



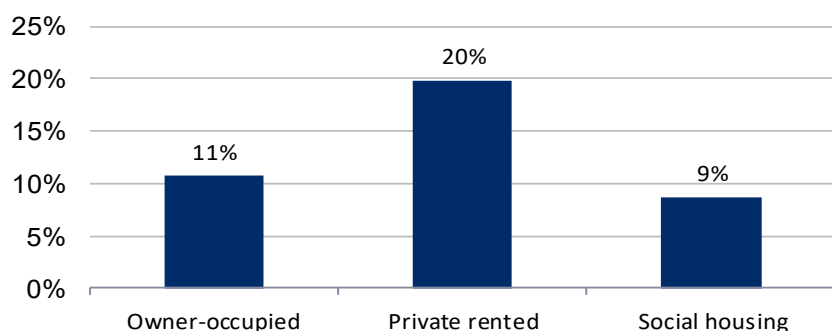
## Fuel poverty estimates for Wales, 2018: revised

13 December 2019  
SB 34/2019(R)

Chart 3.5 and table 3.5.1 have been revised. Please see the [revision note](#).

This bulletin follows the Statistical Release [fuel poverty estimates for Wales 2018 headline results](#) published in May 2019 and provides a more detailed analysis of the fuel poverty estimates for 2018. This report has been jointly written by the Building Research Establishment (BRE) and Welsh Government statisticians

### Households living in fuel poverty by tenure, Wales, 2018



Source: Welsh Housing Conditions Survey 2017-18

### Main points

- 155,000 households were living in fuel poverty. This is equivalent to 12% of all households in Wales.
- Households living in the private rented sector were more likely to be fuel poor with 20% of these households living in fuel poverty.
- 50% of those living in fuel poverty were single person households without children (r).
- Households living in older properties are more likely to be fuel poor. 20% of households living in pre-1919 dwellings were fuel poor.
- 21% of households living in properties with uninsulated solid walls were fuel poor and 39% of people living in properties that do not have central heating were fuel poor.
- 43% of households living in properties with poorer energy efficiency (EPC Bands F and G) were fuel poor compared to 5% of households living in properties in bands B to C

### About this bulletin

This report presents the results of the fuel poverty estimates calculated for Wales, using the Welsh Housing Conditions Survey 2017-18, the National Survey for Wales 2017-18 and fuel price data.

In Wales, a household is defined as being in fuel poverty if they would have to spend more than 10% of their income on maintaining a satisfactory heating regime. Any household having to spend more than 20% is defined as being in severe fuel poverty.

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(r) This was revised on 29 August 2019

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# 1. Background Information

A household is fuel poor if it cannot afford to maintain a satisfactory heating regime at a reasonable cost.

The Welsh Government's [Fuel Poverty Strategy 2010](#) set out the actions to be taken to reduce fuel poverty in Wales. Details of the [Welsh Government's Warm Homes programme](#), which includes the Arbed and Nest schemes, and which provide funding for energy efficiency improvements to low income households are also available.

In the 2010 Fuel Poverty Strategy, the Welsh Government set targets to eradicate fuel poverty as far as reasonably practicable:

- in vulnerable households by 2010
- in social housing by 2012
- in all households by 2018.

Vulnerable households are defined as those with a person aged 60 years or over, a child or young person under the age of 16 years and/or a person who is disabled or has a long term limiting condition.

The Welsh Government has committed to consult on a new plan to tackle fuel poverty in the autumn of 2019, with the intention of publishing a final revised plan early in 2020. This report, which presents a more detailed analysis of the fuel poverty estimates for 2018 (based on the data collected in the [Welsh Housing Conditions Survey 2017-18](#)), will inform the new plan to help target fuel poverty.

## 1.1. Definition of Fuel Poverty

A household is regarded as being in fuel poverty if they are unable to keep their home warm at a reasonable cost. In Wales, this is measured as any household that would have to spend more than 10% of their income on maintaining a satisfactory heating regime, as recommended by the World Health Organisation (WHO). This requires a minimum indoor temperature of 21 degrees centigrade in living rooms and 18 degrees centigrade in other areas. Any household having to spend more than 20% of their income on maintaining a satisfactory heating regime is defined as being in severe fuel poverty.

Whether a household is in fuel poverty is, therefore, determined by the amount of income the household receives and the amount of that which is required to maintain a satisfactory heating regime in the dwelling they occupy. The fuel expenditure needed is itself influenced by various factors such as the energy efficiency of the home, the price of the fuel used and whether the home is under-occupied.

Two different methods of defining household income can be used to calculate fuel poverty; '*Full income*' and '*Basic income*'. These are defined in summary in [Appendix A](#).

- **Full income** - A household is in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10% of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use. This definition is the primary indicator of fuel poverty in Wales, and is used for monitoring progress.

- **Basic income** - This definition is identical except that it *excludes* Housing Benefit and Income Support for Mortgage Interest. This is a historic definition and principally retained and reported on for consistency with historic estimates of fuel poverty.

The main body of this report uses the **full income definition**. [Section 7](#) describes the level of fuel poverty using the basic income definition. [Section 7](#) also presents the results of the analysis of Welsh data to calculate the “Low Income High Cost” definition of fuel poverty; the definition currently used in England. A summary of this definition is provided in this section of the report.

## 1.2. Outline of the methodology

The estimates of households in fuel poverty in Wales have been calculated for Welsh Government by the Building Research Establishment (BRE). BRE also produces fuel poverty estimates for England and Northern Ireland, and produces the fuel costs used in Scotland’s estimates.

There are three main components used in the calculations of fuel poverty. These are:

- Annual household incomes
- Household fuel prices
- Annual required household energy use.

The [Welsh Housing Conditions Survey \(WHCS\) 2017-18](#) was carried out by BRE on behalf of the Welsh Government. Non-invasive inspections were carried out by qualified surveyors in 2,549 properties across Wales between August 2017 and April 2018. Data from the WHCS inspections are used to establish the energy efficiency of the home and, therefore, how much energy is required to heat it to the WHO heating regime. To estimate household fuel costs, BRE takes the required energy consumption of the household and combines this with the known fuel price for the method of payment<sup>1</sup> used by the household and the location of that household in Wales.

The sample for the WHCS was taken from eligible households taking part in [the National Survey of Wales 2017-18](#), which, if the respondent was the Household Reference Person (HRP)<sup>2</sup>, or their spouse/partner, included a detailed set of income and housing cost questions<sup>3</sup> to enable the calculation of annual household incomes for WHCS cases.

In Wales, a household that needs to spend more than 10% of their income on maintaining a satisfactory heating regime is defined as being in fuel poverty. Any household having to spend more than 20% is defined as being in severe fuel poverty.

Further high level information on the methodology used to produce these estimates can be found in [Appendix A](#). More detailed information can be found in the methodology report that accompanies these results.

## 1.3. Content and format

This report presents the fuel poverty estimates calculated for Wales using the WHCS 2017-18 data, including the key headline estimates and breakdowns of the fuel poor by household and dwelling

<sup>1</sup> e.g. direct debit, prepayment meter etc.

<sup>2</sup> HRP is the respondent in whose name the property is owned or rented. If jointly owned/rented, the HRP is the highest earner. If more than one person jointly owns/rents and they earn the same, the HRP is the eldest of these people.

<sup>3</sup> [National Survey for Wales: questionnaires](#)

characteristics. The majority of this report focusses on results under the 10% fuel poverty definition (described above), which is currently used in Wales, and in particular the full income sub-definition. The results are compared to the fuel poverty estimates produced from the [Living in Wales Property Survey 2008](#) (the previous full housing condition survey undertaken in Wales).

Those estimates used the above definitions of fuel poverty, vulnerable households and satisfactory heating regime. The method used to produce the figures in this 2018 release is consistent with that used for the 2008 figures, so broad comparisons can be made. There has, however, been a change in the SAP methodology since the 2008 statistics were produced (see [Key Quality Information](#)).

[Section 5](#) provides an indication of the relative effect of each of the drivers of fuel poverty in the period between 2008 and 2018. [Section 6](#) of this bulletin places the results for Wales into the context of the fuel poverty statistics in other nations of the UK, noting where different definitions are used across the UK. [Section 7](#) of the report gives an indication of the results of using alternative specifications for the 10% fuel poverty measure, namely

- using the basic income definition instead of the full income and
- using the full income definition but with an alternative heating regime for households including older people and those with a long term sickness or disability.

Results have also been produced for Wales using the Low Income High Cost (LIHC) definition of fuel poverty, as currently used in England. These results are presented in [Section 7](#) of the report. The results presented in [Section 7](#) do not represent the official estimates of fuel poverty for Wales but are provided to indicate the impact of using alternative definitions, which will be useful in the consideration of future monitoring of fuel poverty as the new fuel poverty plan is being developed.

Finally, in [Section 8](#) this report includes some discussion on the accuracy of the additional research undertaken to produce the [2016 fuel poverty projections](#). These were produced using the Living in Wales Property Survey 2008 data together with updated information on fuel costs, incomes and modelling of energy efficiency installations to predict estimated levels of fuel poverty up to 2018. For the projections work, the heating regime was changed to be 23 degrees centigrade in living areas for households with older people or people with disabilities or chronic illnesses, and the definition of vulnerable households was expanded to include households containing young people under 25. This section considers how appropriate the assumptions were when compared to the observations we are now able to make.

Tables from which the charts and commentary are drawn are included in [Appendix B](#) for reference.

## 2. Headline fuel poverty statistics

### 2.1. All households

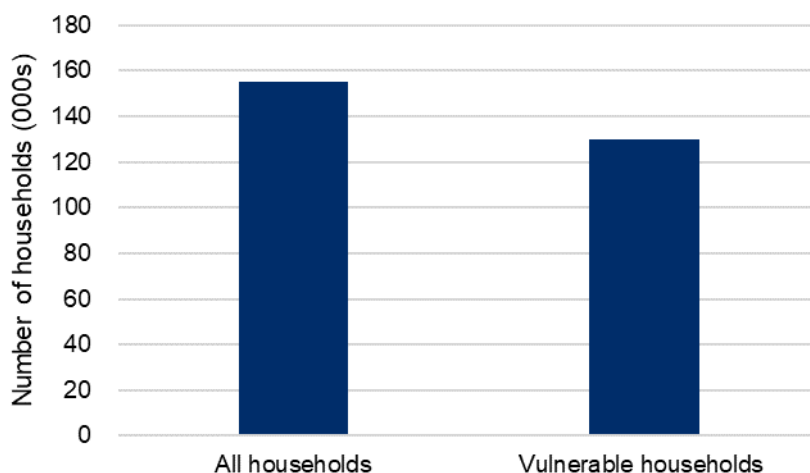
Under the full income definition, 155,000 households in Wales were living in fuel poverty in 2018, this is equivalent to 12% of all households in Wales ([Table 2.1.1](#)). This is a decrease compared to 2008 where 332,000 households, equivalent to 26% of all households, were living in fuel poverty ([Table 2.1.2](#)).

### 2.2. Vulnerable households

Living in a cold, damp environment is believed to exacerbate health problems such as asthma and heart conditions therefore it is of specific policy interest to consider the level of fuel poverty among households containing members who are considered particularly at risk of harm from cold conditions in the home<sup>4</sup>. Vulnerable households are defined (for these purposes) as those with a person aged 60 years or over, a child or young person under the age of 16 years and/or a person who is disabled or has a long term limiting condition.

In 2018, there were 130,000 vulnerable households in fuel poverty under the full income definition, which is equivalent to 11% of all vulnerable households ([Table 2.2.1](#)). This is a decrease compared to 2008 when 285,000 (29% of all vulnerable households) were living in fuel poverty.

**Chart 2.2: Number of households in fuel poverty – all households and vulnerable households, Wales, 2018**



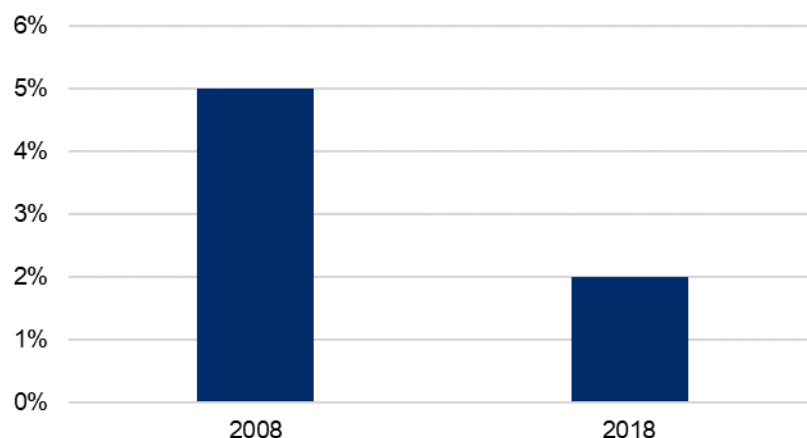
Source: Welsh Housing Conditions Survey 2017-18

<sup>4</sup> Marmot Review Team (2011). [The Health Impacts of Cold Homes and Fuel Poverty](#) (London: Friends of the Earth).

### 2.3. Severe fuel poverty

A household is defined as being in severe fuel poverty if they would have to spend more than 20% of their income to maintain a satisfactory heating regime. This requires a minimum indoor temperature of 21 degrees centigrade in living rooms and 18 degrees centigrade in other areas.

**Chart 2.3a: Households in severe fuel poverty, Wales, (2008 and 2018)**



Sources: Living in Wales Property Survey 2008 and Welsh Housing Conditions Survey 2017-18

In 2018, 32,000 households (2% of all households) were living in severe fuel poverty. This is compared with 60,000 households in 2008 (5% of all households) ([Table 2.3.1](#)). 19,000 (2%) vulnerable households were living in severe fuel poverty in 2018 compared with 52,000 (5%) in 2008.

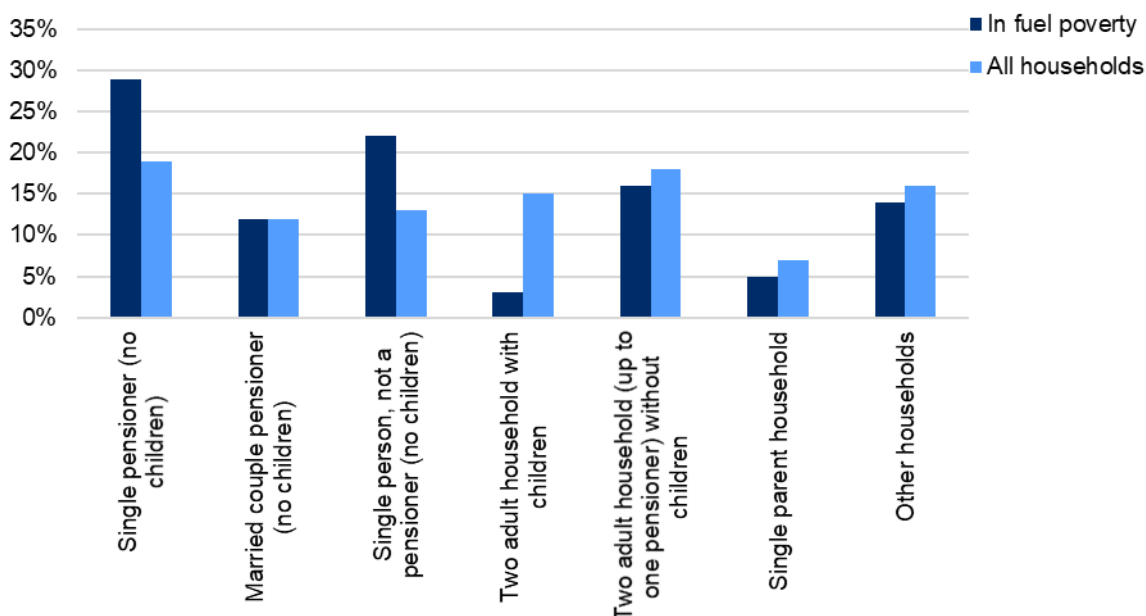
### 3. Household characteristics

#### 3.1. Household Type and Age of Household Reference person (HRP)<sup>5</sup>.

Households in fuel poverty in 2018 were dominated by pensioner households and single person households. The single pensioner (without children) group was the most common household type among all fuel poor households (29%), followed by the single person (not a pensioner, no children) group (22%). The least prevalent household type among households in fuel poverty was the two-adult household with children (3%) (Chart 3.1a). Single person households (without children) made up 50% of the fuel poor population, an increase from 45% in 2008.

Single person households were over-represented within the fuel poor population relative to the population as a whole. Among all households, the most common household type is the single pensioner household (19%), followed by the two adult household (up to one pensioner) without children (18%).

**Chart 3.1a: Distribution of fuel poor households and all households, by household type, Wales, 2018 (a)**



Source: Welsh Housing Conditions Survey 2017-18

- (a) Please note that the estimates for following categories are based on small numbers (less than 30 respondents) and therefore should be treated with caution:  
Two adult household with children, Single parent household, and Other households (r)

18% of all single pensioner households were fuel poor in 2018 and 19% of single non-pensioner households were fuel poor in 2018. The household group with the lowest percentage of households in fuel poverty was two person households with children, with 2% of households in this group living in fuel poverty ([Table 3.1.1](#)).

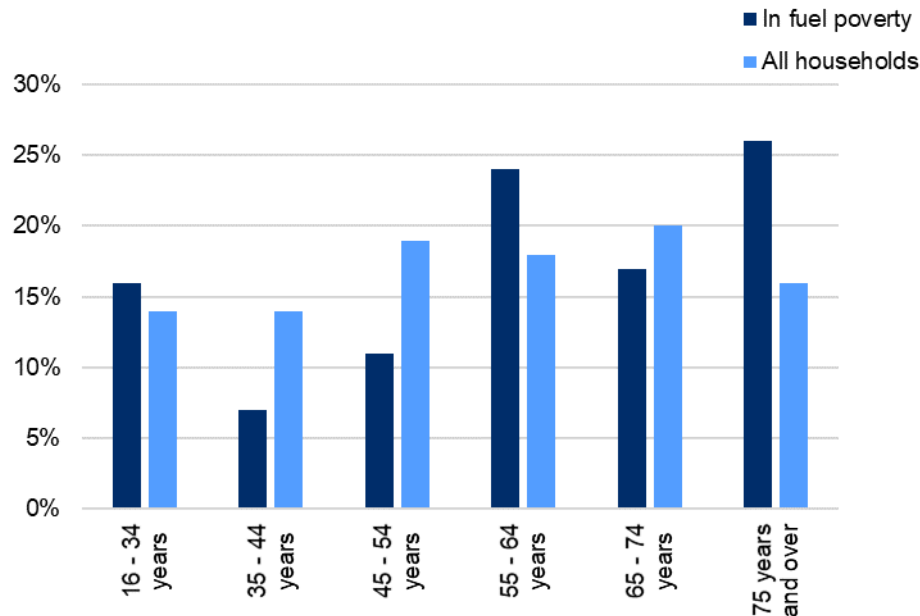
<sup>5</sup> The Household Reference Person (HRP) is the respondent in whose name the property is owned or rented. If jointly owned/rented, the HRP is the highest earner. If more than one person jointly owns/rents and they earn the same, the HRP is the eldest of these people.

(r) This was revised on 3 September 2019



Households in fuel poverty are generally older. Of all fuel poor households, 26% contained a Household Reference Person (HRP) aged over 75 and 43% contained an HRP aged 65 or over (Chart 3.1b).

**Chart 3.1b: Distribution of fuel poor households and all households, by age of HRP, Wales, 2018**



Source: Welsh Housing Conditions Survey 2017-18

Of all households the HRP age group with the highest proportion of fuel poverty was those aged over 75; 19% of this group were fuel poor ([Table 3.1.2](#)).

### 3.2. Tenure

In 2018, the owner occupied tenure made up the majority of fuel poor households (99,000 or 64% of fuel poor households), due to the fact that this is the most prevalent tenure type within the Welsh housing stock. It was, however, households in the private rented sector with the highest proportion of households in fuel poverty. Approximately 20% of all privately rented households were in fuel poverty compared with 11% of owner occupied and 9% of social housing ([Chart 3.2](#) and [Table 3.2.1](#)).

**Chart 3.2: Percentage of households living in fuel poverty by tenure, Wales, 2018**



Source: Welsh Housing Conditions Survey 2017-18

### **3.3. Employment status**

Income is one of the three key components of fuel poverty, with one of the key determinants of income being employment status. As can be seen in (Chart 3.3) and [\(Table 3.3.1\)](#). In Wales, in 2018:

- 18% of economically inactive<sup>6</sup> respondents were fuel poor.
- 28% of unemployed respondents were fuel poor<sup>7</sup> (r), and
- 4% of respondents in employment were fuel poor.

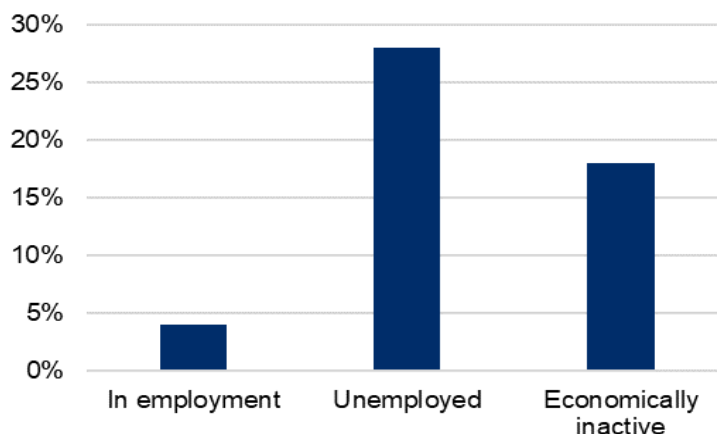
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<sup>6</sup> Economically inactive includes those who are long term sick, retired or looking after home or family including those who are full-time students

<sup>7</sup> Note that these figures are based on a small sample size

(r) This was revised on 3 September 2019

**Chart 3.3: Fuel poor households, by employment status of respondent, Wales, 2018  
(r)**

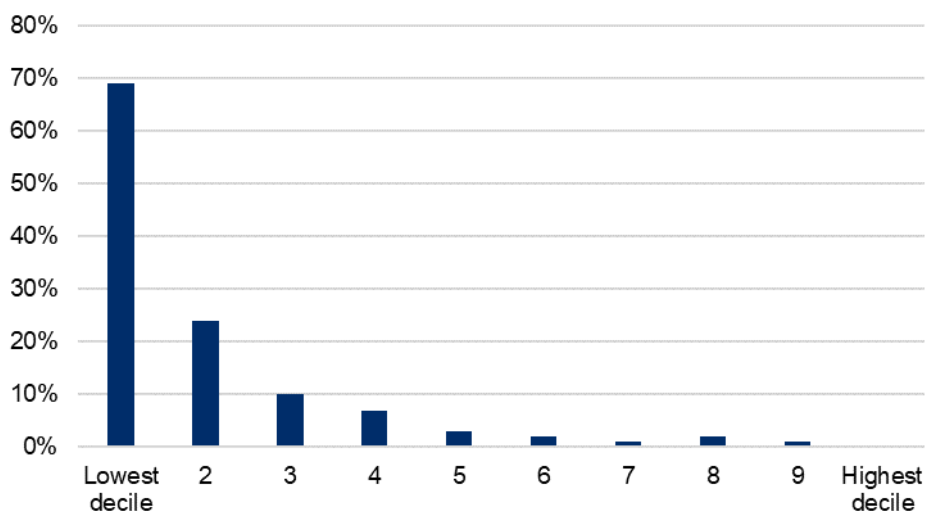


Source: Welsh Housing Conditions Survey 2017-18

### 3.4. Income

Fuel poverty is predominantly experienced by households with low incomes. It has traditionally been considered that the households in the bottom three income deciles<sup>8</sup> are particularly at risk. When split into income deciles, 59% of households in fuel poverty in 2018 fell into the lowest income decile. 69% of all households in the lowest income decile were fuel poor (Chart 3.4). ([Table 3.4.1](#)).

**Chart 3.4: Fuel poor households by income decile, Wales, 2018**



Source: Welsh Housing Conditions Survey 2017-18

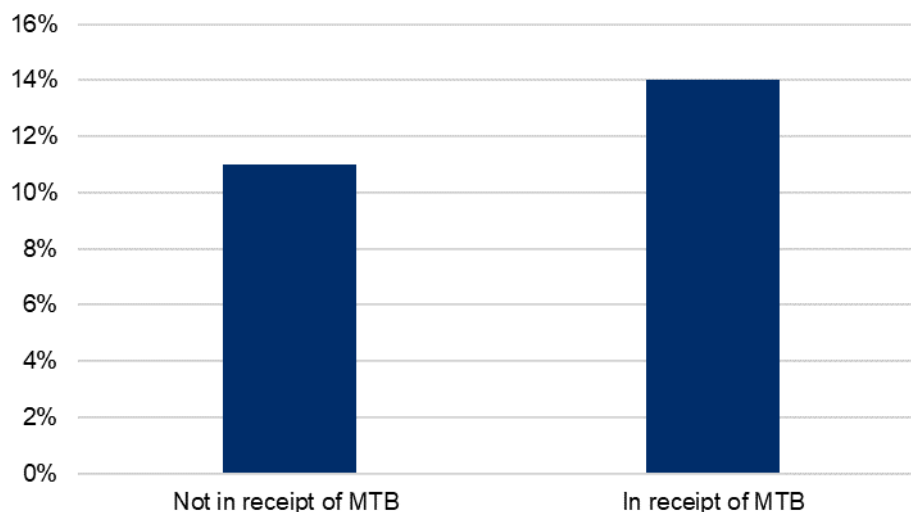
<sup>8</sup> Income deciles are tenths of the income distribution, with each group containing the same number of households (using weighted data).

(r) This was revised on 3 September 2019

### 3.5. Means tested benefits (r)

In 2018, 31% of households in fuel poverty received means tested benefits (MTB), including housing related benefits<sup>9</sup>. Of all households on these benefits, 14% were fuel poor compared to 11% of those households who were not on these means-tested benefits (Chart 3.5 & [Table 3.5.1](#)).

**Chart 3.5: Households living in fuel poverty by receipt of means tested benefits (MTB), Wales, 2018 (r)**



Source: Welsh Housing Conditions Survey 2017-18

<sup>9</sup> These benefits include housing benefit, income support, income based employment support allowance (ESA), income based jobseekers' allowance (JSA), pension credit, council tax support, universal credit, child tax credit, and working tax credit. Households in receipt of either Working Tax Credit, or Child Tax Credit, are only included in this means tested benefit flag if the HRP and any partner has a relevant gross income of less than the first income threshold to Child Tax Credit (£16,105, in 2017/18). This limit is irrelevant if they receive other eligible benefits.

(r) This was revised on 13 December 2019

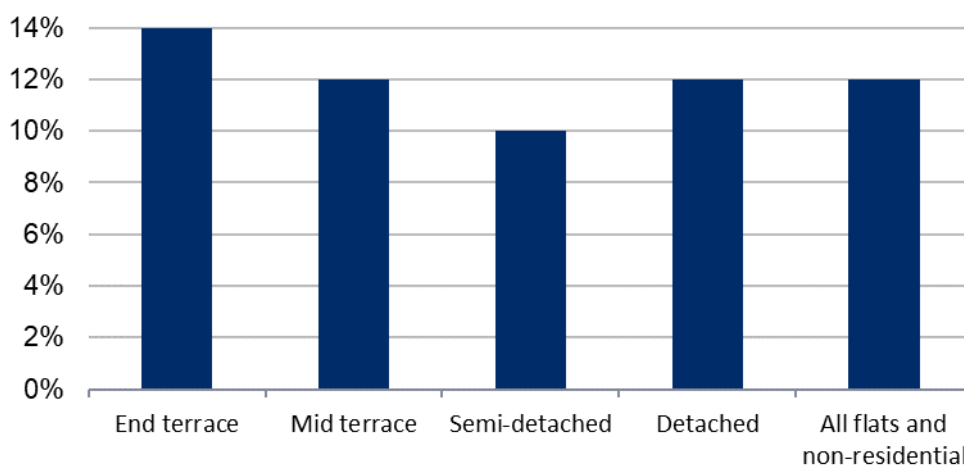
## 4. Dwelling characteristics

This section looks at the likelihood of households living in fuel poverty according to the characteristics of the housing stock. For most dwelling characteristics the distribution of all households is similar to only those households in fuel poverty. Where there is a difference this is commented on below.

### 4.1. Dwelling type

Across all types of dwellings, the percentage of households in fuel poverty was broadly similar; ranging from 10% (semi-detached) to 14% (end of terrace). ([Table 4.1.1](#)).

**Chart 4.1: Households in fuel poverty by dwelling type, Wales, 2018**



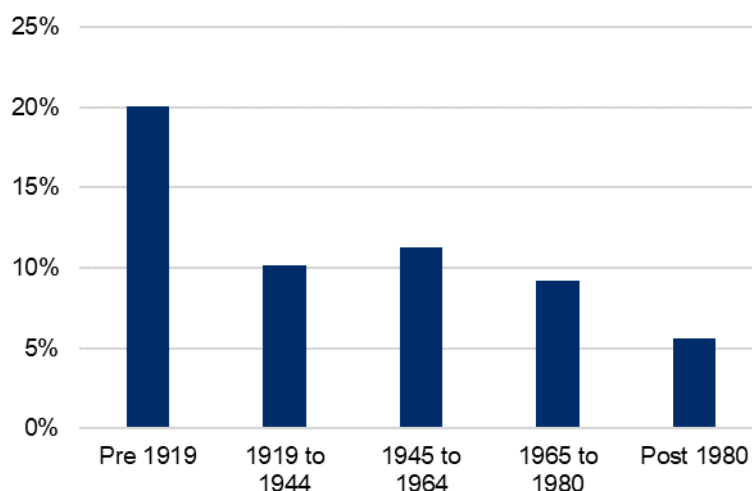
Source: Welsh Housing Conditions Survey 2017-18

### 4.2. Dwelling age

In 2018, households living in fuel poverty were more likely to be living in older properties than in more modern properties. In general, there is a pattern of decreasing proportions of fuel poor households the newer the dwellings are (Chart 4.2 and [Table 4.2.1](#)). This is likely to be due in part to the thermal properties of their structure. For example, the most common wall type for pre-1919 properties is solid wall. Solid walls are less efficient at retaining heat, therefore increasing the energy needed to heat a property.

Of those in fuel poverty, there is a higher proportion of households built before 1919 and a lower proportion of those built after 1980 than in the total population of all households of the survey in these groups.

**Chart 4.2: Households in fuel poverty by dwelling age, Wales, 2018**



Source: Welsh Housing Conditions Survey 2017-18

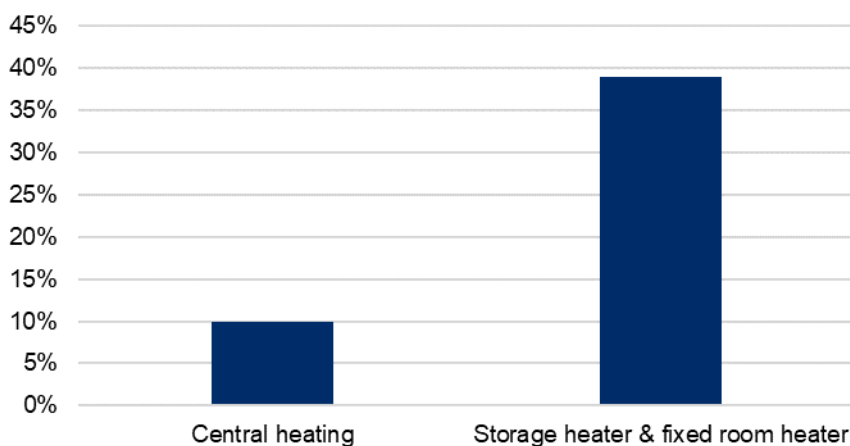
### **4.3. Main heating system**

One way to protect a household from fuel poverty is to ensure that there is a cost-effective means of heating the dwelling. Central heating, and in particular mains-gas central heating, is considered one of the most cost-efficient heating systems currently in mainstream use in the Welsh housing stock.

Central heating systems include: boiler systems with radiators, warm air and 'other' systems such as underfloor heating, and communal systems. Households which do not have central heating systems have higher average fuel costs per year than those that have central heating systems.

Rates of fuel poverty among those with central heating is close to the typical level for the population as a whole, at 10%. In 2018, 5% of all households in Wales did not have a central heating system, but instead used storage heaters or fixed room heaters. Among these households, the percentage living in fuel poverty rises to 39% (Chart 4.3 and [Table 4.3.1](#)).

**Chart 4.3: Households living in fuel poverty by main heating type, Wales, 2018**



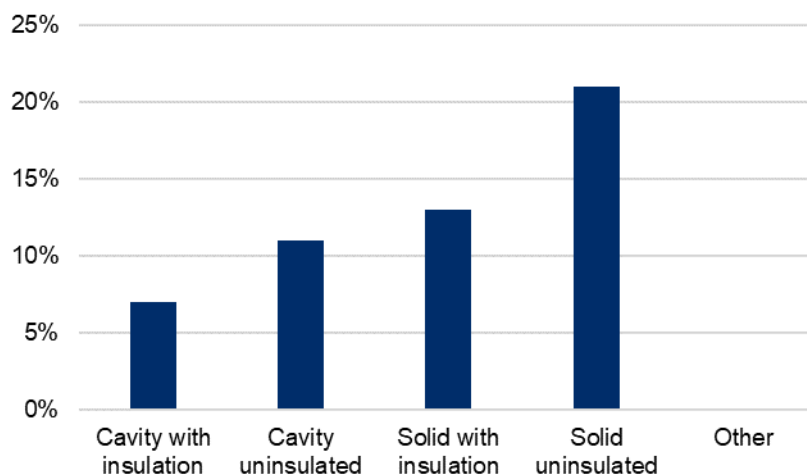
Source: Welsh Housing Conditions Survey 2017-18

#### 4.4. Wall type and insulation

Households living in better insulated dwellings were less likely to be in fuel poverty. In 2018, 7% of households in cavity insulated properties (generally the most efficient wall type) were fuel poor, compared with 21% of households in solid uninsulated wall types (Chart 4.4 and [Table 4.4.1](#)).

Of those in fuel poverty, there is a lower proportion of households with cavity wall insulation, and a higher proportion of households with solid uninsulated walls, than in the total population of all households.

**Chart 4.4: Households living in fuel poverty by wall type and insulation, Wales, 2018<sup>10</sup>**



Source: Welsh Housing Conditions Survey 2017-18

#### 4.5. Energy efficiency: SAP ratings & EPC band

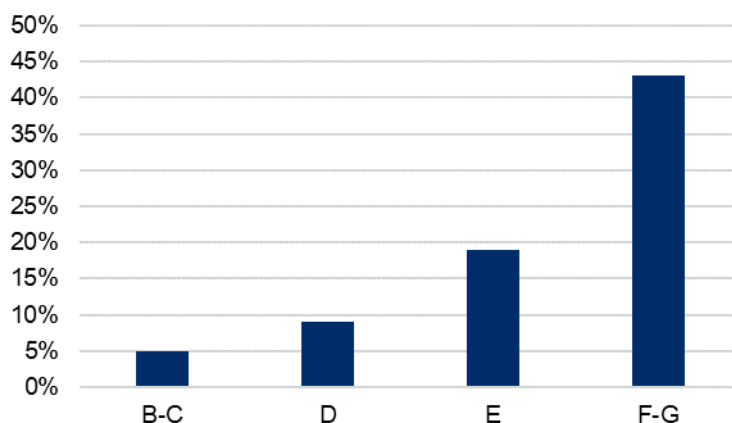
The Standard Assessment Procedure (SAP) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings.

SAP works by assessing how much energy a dwelling will consume, when delivering a defined level of comfort and service provision. The assessment is based on standardised assumptions for occupancy and behaviour. This enables a like-for-like comparison of dwelling performance. The ratings are expressed on a scale between 1 and 100, where 100 represents no energy cost.

SAP ratings are divided into bands from A to G. These are the bands used for Energy Performance Certificates (EPC). The highest values (i.e. the highest levels of energy efficiency) are assigned to band A and the lowest values are assigned to band G.

<sup>10</sup> 'Other' includes timber walls, both insulated and uninsulated.

**Chart 4.5: Households living in fuel poverty by Energy Performance Certificate (EPC) band, Wales, 2018<sup>11</sup>**



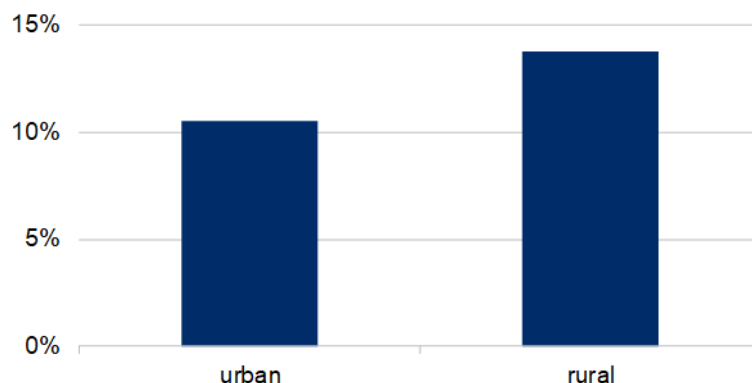
Source: Welsh Housing Conditions Survey 2017-18

Fuel poor households typically had lower EPC bandings. Only 13% of fuel poor households had a rating of C or above, compared to 30% of non-fuel poor households. As EPC bands improve, the percentage of fuel poor households decreases. 43% of households living in properties with poorer energy efficiency (EPC Bands F and G) were fuel poor compared with 5% of households living in properties in bands B to C (Chart 4.5 and [Table 4.5.1](#)).

#### **4.6. Location –Urban/Rural classification<sup>12</sup>**

Households living in rural areas were more likely to be in fuel poverty. Of all households in rural locations, 14% were fuel poor, compared with 10% of all households living in urban areas (Chart 4.6 and [Table 4.6.1](#)). In part, this may reflect a greater proportion of households in rural areas not having central heating ([Table 4.6.2](#)).

**Chart 4.6: Households living in fuel poverty by rural / urban classification, Wales, 2018**



Source: Welsh Housing Conditions Survey 2017-18

<sup>11</sup> None of the households in the sample fell into band A.

<sup>12</sup> The [Office for National Statistics 2011 Rural - Urban classification](#) of areas is used. A classification is allocated to small Census output areas. Output Areas are treated as 'urban' if they are part of a built up area which contains 10,000 people or more. Rural areas include town and fringes, villages, and hamlets and isolated areas.

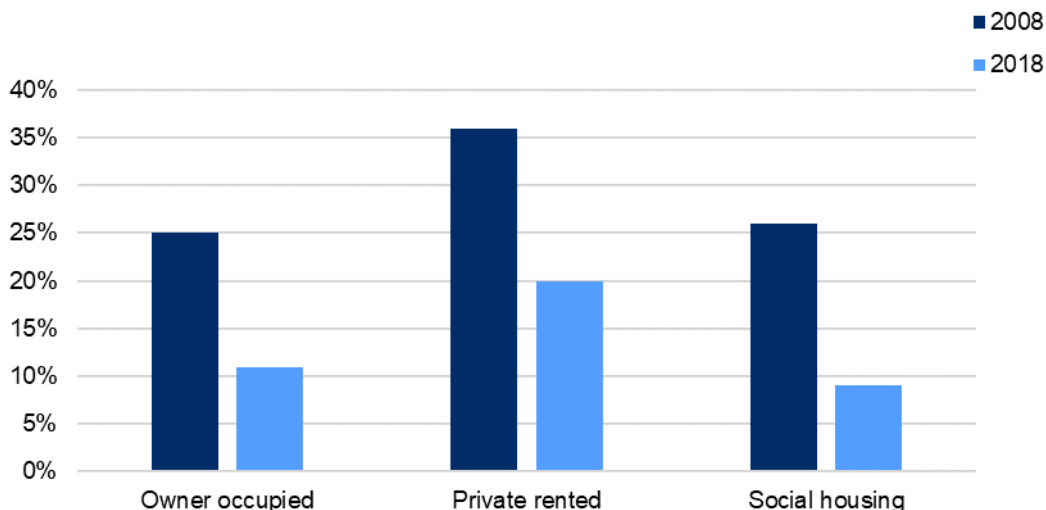


## 5. Changes since 2008 and separation of effects

### 5.1. Key changes since 2008 in type of households that are fuel poor<sup>13</sup>

The number of households living in fuel poverty has decreased from 332,000 households in 2008 to 155,000 in 2018. This is a decrease of 14 percentage points from 26% in 2008 to 12% in 2018.

**Chart 5.1: Households in fuel poverty, by tenure, Wales, in 2008 and 2018**



Sources: Living in Wales Property Survey 2008 and Welsh Housing Conditions Survey 2017-18

- The percentage of households in the private rented sector living in fuel poverty has decreased from 36% in 2008 to 20% in 2018.
- The percentage of households in the owner occupied sector living in fuel poverty has decreased from 25% in 2008 to 11% in 2018.
- The percentage of households in the social housing sector living in fuel poverty has decreased from 26% in 2008 to 9% in 2018.

### 5.2. Separation of the relative effect of each component of fuel poverty

It is of interest to understand the relative importance each of the different components of fuel poverty in the change in fuel poverty between 2008 and 2018; i.e. what relative effect can be attributed to changes in each of income, fuel price and modelled energy consumption. This is done using a technique which considers the changes in each component over time and examines the likely effect of each component in isolation. The average change over time in each element are identified for households in the lowest 30% of income (the group which are at the highest risk of being in fuel poverty) and these changes are applied to the components<sup>14</sup> of the base dataset to examine the likely effect of each change. Further details of this process are given in the [methodology report](#). The relative effects for each component is summarised by the factors below. This is shown graphically in Chart 5.2 below.

<sup>13</sup> It should be noted that the methodology for calculating fuel poverty has changed between 2008 and 2018. The most significant difference is the BREDEM methodology used to calculate energy consumption. In 2008, energy use was calculated using the BREDEM 12 (2001) methodology, whereas the 2018 energy use data was calculated using the BREDEM 2012 methodology.

<sup>14</sup> The components consist of income, fuel price and energy consumption.

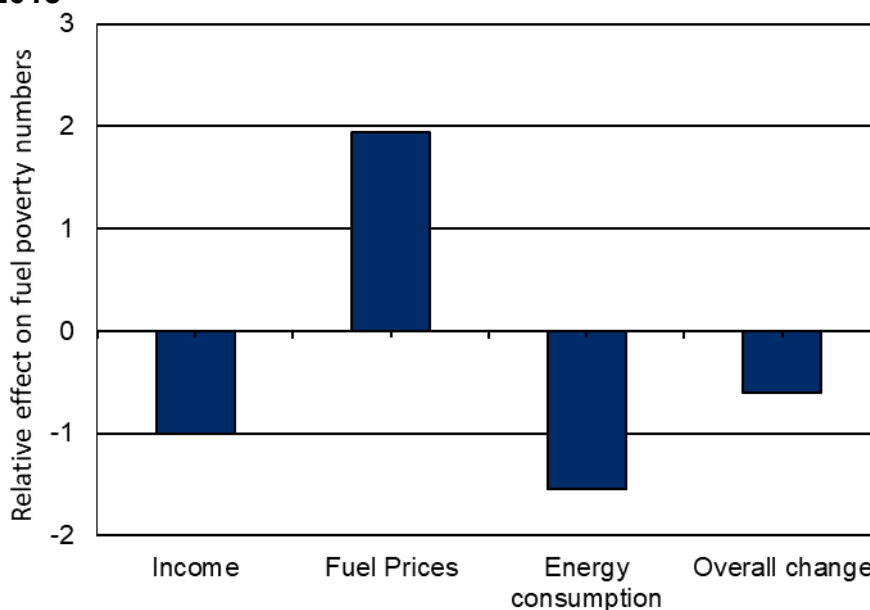
It is tempting to describe the relative effect of each component in terms of the number of households moved into or out of fuel poverty. However, as a result of the changes in the total number of households since 2008 (and other demographic changes), this is very difficult to do. It is more reasonable to describe the relative size of the effect of each factor over this period, expressed as a fraction. For example, if factor A = 1, B = 2 and C = 2 we can say that factors B & C have the same relative effects as each other, but twice the effect of A. We can also indicate the direction of the effect (i.e. rise or fall in fuel poverty) by the sign of these factors (+ or -).

#### Relative effect of the components of fuel poverty in Wales: 2008 to 2018

- Incomes rose by approximately 26%<sup>15</sup> affecting the number of fuel poor by a factor of -1.00.
- Average unit fuel price rose by approximately 47% affecting the percentage of households in fuel poverty by a factor of 1.94
- Modelled energy consumption fell by approximately 37% affecting the number of fuel poor households by a factor of -1.55

The negative sign of the factors indicate those which have acted to reduce fuel poverty. These are the reduction in modelled energy consumption and increases in household income. Reduced energy consumption has a 55% greater effect than increased income (revealed by the ratio of -1 to -1.55). Rises in fuel price have acted to increase the level of fuel poverty. The scale of this effect is almost twice that of the reduction caused by income rises (revealed by the ratio of -1 to 1.94) but less than the combined effect, acting to reduce fuel poverty, of income and energy efficiency. The combination of the rise in income and fall in modelled energy consumption since 2008 has, therefore, counteracted the rise in fuel poverty numbers seen by the fuel price rise. The increase in income allows some fuel poor households to exit fuel poverty despite the increases in fuel prices.

**Chart 5.2: Relative effects of the components of the fuel poverty calculation, Wales, from 2008 to 2018**



Source: Living in Wales Property Survey 2008 and Welsh Housing Conditions Survey 2017-18

<sup>15</sup> This is based on data from the Living in Wales survey 2008 and the National Survey for Wales 2017-18, unadjusted for inflation

## 6. Fuel poverty across the UK

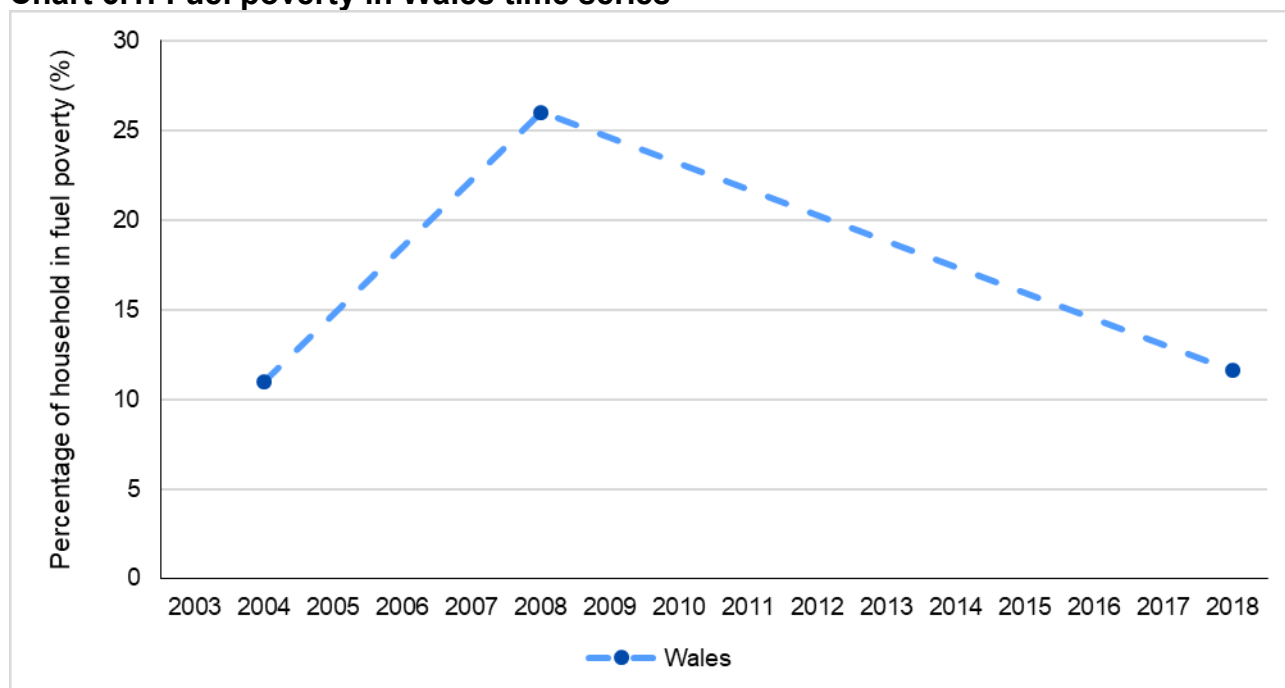
The overall proportion of households in fuel poverty across the four UK nations varies, but there is a consistent pattern of rises in fuel poverty (or in the case of England, in the depth of fuel poverty) up until the period 2009 to 2012, followed by falls in the level of fuel poverty since this time.

It should be noted that there are methodological differences in the way each nation calculates fuel poverty. Wales and Northern Ireland share a broadly comparable definition under the 10% measure, whereas Scotland employs a different heating regime. In England, the 10% measure is not used in any official capacity, with a Low Income High Cost (LIHC) metric used instead (see [Section 7](#)). The data presented in this section has been obtained from results published in the House Condition Survey reports for each nation<sup>16</sup>.

### 6.1. Wales

In Wales the level of fuel poverty has risen from an estimated 11% in 2004, to a high of 26% in 2008. This fell to an estimated 12% in 2018.

**Chart 6.1: Fuel poverty in Wales time series**



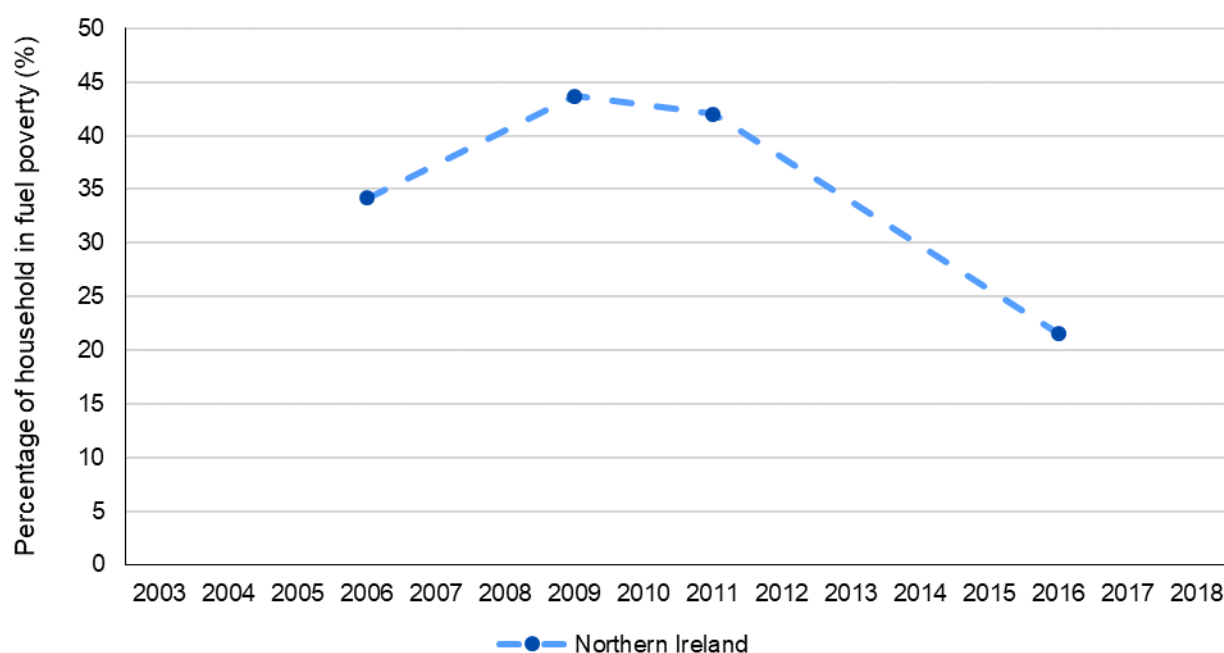
Source: Living in Wales Property Surveys 2004 & 2008 and Welsh Housing Conditions Survey 2017-18

<sup>16</sup> [England fuel poverty statistics](#)  
[Scotland fuel poverty statistics](#)  
[Northern Ireland fuel poverty statistics](#)

## 6.2. Northern Ireland

**Chart 6.2: Fuel poverty in Northern Ireland time series**

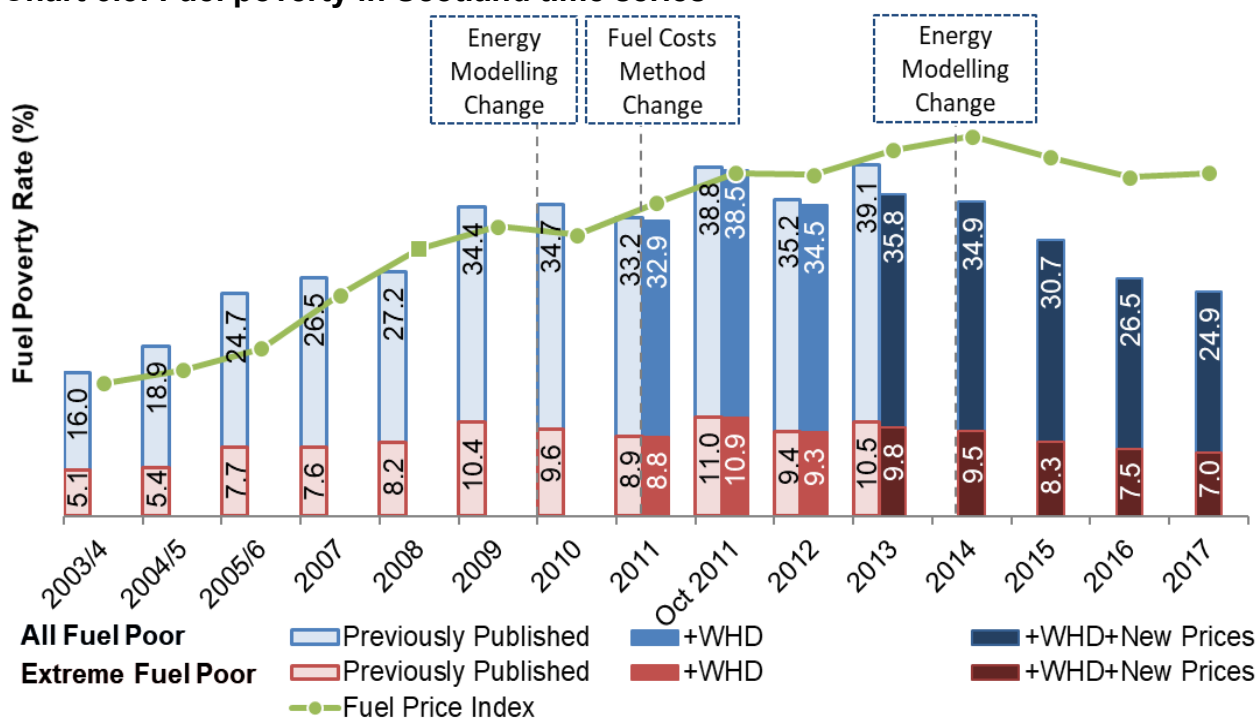
In 2016, the proportion of fuel poor households in Northern Ireland was 22%, which is 22 percentage points below the peak value in 2009, where the proportion of fuel poor households was 44%.



Source: Northern Ireland House Condition Surveys 2006, 2009 (interim survey), 2011 and 2016

### 6.3. Scotland

**Chart 6.3: Fuel poverty in Scotland time series<sup>17</sup>**



Source: Scottish House Condition Survey and Scottish Housing Surveys 2003-2017

In 2017, the proportion of fuel poor households in Scotland was 24.9%. This is the lowest rate recorded by the survey since 2005/06. These statistics are based on the previous Scottish definition of fuel poverty, where a household was in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10% of its income on all household fuel. As stated above, Scotland employs a different heating regime so this 10% definition is not comparable with Wales or Northern Ireland. A new definition of fuel poverty is included in the Fuel Poverty (Target, Definition and Strategy) (Scotland) Act<sup>18</sup>.

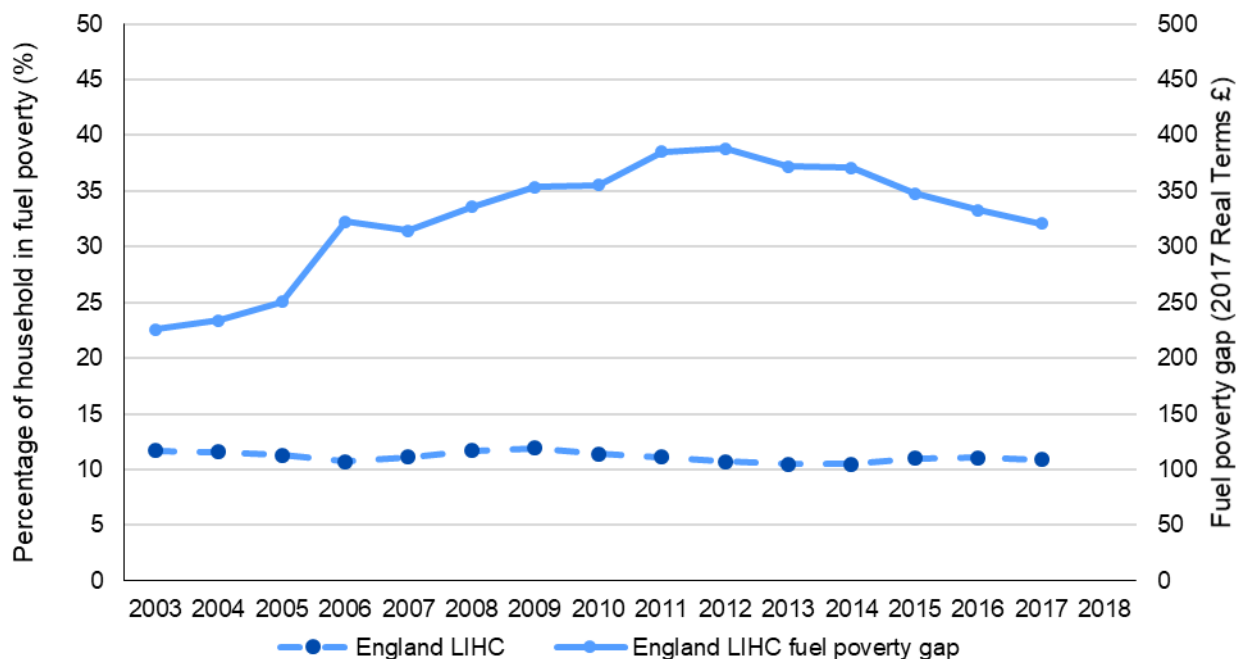
<sup>17</sup> Note: Energy requirement underpinning fuel poverty estimate modelled on the following basis: 2003/4 – 2009: BREDEM – 12; 2010 – 2013: BREDEM 2012 v.1.0; from 2014 onwards: BREDEM 2012 v.1.1. + WHD indicates the inclusion of Warm Homes Discount, and + New Prices to the adjustment of fuel price sources; from 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.

<sup>18</sup> [Figures which represent the best estimates of fuel poverty under the new definition, following the amendments agreed at stage 2 whilst the bill was going through parliament.](#)

## 6.4. England

**Chart 6.4: Fuel poverty in England time series**

The official England fuel poverty figures are reported under the Low Income High Cost (LIHC) metric, which is outlined in [Section 7](#) below. Under this metric, the percentage of fuel poor households in England in 2017 is approximately 11%. The proportion of households in fuel poverty under LIHC remains broadly the same year on year due to the relative nature of the indicator. The LIHC also includes a measure of the depth of fuel poverty, called the average fuel poverty gap. This element of the indicator shows a greater degree of change year-on-year, decreasing from a peak of £388 in 2012 to £321 in 2017<sup>19</sup>.



Source: English House Condition Surveys and English Housing Survey 2003 to 2017

<sup>19</sup> Note that the fuel poverty gap is expressed in real terms, relative to 2017 – i.e. historic values are inflated / deflated in line with the Consumer Price Index to allow for a more appropriate comparison over time.

## 7. Alternative measures of fuel poverty

A number of alternative specifications have been suggested for potential use within the 10% definition of fuel poverty, and, in addition, the fuel poverty measure currently used within England is the Low Income High Cost (LIHC) measure which is a different approach.

This section provides the results of the calculation of those alternative specifications for the 10% fuel poverty measure for Wales under the basic income definition and of the Low Income High Cost measure for Wales. These do not represent the official estimates of fuel poverty for Wales but are provided to indicate the impact of using alternative definitions of fuel poverty, which will be useful in the consideration of future monitoring of fuel poverty as the new fuel poverty plan is being developed.

### 7.1. 10 per cent (basic income) definition

The 10 per cent (basic income) definition of fuel poverty is defined in [Appendix A](#). Under the 10 per cent (basic income) definition, 184,000 (14%) households are living in fuel poverty in Wales, in 2018 ([Table 2.1.2](#)) compared to 356,000 (28% of all households) in 2008.

Under this basic definition of income, 159,000 vulnerable households were in fuel poverty in 2018 (14% of all vulnerable households) ([Table 7.1.1](#)), compared to 310,000 (32% of all vulnerable households) in 2008.

In 2018, under the 10 per cent (basic income) definition, 40,000 households (3% of all households) were living in severe fuel poverty. This is compared to 65,000 households (5% of all households) in 2008 ([Table 2.3.1](#)). 25,000 households (64%) living in severe fuel poverty were vulnerable under the basic income definition.

### 7.2. Alternative heating regime

In projections work, undertaken in 2016 for the Welsh Government using the 10 per cent definition of fuel poverty, an alternative heating regime was used for elderly households and those with a long term sickness or disability. For these households, living room temperatures were increased from 21°C to 23°C and hours of heating in the week increased. These assumptions have not been taken forward into the official statistics for 2018, which have been produced in a manner consistent with 2008. It remains, however, of interest to estimate how these alternative assumptions would affect the final statistics. BRE have undertaken an investigation of the likely impact of these alternative assumptions. It is estimated that applying these assumptions to the calculation of fuel costs would result in a small increase in the level of fuel poverty in 2018 of approximately 2 percentage points, i.e. the level of fuel poverty in 2018 would be 14%, rather than 12%.

### 7.3. Low income high costs

Fuel poverty in England is measured using the Low Income High Costs (LIHC) indicator<sup>20</sup>, which considers a household to be fuel poor if:

- they have required fuel costs<sup>21</sup> that are above the average (the national (UK) median level); and

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<sup>20</sup> Further information on the LIHC indicator can be found in [Appendix A](#).

<sup>21</sup> 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](#)

- were they to spend that amount, they would be left with a residual income<sup>22</sup> below the (UK) poverty line<sup>23</sup>.

Details of the LIHC indicator are included in the [methodology report](#) which accompanies this publication. At a high level, the components of the fuel poverty calculation remain the same; i.e. incomes and fuel costs; but the details of these elements are defined differently under the LIHC methodology. More specifically, incomes in the LIHC method use an 'after housing costs' measure, and both incomes and fuel costs are adjusted to account for household size.

The LIHC indicator is a relative indicator as it compares households to the (UK) national median fuel costs and income. The indicator also has another component, which indicates the depth of fuel poverty. This is defined as the reduction in fuel bills that the average fuel poor household needs in order to not be classified as fuel poor. This is referred to as the fuel poverty gap, and is produced both as an average (per household) amount and as an aggregate amount across all households.

Under the low income high costs (LIHC) definition, 132,000 Welsh households were living in fuel poverty in 2018, equivalent to 10% of all households in Wales ([Table 7.2.1](#)). The average fuel poverty gap for Wales 2018 was approximately £431, this is the average reduction in annual fuel bill that was needed to move these households out of fuel poverty. The aggregate fuel poverty gap for Wales in 2018 was a total sum of £56.9 million.

The Department for Business, Energy and Industrial Strategy (BEIS) in England uses the LIHC metric as its official measure of fuel poverty. The latest estimates of the proportion of households in fuel poverty in England under the LIHC metric, for 2017, were that 11% of households in England were fuel poor, with an average fuel poverty gap of £321 (£110 lower than Wales). Northern Ireland have also recently produced LIHC estimates. In Northern Ireland, 7% of households (3 percentage points below Wales) were in fuel poverty in 2016 under the LIHC definition, with a fuel poverty gap of £436 (£5 above Wales).

The number of households in fuel poverty under the LIHC indicator tends to reflect the spread of the income distribution (as collected by each national survey). Populations with a narrower income distribution are likely to have fewer households below 60% of the median income and, therefore, fewer households defined as being fuel poor. As a relative indicator the number of households in fuel poverty under LIHC is largely (although not wholly) unresponsive to other changes in aspects such as fuel prices and energy efficiency. The average fuel poverty gap, which describes the depth of fuel poverty, tends to reflect the relative cost of fuel and energy efficiency in a more responsive manner.

In 2018, there were 112,000 vulnerable households in fuel poverty in Wales under the LIHC definition, which is 10% of all vulnerable households. ([Table 7.2.2](#)).

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<sup>22</sup> 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](#).

<sup>23</sup> The poverty line (income poverty) is defined as an equivalised disposable income of less than 60% of the national median ([Section 2](#)).



## 8. Results in the context of the 2016 projections

The Welsh Government have previously published a series of estimates of the level of fuel poverty in the period 2012 to 2016. These were produced by BRE under a number of assumptions, and based on the Living in Wales Property Survey 2008 dataset. Projecting from this baseline was particularly challenging given the length of time since the original survey. It is of interest to re-examine these projections, following the calculation of the 2018 fuel poverty statistics from the WHCS.

The results of the original analysis are shown in Table 8.1 below:

**Table 8.1: 2012 to 2016 projections as published.**

	In fuel poverty	Percentage (%)
2012	364	29
2013	351	28
2014	376	30
2015	305	24
2016	291	23

As described in the main body of this report, the results for 2018 show a level of fuel poverty of 12%. At face value, this may suggest a fall in fuel poverty of 11 percentage points in the period 2016 to 2018. Against the backdrop of known changes in this period, such a large drop seems unlikely. BRE have undertaken a review of the projected 2016 results to examine the suitability of the 2016 projections considering the new WHCS results, which indicates several reasons why these projected levels of fuel poverty may have been overstated.

An initial observation to be made is that the 2016 projections were run under different heating regime assumptions than under the 2008 and 2018 statistics. In particular, the assumed temperature and heating period for older households, and those with a long term illness or disability was increased for these projections. The effect of this is to increase the fuel costs, and therefore, the level of fuel poverty in the projections relative to the regime as used in the 2008 and 2018 statistics. We have estimated that approximately 14% of households would be fuel poor in 2018 under the alternative heating regime (as opposed to 12% under the regime used for the official 2018 estimates).

The underlying assumptions in relation to income and fuel prices have also been compared to understand if this 2016 figure is over or under estimated relative to the observed actual changes in these elements.

For incomes, the assumptions used are generally very close to the observed changes in so far as it is possible to undertake this assessment. If we reapply the assumed uplifts in income to the 2008 base full income data, to take this to 2016 levels, and compare to the observed 2018 full income variables the results are plausible; in that 2018 incomes are typically a few percentage points above the 2016 incomes for key subdivisions of the data. This gives some confidence that the incomes assumed in the projections are reasonable approximations.

For fuel prices, the key assumptions relate to the prices of gas and electricity; and to methods of payment. By reapplying the assumed inflation factors which were used to project from the 2008

base prices for these fuels, and comparing to the equivalent published prices from 2016, we can examine how appropriate these assumptions were. Generally, the gas price inflation used in the analysis resulted in 2016 projections broadly comparable to the actual prices from that year. The assumed inflation rates for electricity prices, however, resulted in electricity prices which were approximately 10% higher than were actually observed. This overestimate of fuel prices in 2016 will also result in the projected level of fuel poverty in the projections being too high.

Other effects, which were explicitly outside the scope of the projections work, include changes in demographics, new build housing and demolitions and switching payment methods. The overall effect of many of these changes is hard to determine. Changes in method of payment for fuel, however, seem likely to also contribute to an overstatement of the projected positions in 2012 to 2016. There has been a significant shift in the way households pay for their gas and electricity; with movement away from standard credit (i.e. payment on receipt of bills) and towards direct debit, which is generally lower cost. As a result, the projected fuel prices as used in 2016 may be too high.

In summary, the projected results for 2012 to 2016 seem likely to be overstated for a number of reasons. These include:

- 1) Use of a different heating regime in these projections
- 2) Overestimate of electricity prices
- 3) Changes in method of payment towards lower cost methods

No attempt is made here to quantify the overall scale of these effects which would require re-running of the 2012-2016 estimates under alternative assumptions. These observations should be noted and any remedial actions possible taken, in order to improve the accuracy of projections of this type in the future.

## Appendix A: Summary of methodology

### Introduction

Below is a brief summary containing descriptions of the methodology used to calculate the 2018 fuel poverty figures for Wales under both the 10% definition and the Low Income High Costs (LIHC) definition. A full methodology report accompanies this publication.

Two definitions for fuel poverty are used within the main body of this publication. These are the *10%* and *LIHC* definitions.

### Definitions

#### 10% Definition

A household is defined as being fuel poor if they spent more than 10% of their income on fuel. This is calculated using the equation below:

$$\circ \text{ Fuel Poverty} = \frac{\text{Fuel Costs}}{\text{Income}}$$

If the ratio from the above equation is greater than 0.1, the household is defined as fuel poor. The total fuel costs for a household are modelled using standard heating regimes that consider how much money the household would be required to spend on fuel costs in order to reach the established standards for comfort. This is based on recommendations by the World Health Organisation (WHO) and requires a minimum indoor temperature of 21 degrees centigrade in living rooms and 18 degrees centigrade in other areas. Any household having to spend more than 20% is defined as being in severe fuel poverty.

#### Low Income High Costs (LIHC) definition

Under the Low Income High Costs (LIHC) definition, a household is considered to be fuel poor if:

- They have required fuel costs that are above the average (the national median level)
- Were they to spend that amount, they would be left with a residual income below the official poverty line (60% of median income).

The LIHC indicator is a relative indicator as it compares households to the national median fuel costs and income. The indicator also has another component, which indicates the depth of fuel poverty. This is defined as the reduction in fuel cost (in pounds) which is required to move the household out of fuel poverty. This is referred to as the fuel poverty gap, and is produced both as a mean (per household) amount and as an aggregate amount across all households.

### Calculating the main components of fuel poverty

There are three main components used to calculate fuel poverty under both the 10% definition and the Low Income High Costs (LIHC) definition: Income, Energy Prices and Energy Requirements. Below is a summary of how these components are calculated.

## Income

For the 10% fuel poverty indicators, two different definitions of income are required. These are *basic income* and *full income*. For the LIHC indicator, a third income definition is used which is called *Equivalised After Housing Costs (AHC) income*.

- Basic Income: This is calculated by totalling the personal incomes of everyone in the household (aged 16 and over), plus any benefit or other income source payments that the household receives (from earned income, state benefits and savings etc.) to provide the Primary Benefit Unit (PBU) income. Income from other benefit units and the Winter Fuel Payment (WFP) if applicable is then added to give the 'basic income'.
- Full Income: This is built upon 'basic income' by the addition of housing related income, including: housing related benefits (HB), Council Tax Benefit (CTB), and the deduction of Council Tax payable. This is the 'Full household income'.
- (For LIHC) Equivalised AHC income: Housing costs (rent and mortgage payments) are deducted from 'full income', the relevant equivalisation factor to reflect the fact that different households have different spending requirements are then applied. This creates the final 'Equivalised AHC income'.

## Energy prices

The fuel price element of fuel poverty calculation produces fuel prices which can readily be combined with household energy requirement outputs to produce fuel costs.

The National Survey for Wales collects information of the method of payments of gas and electricity, but does not collect information on the exact tariff or supplier. Department of Business Energy and Industrial Strategy (BEIS) data sources provides gas and electricity 'average unit price' and 'average fixed costs' (standing charges) for energy supply regions across the UK. The combination of data collected by the National Survey for Wales, and the Quarterly Energy Prices<sup>24</sup> publication provided by BEIS are then combined calculate a final fuel price figure. Other data for non-metered fuels is provided from Consumer Price Index (CPI) data, and for a few rare fuels from the Sutherland Tables publication or SAP default values.

## Energy requirements

The amount of fuel required to provide the energy needs of each household is one of the components of fuel poverty and, combined with fuel prices, produces the modelled fuel bill.

Under the fuel poverty definition, the energy required to heat and power a home can be grouped into four categories:

- 1) Space heating –  $E_s$  (GJ);
- 2) Water heating –  $E_w$  (GJ);
- 3) Lights and appliances –  $E_{LA}$  (GJ);
- 4) Cooking –  $E_c$  (GJ).

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<sup>24</sup> The metered fuel price data used in the fuel poverty calculations are derived from the BEIS quarterly energy prices, in [tables QEP 2.2.4 and QEP 2.3.4](#)

The Building Research Establishment Domestic Energy Model (BREDEM) methodology<sup>25</sup> is used to predict the energy requirements of a household where:

$$\text{Total household energy requirements} = E_S + E_W + E_{LA} + E_C$$

Total household energy requirements include space and water heating (to meet defined standards), energy for lights and appliances (including requirements for pumps, fans and electric showers, and energy generated by renewables), and energy for cooking. The amount of energy required to heat a dwelling will depend on the building specification such as insulation levels, heating systems, the geographical location of the dwelling, and construction type. A household's demand for energy will depend on the number of people within the household and the lifestyle and habits of these individuals. Information from the National Survey for Wales and the Welsh Housing Conditions Survey are used to provide details about both dwellings and households. Reduced Data SAP (RdSAP) assumptions are used to deal with missing data and can be found in the SAP procedure document<sup>26</sup>. It should be noted that the figures now incorporate the revised U-values as published in RdSAP v9.93.

Data on the occupancy characteristics, and region, are provided by the National Survey for Wales. The Welsh Housing Conditions Survey then provides information about the physical characteristics of the home, which are used to inform the modelling of household energy use for fuel poverty, including:

- Detailed information about the dimensions
- Dwelling type and age
- Heating and hot water systems
- Dwelling fabric and exposure/ shading
- Energy efficiency measures.

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<sup>25</sup> The BREDEM methodology used is described in Henderson J, Hart J, BREDEM 2012 [A technical description of the BRE Domestic Energy Model, v1.1](#), January 2015.

<sup>26</sup> BRE 2017. [Appendix S](#): Reduced Data SAP for existing dwellings, RdSAP 2012 v9.93.

## Appendix B: Tables

Please note that “-” shown in the tables below indicates that the estimates are based on less than 30 respondents. All estimates are rounded to the nearest 1000 households. Clicking on the titles of the tables with links below will take you to the relevant section in the report.

### [2.1.1. Households in fuel poverty in 2018](#)

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Definition	Not in fuel poverty		In fuel poverty		Total	
Full Income	1,186,000	88	155,000	12	1,342,000	100
Basic Income	1,158,000	86	184,000	14	1,342,000	100

Source: Welsh Housing Conditions Survey 2017-18

### [2.1.2. Households in fuel poverty in 2008](#)

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Definition	Not in fuel poverty		In fuel poverty		Total	
Full Income	936,000	74	332,000	26	1,268,000	100
Basic Income	912,000	72	356,000	28	1,268,000	100

Source: Living in Wales Property Survey 2008

### [2.2.1. Households by vulnerability and fuel poverty status in 2018 – full income](#)

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Status	Not Vulnerable		Vulnerable	
Not in fuel poverty	181,000	88	1,006,000	89
In fuel poverty	25,000	12	130,000	12
Total	206,000	100	1,136,000	100

Source: Welsh Housing Conditions Survey 2017-18

### [2.3.1. Severe fuel poverty – 2008 to 2018 comparison](#)

		<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Status		2008		2018	
Full Income Definition	Not in severe fuel poverty	1,208,000	95	1,310,000	98
	In severe fuel poverty	60,000	5	32,000	2
	Total	1,268,000	100	1,342,000	100
Basic Income Definition	Not in severe fuel poverty	1,203,000	95	1,302,000	97
	In severe fuel poverty	65,000	5	40,000	3
	Total	1,268,000	100	1,342,000	100

Source: Living in Wales Property Survey 2008 and Welsh Housing Conditions Survey 2017-18

### [2.3.2. Severe fuel poverty – vulnerable households in 2018](#)

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Status	Not vulnerable		Vulnerable		Total	
Not in severe fuel poverty	192,000	15	1,117,000	85	1,310,000	100
In severe fuel poverty	13,000	42	19,000	59	32,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 2.3.3. Household vulnerability in 2018 – total population

	<i>Number</i>	<i>Per cent</i>
Vulnerability	Total Population	
Not Vulnerable	206,000	15
Vulnerable	1,136,000	85
Total	1,342,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.1.1. Household type by fuel poverty status in 2018

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Household Type	Not in fuel poverty		In fuel poverty		Total	
Single pensioner (no children)	203,000	82	45,000	18	248,000	100
Married couple pensioner (no children)	148,000	89	19,000	11	167,000	100
Single person, not a pensioner (no children)	141,000	81	33,000	19	175,000	100
Two adult household with children	198,000	98	5,000	2	203,000	100
Two adult household (up to one pensioner) without children	216,000	90	24,000	10	240,000	100
Single parent household	85,000	91	8,000	9	93,000	100
Other households	195,000	90	21,000	10	216,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.1.2. Age of HRP by fuel poverty status in 2018

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Age of HRP	Not in fuel poverty		In fuel poverty		Total	
16 - 34 years	157,000	87	24,000	13	181,000	100
35 - 44 years	176,000	94	10,000	6	186,000	100
45 - 54 years	230,000	93	17,000	7	248,000	100
55 - 64 years	210,000	85	37,000	15	247,000	100
65 - 74 years	244,000	90	26,000	10	270,000	100
75 years and over	170,000	81	41,000	19	210,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.2.1. Tenure by fuel poverty status in 2018 – full income definition

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Tenure	Not in fuel poverty		In fuel poverty		Total	
Owner occupied	825,000	89	99,000	11	924,000	100
Private rented	144,000	80	36,000	20	180,000	100
Social housing	217,000	91	21,000	9	238,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.2.2. Tenure by fuel poverty status in 2018 – basic income definition

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Tenure	Not in fuel poverty		In fuel poverty		Total	
Owner occupied	841,000	91	83,000	9	924,000	100
Private rented	132,000	73	48,000	27	180,000	100
Social housing	185,000	78	53,000	22	238,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.3.1. Employment status of the fuel poor in 2018

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Employment Status	Not in fuel poverty		In fuel poverty		Total	
In employment	608,000	96	28,000	4	636,000	100
Unemployed	20,000	72	-	-	28,000	100
Economically inactive	558,000	82	119,000	18	677,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.4.1. Fuel poverty status by income decile in 2018

	Number	Per cent	Number	Per cent	Number	Per cent
Income Decile	Not in fuel poverty		In fuel poverty		Total	
Lowest decile	41,000	31	92,000	69	133,000	100
2	94,000	76	30,000	24	123,000	100
3	113,000	90	13,000	10	125,000	100
4	113,000	93	8,000	7	121,000	100
5	116,000	97	4,000	3	120,000	100
6	130,000	98	3,000	2	133,000	100
7	127,000	99	2,000	1	128,000	100
8	131,000	98	3,000	2	134,000	100
9	156,000	99	1,000	1	157,000	100
Highest decile	167,000	100	0	0	167,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 3.5.1 Households in receipt of benefits by fuel poverty status in 2018 (r)

	Number	Per cent	Number	Per cent	Number	Per cent
In receipt of means tested benefits	Not in fuel poverty		In fuel poverty		Total	
Not in receipt of MTB	898,000	89	107,000	11	1,005,000	100
In receipt of MTB	289,000	86	48,000	14	337,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 4.1.1. Households in fuel poverty by dwelling type in 2018

	Number	Per cent	Number	Per cent	Number	Per cent
Dwelling type	Not in fuel poverty		In fuel poverty		Total	
End terrace	108,000	86	17,000	14	125,000	100
Mid terrace	235,000	88	32,000	12	267,000	100
Semi-detached	372,000	90	42,000	10	413,000	100
Detached	343,000	88	46,000	12	389,000	100
All flats and non-res	129,000	88	18,000	12	148,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 4.2.1. Dwelling age by fuel poverty status in 2018

	Number	Per cent	Number	Per cent	Number	Per cent
Dwelling Age	Not in fuel poverty		In fuel poverty		In fuel poverty	
Pre 1919	281,000	79.90	70,000	20	351,000	100
1919 to 1944	120,000	90	-	-	133,000	100
1945 to 1964	195,000	89	25,000	11	219,000	100
1965 to 1980	276,000	91	28,000	9	304,000	100
Post 1980	316,000	94	19,000	6	334,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 4.3.1. Main heating system by fuel poverty status in 2018

	Number	Per cent	Number	Per cent	Number	Per cent
Main heating system	Not in fuel poverty		In fuel poverty		Total	
Central heating	1,143,000	90	127,000	10	1,271,000	100
Storage heater & fixed room heater	43,000	61	28,000	39	71,000	100

Source: Welsh Housing Conditions Survey 2017-18

(r) this was revised on 13 December 2019



#### 4.4.1. Type of wall and insulation by fuel poverty status in 2018

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Type of wall and insulation	Not in fuel poverty		In fuel poverty		Total	
Cavity with insulation	588,000	93	48,000	7	636,000	100
Cavity uninsulated	264,000	89	34,000	11	298,000	100
Solid with insulation	62,000	87	-	-	71,000	100
Solid uninsulated	243,000	79	65,000	21	307,000	100
Other	30,000	100	-	-	30,000	100

Source: Welsh Housing Conditions Survey 2017-18

#### 4.5.1. EPC rating bands by fuel poverty status in 2018

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Energy efficiency rating band (SAP 2012)	Not in fuel poverty		In fuel poverty		Total	
B-C	359,000	95	-	-	380,000	100
D	628,000	91	64,000	9	692,000	100
E	153,000	81	35,000	19	188,000	100
F-G	46,000	57	35,000	43	81,000	100

Source: Welsh Housing Conditions Survey 2017-18

#### 4.6.1. Rural/Urban area breakdown by fuel poverty status in 2018

	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Type of area	Not in fuel poverty		In fuel poverty		Total	
urban	806,000	90	94,000	10	900,000	100
rural	381,000	86	61,000	14	441,000	100
Total	1,186,000	88	155,000	12	1,342,000	100

Source: Welsh Housing Conditions Survey 2017-18

#### 4.6.2. Main heating system of all households by area type in 2018

	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Type of area	Urban		Rural		Total	
central heating	863,000	96	407,000	92	1,271,000	95
storage heater	24,000	3	24,000	5	48,000	4
fixed room heating	13,000	1	11,000	2	23,000	2
Total	900,000	100	441,000	100	1,342,000	100

Source: Welsh Housing Conditions Survey 2017-18

### 6.1.1 Separation of effects – changes observed

	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Change Observed	Income	Fuel Price	Energy Consumption
2008 to 2018	26	47	-37

Source: Living in Wales Property Survey 2008 and Welsh Housing Conditions Survey 2017-18

#### 7.1.1. Households by vulnerability and fuel poverty status in 2018 – basic income

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel Poverty Status	Not Vulnerable		Vulnerable	
Not in fuel poverty	181,000	88	977,000	86
In fuel poverty	25,000	12	159,000	14
Total	206,000	100	1,136,000	100

Source: Welsh Housing Conditions Survey 2017-18

### **7.2.1. Households in fuel poverty, under the LIHC in 2018**

	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
	Not in fuel poverty		In fuel poverty		Total	
LIHC definition	1,210,000	90	132,000	10	1,342,000	100

Source: Welsh Housing Conditions Survey 2017-18

### **7.2.2. Households by vulnerability and LIHC fuel poverty status**

	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
Fuel poverty status	Not vulnerable		Vulnerable	
Not in LIHC Fuel Poverty	186,000	90	1,024,000	90
In LIHC Fuel Poverty	20,000	10	112,000	10
Total	206,000	100	1,136,000	100

Source: Housing Conditions Survey 2017-18

## Key quality information

This section provides a summary of Welsh Housing Conditions Survey (WHCS) and the National Survey for Wales quality information. Please note that a detailed **Quality Report** on WHCS statistics has been published on the [WHCS website](#), which measures quality against five dimensions: Relevance, Accuracy and Reliability, Timeliness and Punctuality, Accessibility and Clarity, and Comparability and Coherence. A Summary [Quality report](#) for the National Survey is available, containing more detailed information on the quality of the survey as well as a summary of the methods used to compile the results.

### Background to the National Survey for Wales 2017-18

The National Survey for Wales is carried out by the Office for National Statistics on behalf of the Welsh Government. For the National Survey for Wales 2017-18, 23,517 addresses were chosen randomly from the Royal Mail's Small User Postcode Address File. Interviewers visited each address and randomly selected one adult (aged 16+) in the household. They then carried out a 45-minute face-to-face interview with them, covering a range of views, behaviours, and characteristics. A total of 11,381 interviews were achieved with a response rate of 54.5%.

The information on income and housing costs used to calculate fuel poverty in this Release are based on interviews completed between 1 July 2017 and 31 March 2018. If the respondent was the HRP, or their spouse/partner, a detailed set of income and housing cost questions were asked.

More information on the method is available in the [technical report](#).

### Background to the WHCS 2017-18

There was a critical gap in the Welsh Government's knowledge about housing conditions in Wales. The last comprehensive collection of data on housing conditions in Wales prior to the WHCS 2017-18 was the Living in Wales Property Survey in 2008. In June 2016 permission and funding was given for the [Housing Conditions Evidence Programme \(HCEP\)](#). The Programme is managed by Knowledge and Analytical Services (KAS) within the Welsh Government and encompasses two work streams:

- The Welsh Housing Conditions Survey (WHCS) 2017-18, and
- The [Housing Stock Analytical Resource Wales](#) (HSAR): Essentially a repository capturing a range of data on the characteristics, fabric, condition and energy efficiency of the housing stock in Wales. Where possible at individual property level.

The WHCS was carried out by the [Building Research Establishment](#) (BRE) on behalf of the Welsh Government. Fieldwork ran from August 2017 to April 2018. Property inspections were carried out by qualified surveyors, who performed a visual assessment of the interior and exterior of the property. The inspections lasted around 40-50 minutes, with around 20 minutes spent inside on a room by room inspection. The surveyor also inspected the plot of the property and made an assessment of the local neighbourhood. For full details of the topics included in the Survey see the Survey Form, available on the [WHCS website](#).

A sample of addresses was drawn from eligible households taking part in the [National Survey for Wales](#) 2017-18. A total of 2,549 full WHCS surveys were achieved across the 22 local authorities of Wales which enables national level estimates. A consent rate of 58% was achieved by the National Survey for Wales interviewers, and of those, a conversion rate of 78% was achieved by the BRE surveyors. The overall response rate was 45%.

Detailed information on the methodology used in the WHCS can be found in the survey technical report, available on the [WHCS website](#).

### **How are fuel poverty estimates used?**

Fuel Poverty estimates are used by Welsh Government and other organisations to help target resources and measures to improve energy efficiency of homes across Wales. The Welsh Government's [Fuel Poverty Strategy 2010](#) sets out the actions taken to reduce fuel poverty in Wales and the latest estimates will inform the new plan to help target fuel poverty.

### **Who are the users of fuel poverty estimates?**

Fuel poverty estimates are used for policy making purposes by the Welsh Government mainly in the areas of housing and environment, but also social policy needs. There are a wide range of other users including: Welsh Government Sponsored Bodies; local authorities across Wales; Public Health Wales; Third Sector Organisations; housing associations, charities; other UK government departments and local government organisations; other public sector organisations; academics; private companies; the media; and members of the public.

### **Strengths and limitations**

Information on the strengths and limitations of Fuel Poverty Estimates are provided in the methodology report which accompanies this bulletin.

### **Coherence**

Whilst each UK nation produces estimates of fuel poverty, it should be noted that each UK nation uses its own definition of fuel poverty, and as such fuel poverty statistics are not comparable across the nations. Further analysis of these fuel poverty estimates will be published in the summer which will look at how and where comparisons can be made.

Links to other UK Fuel Poverty Statistics

[English fuel poverty statistics](#)

[Scottish Fuel Poverty Statistics](#)

[Northern Ireland Fuel Poverty Statistics](#)

## **Changes to SAP (Standard Assessment Procedure) methodology for energy efficiency performance**

The Standard Assessment Procedure (SAP) is the methodology used by the Government to assess and compare the energy of dwellings.

SAP works by assessing how much energy a dwelling will consume, when delivering a defined level of comfort and service provision. The assessment is based on standardised assumptions for occupancy and behaviour. This enables a like-for-like comparison of dwelling performance. The ratings are expressed on a scale between 1 and 100, where 100 represents no energy cost. The SAP methodology has been through two major updates since the 2005 version used for the Living in Wales Property Survey 2008 modelling, first to SAP 2009 and then SAP 2012. In addition, the Reduced Data SAP (RdSAP) methodology for SAP 2012 was updated in November 2017.

### **Revisions**

On 29th August 2019, shortly after publication the key result for the percentage of single person households without children in fuel poverty was revised due to an error when typing up the key results. The main body of the report and associated charts were all correct.

On 3rd September 2019 Chart 3.1a was revised to add a missing footnote. The percentage of unemployed respondents in fuel poverty was also changed from 26% to 28% in the main body text due to an error in the updated report sent by BRE. This also affected chart 3.3.

On 13th December 2019 the percentage of respondents in fuel poverty by receipt of means tested benefits was revised as BRE identified an error in the calculation of the means tested benefit variable. Chart 3.5 and table 3.5.1 have been revised to show the corrected figures. This does not impact the overall fuel poverty levels.

## **National Statistics status**

The [United Kingdom Statistics Authority](#) has designated statistics from the Welsh Housing Conditions Survey and the National Survey for Wales as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the [Code of Practice for Statistics](#).

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

The designation of the Welsh Housing Conditions Survey statistics as National Statistics was confirmed in December 2018 following a compliance check by the Office for Statistics Regulation:

[Statistics from the Welsh Housing Conditions Survey: Confirmation as National Statistics](#)

The designation of the National Survey for Wales statistics as National Statistics was confirmed in May 2013 following a compliance check by the Office for Statistics Regulation. The continued designation of these statistics as National Statistics was confirmed in June 2017:

[Statistics from the National Survey for Wales: Confirmation as National Statistics](#)

All official statistics should comply with all aspects of the Code of Practice for Statistics. They are awarded National Statistics status following an assessment by the UK Statistics Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is Welsh Government's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

## **Well-being of Future Generations Act (WFG)**

The Well-being of Future Generations Act 2015 is about improving the social, economic, environmental and cultural well-being of Wales. The Act puts in place seven well-being goals for Wales. These are for a more equal, prosperous, resilient, healthier and globally responsible Wales, with cohesive communities and a vibrant culture and thriving Welsh language. Under section (10)(1) of the Act, the Welsh Ministers must (a) publish indicators ("national indicators") that must be applied for the purpose of measuring progress towards the achievement of the Well-being goals, and (b) lay a copy of the national indicators before the National Assembly. The 46 national indicators were laid in March 2016.

Information on the indicators, along with narratives for each of the well-being goals and associated technical information is available in the [Well-being of Wales report](#).

Further information on the [Well-being of Future Generations \(Wales\) Act 2015](#).

The statistics included in this release could also provide supporting narrative to the national indicators and be used by public services boards in relation to their local well-being assessments and local well-being plans.

## **Further details**

This document is available here: <https://gov.wales/fuel-poverty-estimates-wales-2018>

## **Next update**

This is not a regular report.

## **We want your feedback**

We welcome any feedback on any aspect of these statistics which can be provided by email to [stats.housingconditions@gov.wales](mailto:stats.housingconditions@gov.wales)

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