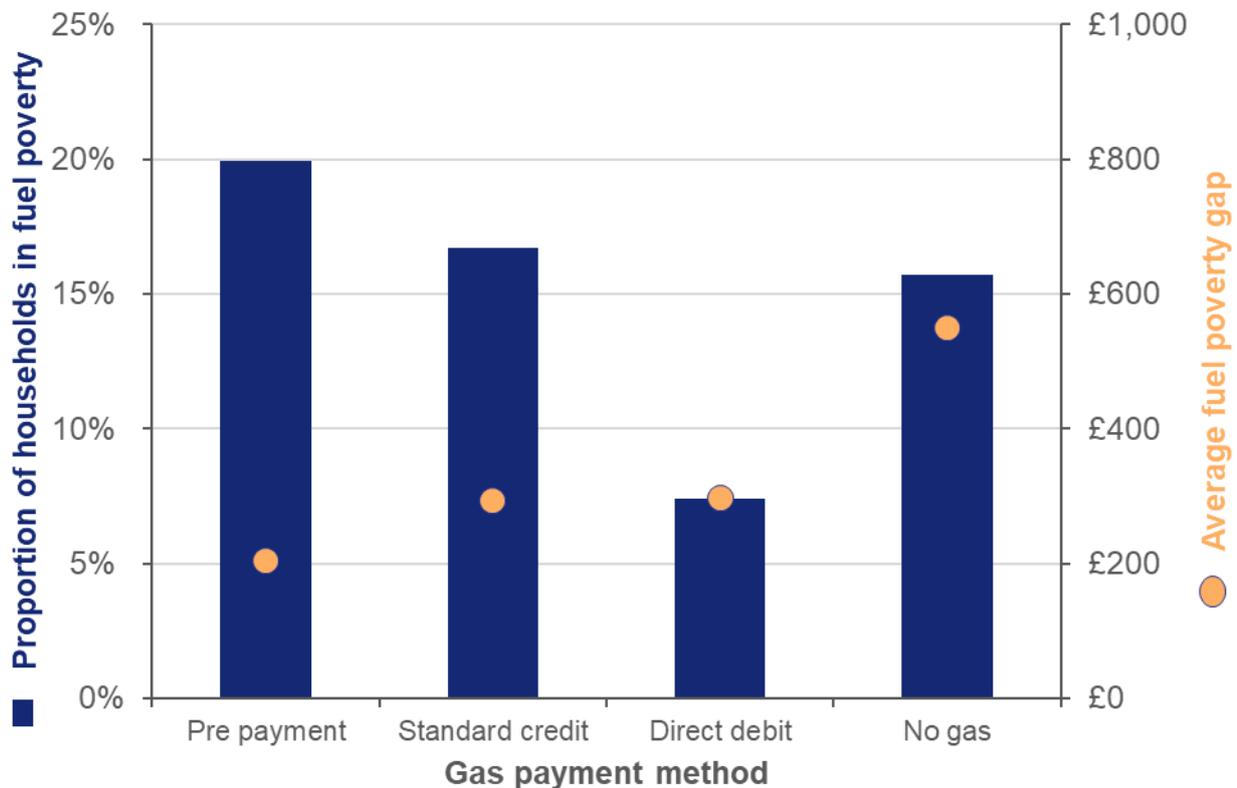
Table 3.10: Households that pay for gas by prepayment meter tend to live in smaller properties and have a higher than average median energy efficiency rating and a lower median income in 2017

Gas payment method	Median energy efficiency rating	Median Floor area (m²)	Median income (£)
Prepayment	67	71	13,930
Standard credit	65	78	19,870
Direct debit	65	88	25,230
No gas	55	78	23,090
All households	**65**	**84**	**22,790**

Households that pay for gas by prepayment meter have the highest proportion of households in fuel poverty but the lowest average gap, which is likely due to a combination of factors. They

have both, on average, higher energy efficiency scores compared to other households and smaller properties, as seen in Table 3.10.

Households using prepayment meters have median income 38.9 per cent below the national median which contributes to why around 19.9 per cent are in fuel poverty. Conversely, households paying by direct debit have income 10.7 per cent above the median.

Table 3.11: Median energy efficiency rating, floor area and income for households with prepayment electricity meter and no gas connection, 2017

	Median energy efficiency rating	Median floor area (m²)	Median income (£)
Fuel poor on prepayment electricity and no gas connection	50	60	11,510
All households	**65**	**84**	**22,790**

Around 20.1 per cent of the fuel poor using a prepayment electricity meter do not have a gas connection.

This subgroup tend to live in smaller, less energy efficient properties (usually flats) and tends to be composed of single person households - their median income is £11,510, 18.8 per cent lower than the wider group using prepayment.

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 and trends tables for fuel poverty in England: https://www.gov.uk/government/collections/fuel-poverty-statistics.

Chapter 4: Projected Fuel Poverty Figures

4.1 Projected headline figures, 2018 and 2019

Chapters 2 and 3 analyse the latest available data for fuel poverty, which has an approximate 15-month time lag[69]. To give an indication of more recent trends, we project fuel poverty headline figures for 2018 and 2019, based on changes to the three key drivers of fuel poverty: energy efficiency, energy prices and incomes[70]. Table 4.1 summarises the projected headline figures.

Table 4.1: Projected headline figures, 2018 and 2019[13]

Headline figures	2017 See Chapter 2	2018 Projection	2019 Projection
Average fuel poverty gap (£)	321	337	356
Proportion of households in fuel poverty (%)	10.9%	10.5%	10.4%

Note that these figures are based on our fuel poverty projections model[71]. These should be interpreted as indicative projections, not precise point estimates.

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[69] 15-month time lag due to data collection, validation and processing for both the English Housing Survey and the fuel poverty data.

[70] Like previous years, we have reviewed some of the assumptions behind the fuel poverty projections methodology in order to improve the quality of the outputs. We therefore advise against comparing this year's projections to projections published in previous annual reports.

[71] Details on the methodology for the fuel poverty projections model can be found in Chapter 7 of the methodology handbook: https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Figure 4.1: Average gap projected to increase in 2018 and 2019, while the proportion of households in fuel poverty projected to decrease
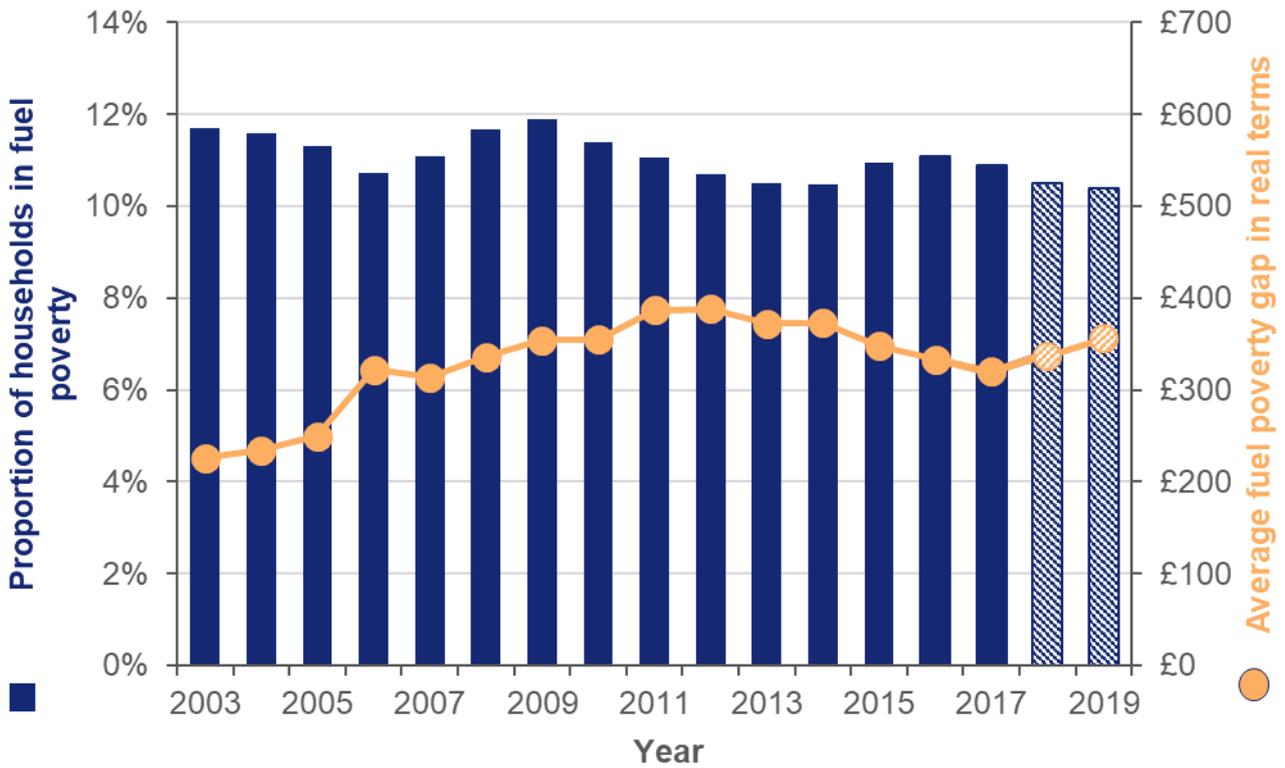
The proportion of households in fuel poverty has fluctuated between 10 and 12 per cent between 2003 and 2017 and is projected to stay between 10 and 12 per cent in 2018 and 2019.

In 2018 we estimate the proportion of households will decrease by 0.4 percentage points to 10.5 per cent, and in 2019 that the proportion of fuel poor households will decrease by a further 0.1 percentage point to 10.4 per cent. While the proportion of households in fuel poverty is projected to decrease, we project that the average gap will increase in 2018 and 2019, to £337 and £356 respectively.

The drivers of fuel poverty are discussed in Section 4.3.

4.2 Projected progress against the target[72], 2018 and 2019

Figure 4.2: 12 per cent of fuel poor households projected to be Band C by 2019
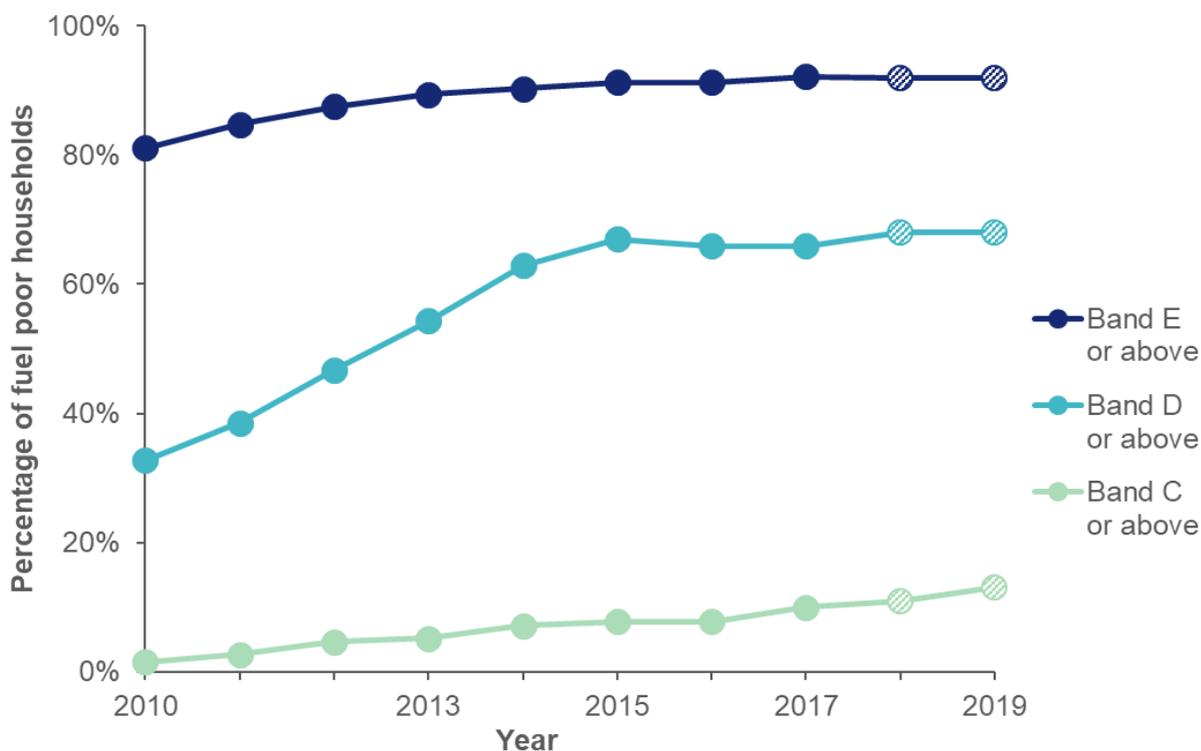
As discussed in Chapter 2, the fuel poverty target for England aims to improve the energy efficiency of households classified as fuel poor by ensuring as many fuel poor households as reasonably practicable have an energy efficiency rating Band C or above by 2030.

Positive progress towards both the interim milestones and the 2030 target is projected in 2018 and 2019, with 12 per cent of fuel poor households projected to be Band C or above by 2019. We are seeing a steeper increase in the proportion of households in Band C or above between 2017 and 2019 compared to the increase in the proportion of fuel poor households Band D and above. The proportion of households in Band E or above shows little change, as there are fewer F and G households in the housing stock left to improve.

The progress towards the milestones and target represents, in part, the iterative improvement of households. Some households below a C will be improved to a Band C with one large energy efficient measure. Others will move up through the bands as incrementally more measures are installed[73].

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[72] For more information on the fuel poverty target, see Section 2.2.
[73] Note the EHS is not a longitudinal survey and so we cannot track households as they move between bands.

4.3 Changes to key drivers, 2017 to 2019

4.3.1 Energy efficiency

Energy efficiency installations decrease the incidence and severity of fuel poverty in 2018 compared to 2017. The reduction in the proportion of households in fuel poverty indicates that between 2017 and 2018 energy efficiency improved at a greater rate for fuel poor households than for the whole housing stock.

In the 2019 projections, the effect of changes to ECO (Energy Company Obligation) eligibility criteria introduced as part of ECO 3[74] are captured. From October 2018, the scheme was wholly targeted to low income vulnerable households. In previous phases of the ECO scheme, any household was entitled to subsidies towards energy efficiency improvements, regardless of their income. Relatively more LIHC household will therefore be benefitting from ECO 3.

Due to the changes in ECO criteria we predict that energy efficiency has a greater impact on reducing headline figures in 2019 compared to 2018. This is projected to be the major contributor to the 0.1 percentage point reduction from 10.5% to 10.4% in the proportion of fuel poor households between 2018 and 2019.

Currently, the main policies under which energy efficiency measures are installed include:

Policy	Incentive	Type of measure covered
Energy Company Obligation (ECO)[75]	Households eligible for ECO can get a grant to cover, or contribute to the costs of, home energy efficiency improvement	Replacement boiler, heating improvements, insulation, double glazing, additional innovative measures[76]
Renewable Heat Incentive (RHI)[77]	Financial incentives to homeowners who install renewable heating systems	Heat pumps – ground or air source, biomass boilers, solar thermal
Feed in Tariff Scheme (FiTs)[78],[79]	Householders who generate their own renewable electricity receive payments from their energy supplier	Solar panels, wind turbines, anaerobic digestion, hydro power, micro CHP

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[74] For more detail on ECO3 eligibility, please refer to Ofgem's website: https://www.ofgem.gov.uk/environmental-programmes/eco/support-improving-your-home
[75] ECO statistics: https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics
[76] For more information on innovative measures under ECO3, see: https://www.ofgem.gov.uk/publications-and-updates/eco3-innovation
[77] RHI statistics: https://www.gov.uk/government/collections/renewable-heat-incentive-statistics
[78] FiTs statistics: https://www.gov.uk/government/collections/feed-in-tariff-statistics
[79] FiTs closed to new applications at end March 2019. Support for householders generating their own electricity may come from the Smart Export Guarantee (SEG) scheme in the future. The implementation and design of this policy is, however, still to be confirmed[79].

4.3.2 Energy prices

Between 2017 and 2018, we project fuel prices[80] are the main driver contributing to the reduction in the proportion of households in fuel poverty[81]. As discussed in Chapter 2 and Chapter 3, prepayment households are overrepresented in the fuel poor population. Therefore, as we report in the 2017 statistics, the prepayment price cap reduces fuel costs more for fuel poor households than non-fuel poor households, thereby reducing the proportion of households in fuel poverty.

While the proportion of fuel poor households is projected to decrease, the average gap is projected to increase – also a result of price changes. Between 2017 and 2018, prepayment prices increase by less than other payment types. However, as prices rise for all payment types, the average gap is projected to increase between 2017 and 2018.

The prepayment price cap continues to cap bills for prepayment customers in 2019 and the default tariff price cap also came into effect in January 2019. Ofgem estimates the default tariff price cap will reduce bills for 11 million households[82]. Due to the scale of this cap, it will have less of a downward effect on fuel poverty headline figures than the prepayment cap, as prepayment customers are *more* overrepresented in the fuel poor population.

We project that energy efficiency installations are the major contributor to the change in the proportion of households in fuel poverty between 2018 and 2019[70], while projected price increases across all payment types in 2019, contribute to the increase in the average gap.

4.3.3 Income

Earnings increased marginally more for households in higher income deciles in both 2018 and 2019. This change in isolation would act to increase the proportion of households in fuel poverty. However, sensitivity analysis indicates that fuel prices and energy efficiency are the two main drivers of fuel poverty headline figures in 2018 and 2019.

A household's fuel poverty status is partly determined by their income. This includes income from earnings, benefits and savings (less tax and National Insurance), minus their housing costs. To model the impact of incomes in 2018 and 2019, we increase the individual components of income and housing costs. We can then calculate whether a household is below the poverty threshold[83], once they have paid their required fuel costs.

4.5 Future changes to key drivers

In next year's projections (projecting 2019 and 2020) we will capture the impact of Minimum Energy Efficiency Standard regulations in the private rented sector for the first time[84]. By April 2020 landlords are required to improve their Band F and G rated properties to a Band E[85], or spend at least £3,500 on improvements to their property. Further, the continuing effect of

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[80] Including the effect of the £140 Warm Home Discount: https://www.gov.uk/the-warm-home-discount-scheme
[81] In the 2018 projections we are capturing the effect of the prepayment price cap in both halves of the sample (see Figure 3.25).
[82] https://www.ofgem.gov.uk/publications-and-updates/ofgem-proposes-price-cap-give-11-million-customers-fairer-deal-their-energy
[83] 60 per cent of median income.
[84] https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents
[85] EPC Band E, not FPEER in this instance

change in ECO eligibility criteria to focus on low income vulnerable households will continue to be captured.

For prices and income, the prepayment and default tariff price caps will be captured when projecting 2019 and 2020 fuel poverty headline figures, as will changes to the National Living Wage and benefits.

These changes to the key drivers will be reported in the projections in subsequent annual reports. Following this, they will be recorded in the EHS survey and therefore reflected in our annual National Statistics.

Annex A: Additional Data and Figures

Figure A.1: Proportion in fuel poverty, 2003 to 2017 - 95 per cent confidence intervals dictated by the light blue bars
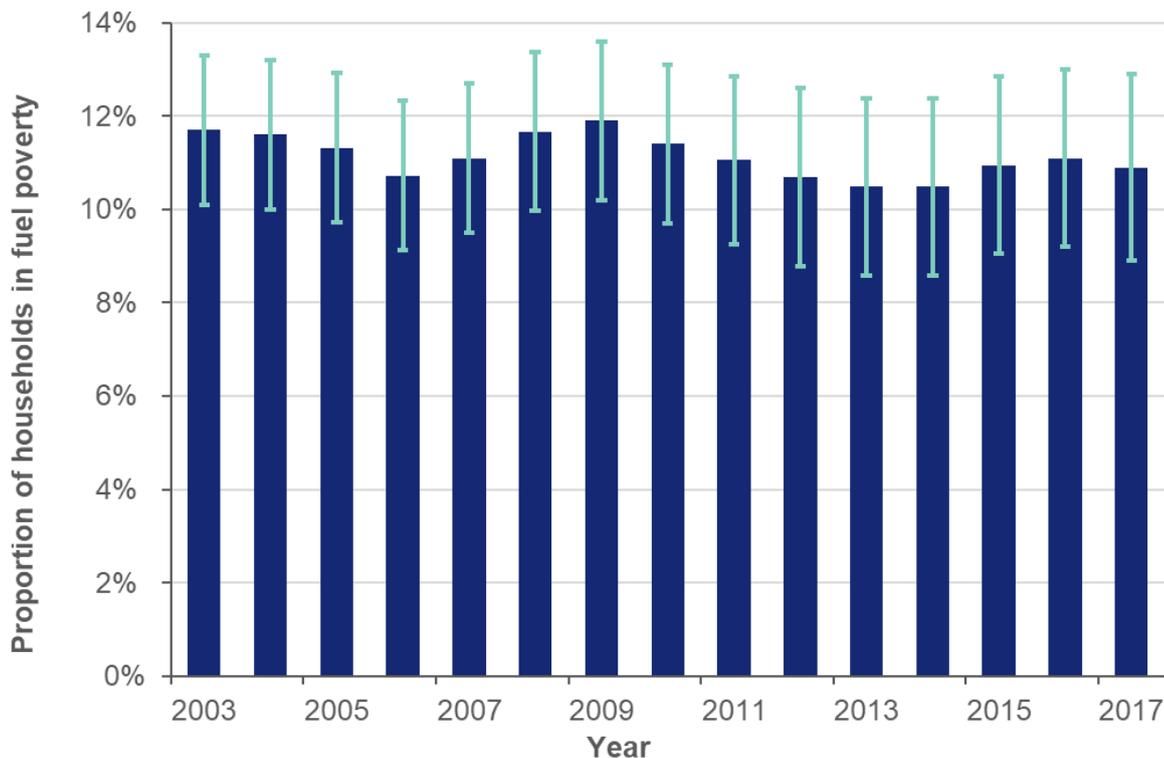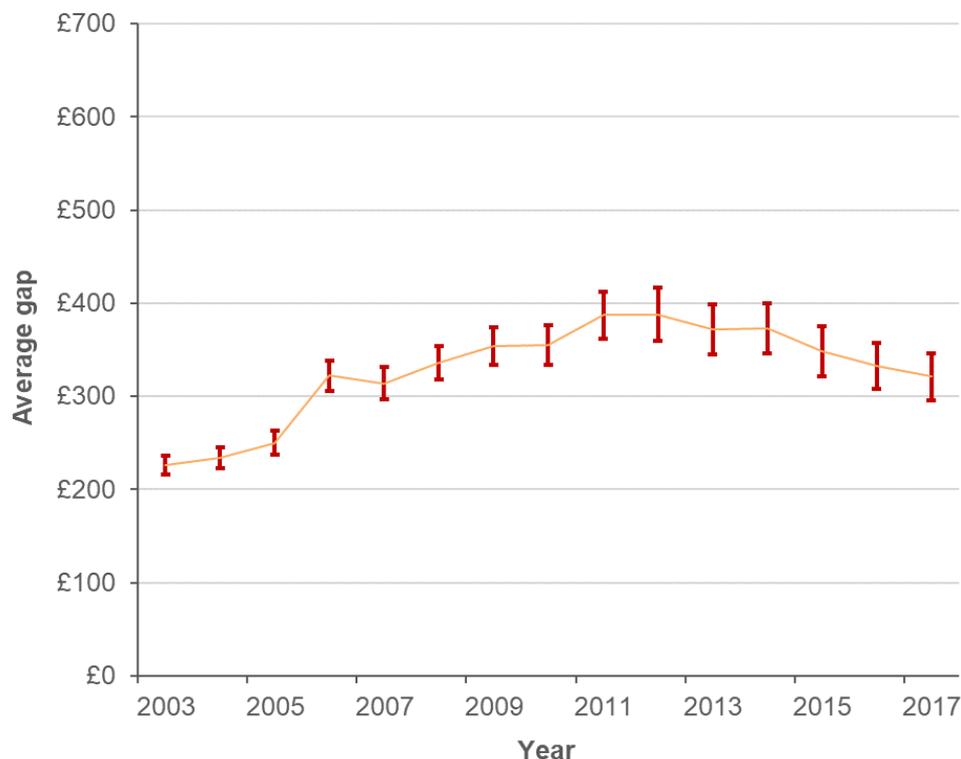

In 2017, the proportion of households in fuel poverty is an estimate based on a sample of 11,963 households from the EHS. Individual cases in the EHS are weighted up to give the total number of households in the UK[86]. The estimated 2,532,000 fuel poor households in 2017 is based on 1,395 individual households.

Based on the nature of the EHS sample, the 95 per cent confidence interval for the proportion of households in fuel poverty in 2017 is 10.9 per cent +/- 2.0 percentage points. We can be 95 per cent sure that the true proportion of households in fuel poverty in 2017 is between 8.9 and 12.9 per cent.

The size of the 95 per cent confidence interval around the proportion of households in fuel poverty increases between 2003 and 2017. This is because the total sample size of the EHS has decreased by 25 per cent across this time period. 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.

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

Figure A.2: Average fuel poverty gap, 2003 to 2017 - 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, therefore, based on the same number of cases as the proportion of households in fuel poverty each year. In 2017 this is 1,395.
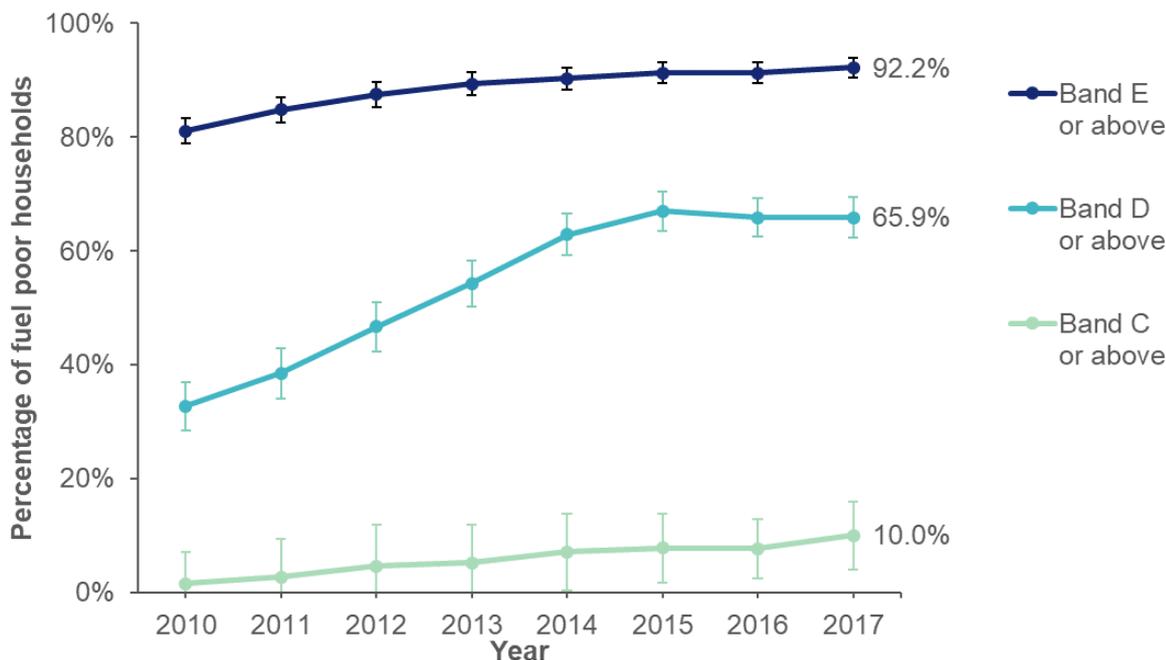
The 95 per cent confidence interval for the average gap in 2017 is £321 +/- £26[87]. We can be 95 per cent certain that the true average gap in 2017 is between £295 and £347.

Similar to the proportion of households in fuel poverty, the size of the 95 per cent confidence interval around the average gap increases between 2003 and 2017, as the total sample size of the EHS has decreased.

Table A.1: Raw data behind Figure 2.3: Progress against the fuel poverty target and milestones

Proportion of fuel poor households	2010	2011	2012	2013	2014	2015	2016	2017
Band E or above	81.1	84.8	87.5	89.4	90.3	90.4	91.3	92.2
Band D or above	32.7	38.5	46.7	54.3	62.9	67.0	65.9	65.9
Band C or above	1.5	2.7	4.6	5.2	7.1	7.4	7.7	10.0

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[87] Calculated using the following formula: $p \pm 1.96(design\ factor * standard\ error)$ where $p = £321$ and the $design\ factor = 1.2$ (average design factor for the EHS sample).

Figure A.3: Progress against the fuel poverty target, 2010 to 2017 - 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 2017 is +/- 6.0 percentage points. We can be 95 per cent certain that the true proportion of fuel poor Band C and above households in 2017 is between 4 and 16 per cent.

The 95 per cent confidence interval around the estimate of the proportion of households in Band E or above in 2017 (+/- 1.8 percentage 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.

In Figure A.1 we see that the confidence intervals around the proportion of households in fuel poverty widen overtime, due to the decrease in the EHS sample. The size of the confidence intervals around progress towards the target figures, however, remains similar between 2003 and 2017. This is because, although the EHS sample is decreasing, the proportion of households in more energy efficiency 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 Table A.2 and A.3 show the change in annual domestic electricity and gas bills for each payment method between 2016 and 2017.

Table A.2 Annual domestic electricity bills for prepayment customers decreased by 3.0 per cent between 2016 and 2017[88]

Electricity method of payment	2016 (£)	2017 (£)	Percentage change 2016-2017 (%)
Prepayment	572	555	-3.0
Standard Credit	569	600	5.4
Direct debit	508	536	5.5

Table A.3: Annual domestic gas bills for prepayment customers decreased by 13.1 per cent between 2016 and 2017[89]

Gas method of payment	2016 (£)	2017 (£)	Percentage change 2016-2017 (%)
Prepayment	648	563	-13.1
Standard Credit	640	619	-3.3
Direct debit	558	542	-2.9

Figure A.4: The proportion of *all* households split by energy efficiency rating bands

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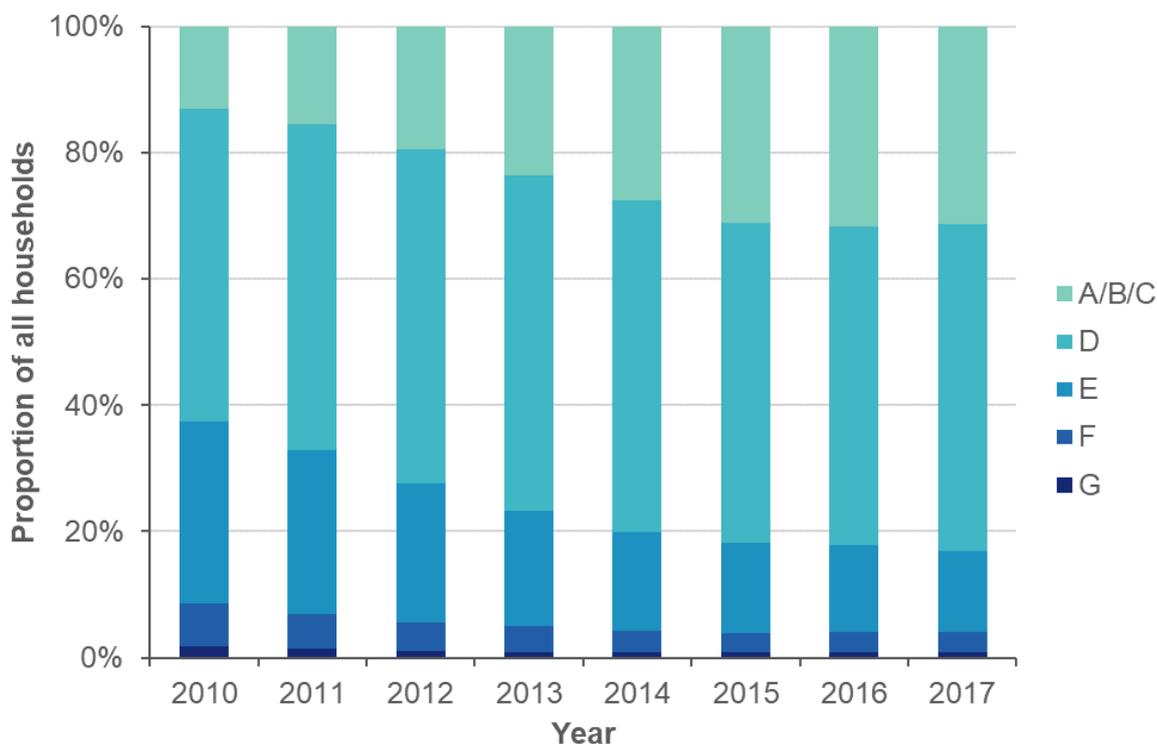
[88] Source: Annual domestic price statistics, Table 2.2.2: https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics. Figures are based on Standard Electricity tariffs, are in real terms and cover England and Wales.
[89] Source: Annual domestic price statistics, Table 2.3.2: https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics. Figures are in real terms and cover England and Wales.

Annex B: Measuring Fuel Poverty in England

This annex provides more detailed information on the following: how the Low Income High Costs (LIHC) indicator of fuel poverty works, understanding the drivers of fuel poverty, data sources, and methodological updates for the 2017 estimates. A glossary of key terms used throughout this report and supporting links can be found of the end of the Annexes.

B.1 Introduction to Low Income High Costs

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

- they have required fuel costs[90] that are above average (the national median level); and

- were they to spend that amount, they would be left with a residual income[91] below the poverty line[92].

Low Income High Costs 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 meet the threshold that would make them non-fuel poor. This is illustrated in Figure A1, where the indicator consists of:

- the **number** of households that have both low incomes *and* high fuel costs (shown by the shaded area in the bottom left hand quadrant in Figure 1.1); 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 1.1), which represents the difference between the required energy costs for each household and the nearest fuel poverty threshold (in pounds).

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**.

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[90] 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

[91] 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).

[92] 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

The fuel poverty indicator is a *relative* measure, as it compares households to national income thresholds and national median energy costs. 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 same is true for household energy costs. As a result, the proportion of households in fuel poverty remains, on the whole, stable over time since 2003 (between 10-12 per cent), whereas the fuel poverty gap (which is measured in pounds) is more closely linked to changes in energy prices and the economy and therefore, a more informative measure when looking at the direct impacts of fuel poverty over time.

Figure B1: Fuel poverty under the Low Income High Costs indicator
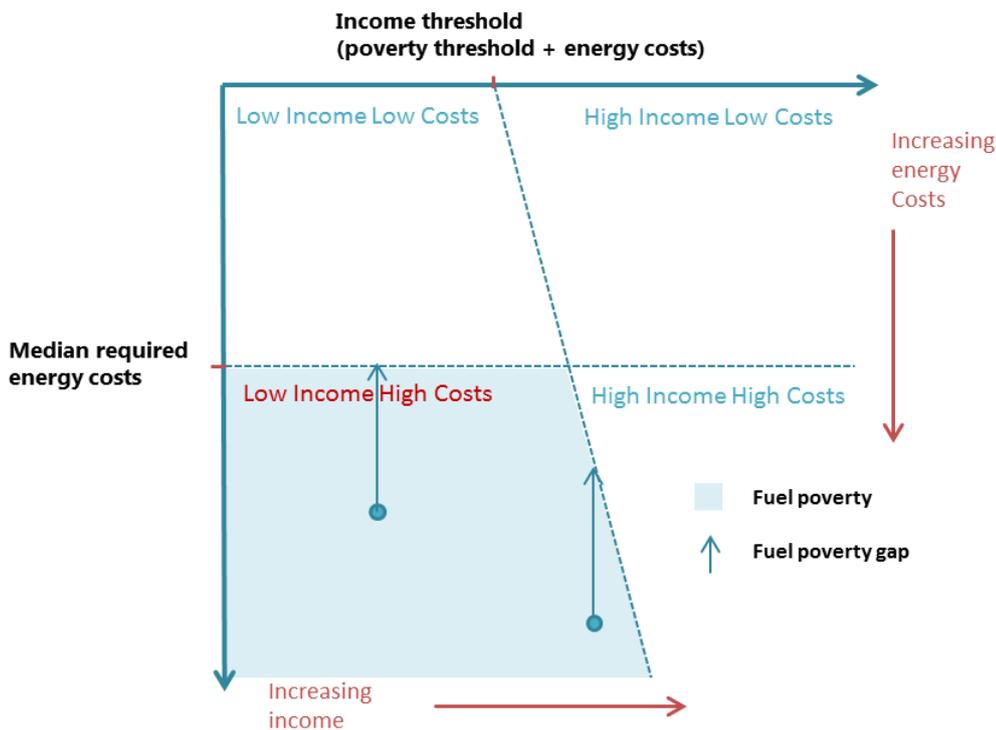
Fuel poor households (bottom left hand quadrant of Figure A1) include some households who may not traditionally be considered to be poor but are pushed into fuel poverty by their high energy requirements (this is reflected in the gradient of the income threshold).

Those in the bottom right hand quadrant also have high required energy costs 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 low required energy costs and are not fuel poor.

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

B.2 How the Low Income High Costs (LIHC) indicator of fuel poverty works

Fuel poverty is estimated by calculating each household's position relative to two thresholds (illustrated in Figure A1). The first threshold, the median energy cost, is set by ranking households equivalised[93] energy requirements and using the median value of the dataset. The second threshold, After Housing Cost (AHC) income, is calculated in a similar way. Each household's required energy costs are deducted from their equivalised income. These are then ranked and 60 per cent of the median value is calculated. This is the income threshold. To be fuel poor, a household's required energy costs must be higher than the median energy threshold *and* their equivalised AHC income must be below the income threshold.

As mentioned Section A.1 for any factor to affect the number of households in fuel poverty, it must change by a greater or lesser amount for those *in* fuel poverty, than for those *not* in fuel poverty.

Price changes can have a more limited effect than income on the number of households in fuel poverty when prices rise equally across all households, as households are measured by the proportion by which their energy costs are greater or less than the average. When prices rise equally across all households, these proportions do not change. For example, if all prices were to rise by 10 per cent for *all* households, then a household that previously had costs that were five per cent above the median required energy threshold will still have costs that are approximately five per cent above the *new* median required energy cost – assuming all other factors remain the same. As a result, the fuel poverty status of the household will not change.

The depth of fuel poverty, on the other hand, is measured in pounds rather than proportions. In the example above, a 10 per cent rise in energy costs for all households will result in a greater increase, in pounds, of the energy costs of households above the median energy threshold. For example, if the median required energy costs are £1,000, then an increase of 10 per cent will result in a rise in the median to £1,100. A household with required energy costs above the median, say £1,500, will see an increase in their energy costs to £1,650. Their fuel poverty gap will therefore increase from £500 to £550.

Figure B2, below, illustrates how fuel poor households may move out of fuel poverty, either due to a reduction in required energy costs, an increase in income, or by a combination of both. However, due to the relative nature of the LIHC measure, it is difficult to isolate accurately an absolute reason for change.

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[93]Equivalisation is an adjustment factor to standardise spending and energy requirements across households.

Figure B2: Movement across the income and fuel costs threshold due to either increases in income, reductions in energy consumption or a combination of both
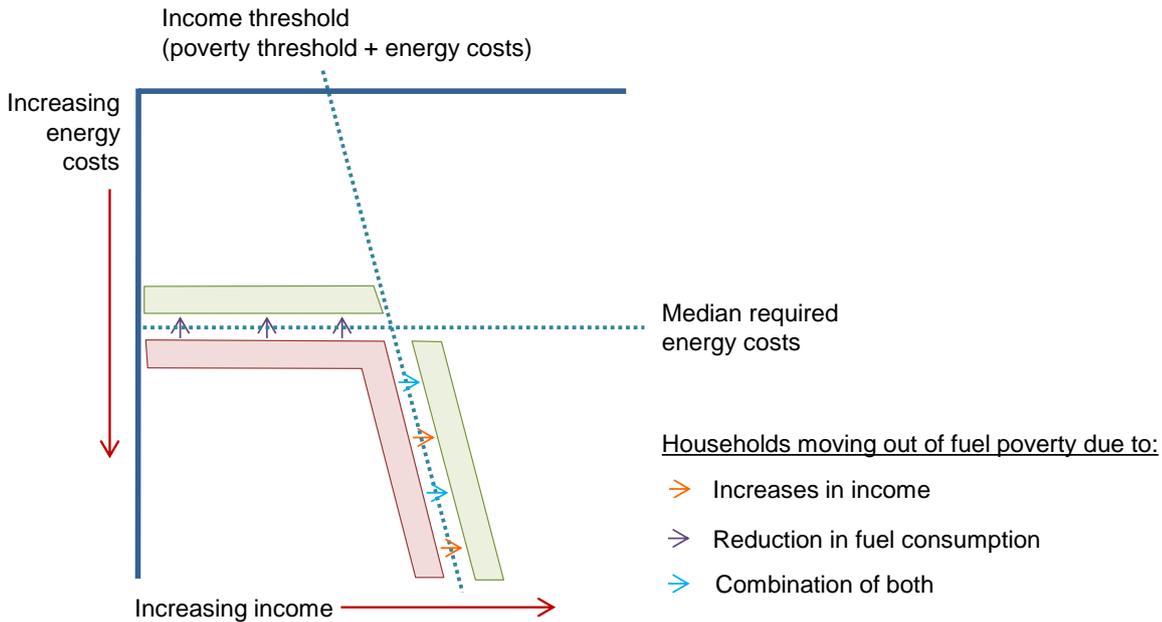
Figures B3 and B4 highlight the different responses to the fuel poverty LIHC indicator under a scenario where fuel prices rise by 10 per cent. In relation to fuel poverty levels, the energy costs of all households should increase by the same amount in proportional terms. For the fuel poverty gap, households with larger energy requirements will see greater increases in their energy costs (and thus greater fuel poverty gaps for those in the LIHC quadrant), in monetary terms.

Figure B3: Fuel poverty *levels* under the scenario where fuel costs increase by 10% for all households
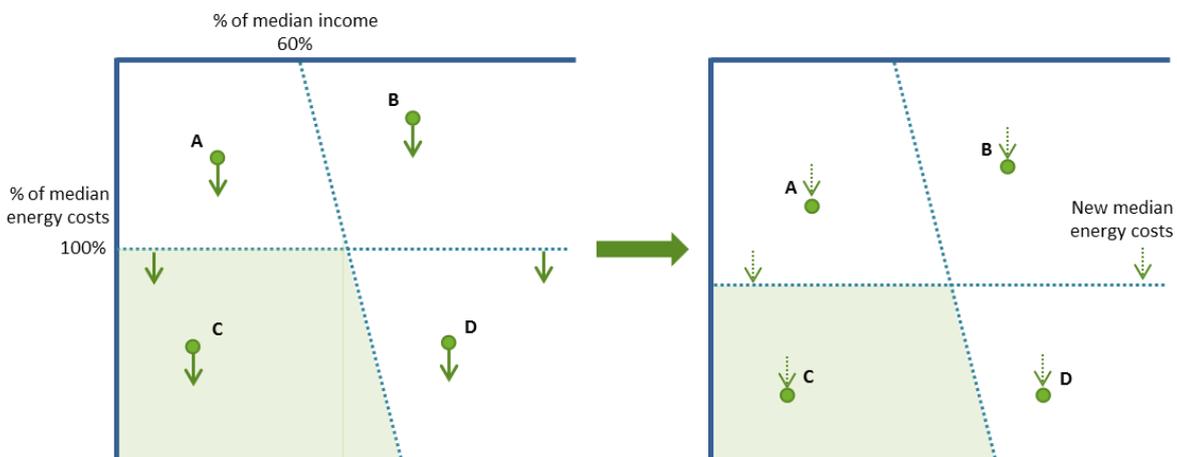
Figure B.4: Fuel poverty *gap* under the scenario where fuel costs increase by 10% for all households
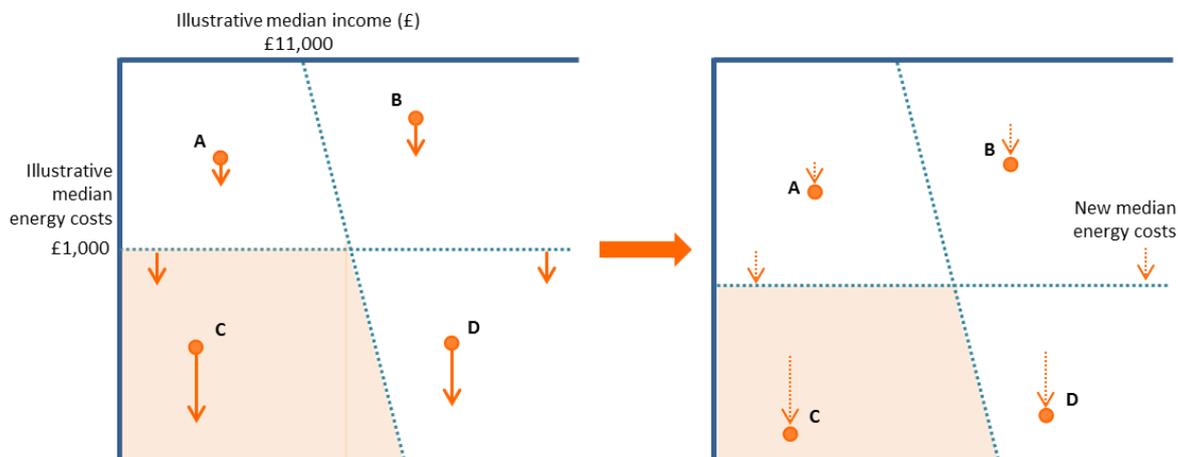
In this example (where there are no changes in energy requirements or income), households whose fuel costs are below the median (households A and B) will see their costs increase by less, in pounds, than the median. As a result, these increases will never take them over the threshold into fuel poverty, as the median fuel costs will always increase by more than the individual fuel costs. However, households with fuel costs *above* the median (households C and D) will see a larger increase in their energy costs, in pounds, compared to the median. These households will therefore spend increasingly more than median costs, such that the difference between their fuel costs and the median costs will widen.

Consequently, there will be no change in the number of households in fuel poverty, but households already in fuel poverty will move deeper into fuel poverty. The gap, which represents the difference between household fuel costs and the median fuel costs, will therefore increase.

B.3 Drivers of Fuel Poverty

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

Measuring household income

The Low Income High Costs indicator is based on modelled incomes calculated after housing costs have been taken into account, since money spent on housing costs cannot be spent on fuel. Mortgage and rent payments 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[94]. These equivalisation factors were devised by the Organisation for Economic Co-operation and Development (OECD), and are widely used across Europe, including by Eurostat.

Measuring household energy requirements

The fuel poverty definition of household energy requirements includes fuel for heating the home, heating water, lighting, appliance usage and cooking. In calculating a household's energy requirements, 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[95] 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 are 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.

B.4 Data Sources

The English Housing Survey (EHS)[96]

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.

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[94] https://www.gov.uk/government/collections/households-below-average-income-hbai--2
[95] 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
[96] https://www.gov.uk/government/collections/english-housing-survey

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).

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 2017 data, this covers the period between 1 April 2016 and 31 March 2018, and comprises 11,963 households over two consecutive data collection years (2016/17 and 2017/18). 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 2017 EHS were published on 31 January 2019[97]. Full data relating to the 2017 EHS, will be made available by MHCLG later this year through the UK Data Archive.

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[98]; ONS Consumer Price Index[99]; and Sutherland Tables[100]. Further information on modelled fuel price data is available in the Methodology Handbook[101].

B.5 Methodological Updates

Changes to the BREDEM model

Since the last fuel poverty statistics publication, there have been no changes to the 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[102]) incorporating the latest U-value assumptions from RdSAP (version 9.93).

Changes to the English Housing Survey (EHS)

In 2017 there were no major form changes to the EHS interview or physical survey.

Changes to income methodology

For the 2017 statistics there were relatively minor changes to the methodology used for the calculation of household income. More detail can be found in the Methodology Handbook[101].

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[97] https://www.gov.uk/government/statistics/english-housing-survey-2017-to-2018-headline-report
[98] https://www.gov.uk/government/collections/quarterly-energy-prices
[99] http://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/previousReleases
[100] http://www.sutherlandtables.co.uk/
[101] https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook
[102] http://www.bre.co.uk/filelibrary/bredem/BREDEM-2012-specification.pdf

Changes to fuel prices methodology

In 2017, there were no major changes to the fuel prices methodology.

Annex C: 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[103]

The Scottish Government currently uses a 10 per cent measure of fuel poverty, under which a household is considered fuel poor if it would need to spend more than 10 per cent of its income on all household fuel use. Scotland publishes fuel poverty data in the annual Key Findings report of its Scottish House Condition Survey. In 2017, 613,000 households (24.9% of the total) were in fuel poverty and 7.0 per cent (or 174,000 households) were living in extreme fuel poverty. This follows a period of annual decreases between 2014 and 2016 and is the lowest rate recorded by the survey since 2005/06.

The Fuel Poverty (Target, Definition and Strategy) (Scotland) Bill[104] is currently going through Scottish Parliament. This Bill, following the amendments agreed at Stage 2, seeks to change the definition of fuel poverty to the following:

A household is in fuel poverty if:

- the fuel costs necessary for the home are more than 10% of the household's after housing costs net income, and

- after deducting such fuel costs, benefits received for a care need or disability (if any) and the household's childcare costs (if any), the household's remaining adjusted net income is insufficient to maintain an acceptable standard of living for members of the household.

The Bill also includes a definition of extreme fuel poverty which is similar to this, except that fuel costs necessary for the home are more than 20% of the household's after housing costs income.

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[103] https://www.gov.scot/publications/scottish-house-condition-survey-2017-key-findings/
[104]
https://www.parliament.scot/S5_Bills/Fuel%20Poverty%20(Target%20Definition%20and%20Strategy)%20(Scotland)%20Bill/SPBill37AS052019.pdf

An acceptable standard of living is defined as at least 90% of the UK Minimum Income Standard, after deduction of notional costs allocated within the Minimum Income Standard for rent, council tax, water rates, fuel and childcare. There is also a provision for an uplift for households in a remote rural area, remote small town, or island area to reflect the higher costs of living there.

The requisite temperatures and numbers of hours also differ from Scotland's current definition of fuel poverty. These be finalised in due course by regulations, but for present purposes statistics have applied an enhanced heating regime of 23°C in the living room and 20°C in other rooms for 16 hours every day, to households where at least 1 member is aged 75 or over, or in the absence of that least 1 member who has a long-term sickness or disability. For all other households the heating regime was 21°C in the living room and 18°C in other rooms for 9 hours a day during the week and 16 hours a day during the weekend.

The Bill also proposes a fuel poverty statutory target to ensure that, by 2040, no more than 5 per cent of households in Scotland will be in fuel poverty, and that no more than 1% of households in extreme fuel poverty. This target recognises that there will always be households that move in and out of fuel poverty due to changes in their incomes and energy costs.

Under the proposed new measure, the proportion of fuel poor households in 2017 was 23.7 per cent, very similar to the current measure [105]. However, the rate of extreme fuel poverty increased from 7.0% under the 10% measure to 11.9% under the proposed new measure.

Wales[106]

Like Scotland's current definition, 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 has a target to eradicate fuel poverty, as far as reasonably practicable, by 2018.

In 2018, 155,000 households in Wales were living in fuel poverty, equivalent to 12 per cent of all households. 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[107]

Northern Ireland use a 10 per cent indicator but has no statutory target. In 2016 (the latest available figures), 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

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[105] https://www.gov.scot/publications/latest-estimates-fuel-poverty-extreme-fuel-poverty-under-proposed-new-definition-following-stage-2-fuel-poverty-targets-definition-strategy-scotland-bill/
[106] https://gov.wales/fuel-poverty-estimates-wales-headline-results-2018

[107] 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

(294,000) of the total. This improvement is a result of a focus from the Northern Ireland Housing Executive (NIHE) to tackle poor energy efficiency in the housing stock since 2011 and lower than average fuel prices (particularly oil).

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 HCS reported, 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[108].

Annex D: Relevant Links

D.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

D.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

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[108] https://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook

Fuel prices
https://www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics

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/511466/table_221.xls

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/511470/table_231.xls

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

D.3 Housing Indicators
Indicator SAP rating
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/395007/stats_summary_2015.pdf

Excess winter deaths
https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/2017to2018provisionaland2016to2017final

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

Annex E: Accompanying tables

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

Detailed tables (2017 data):
https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2019

Trends tables (2003-2017):
https://www.gov.uk/government/statistics/fuel-poverty-trends-2019

A fuel poverty dataset containing the underlying data will be made available on the UK Data Service in summer 2019:
https://ukdataservice.ac.uk/

Annex F: Technical information

A methodology handbook has been published alongside this publication. This sets out the method for calculating the headline statistics using the LIHC 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 G: 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	A household is considered to be fuel poor if: they have required fuel costs that are above average (the national median level); were they to spend that amount, they would be left with a residual income below the official poverty line.

Term / Acronym	Definition
Fuel poverty gap	The difference in pounds between the required energy costs for each fuel poor household and the nearest fuel poverty threshold
HILC	High Income, Low Costs
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 H: 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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