

## Do households move in and out of fuel poverty?

This article illustrates how we project households may move in and out of fuel poverty between 2016 and 2017<sup>1</sup>.

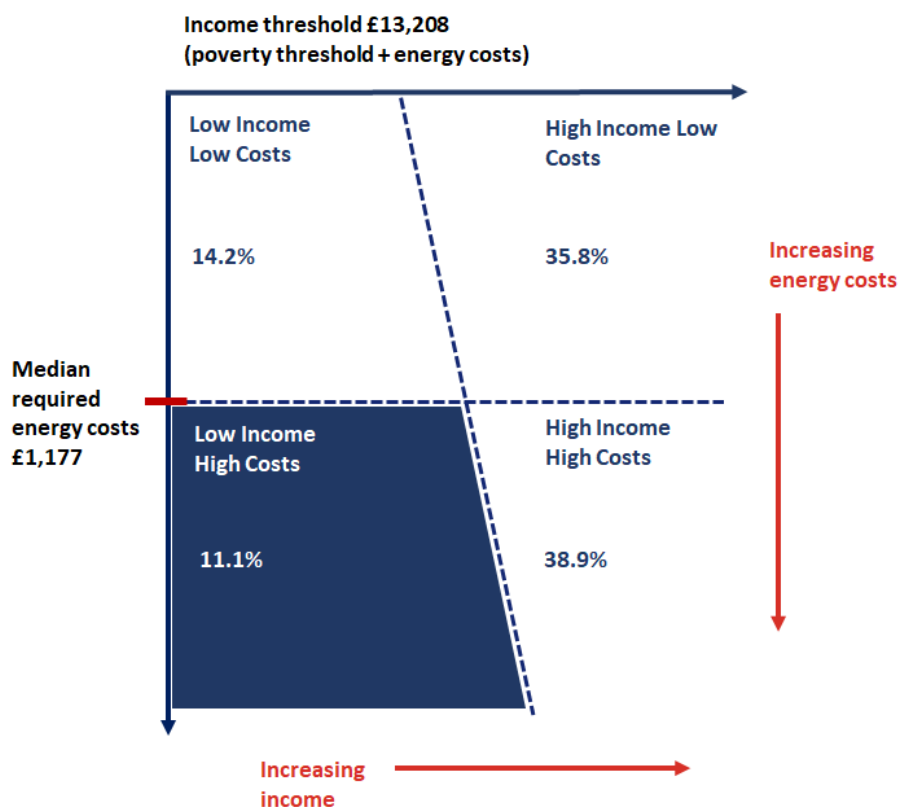
### Introduction

The Warm Homes and Energy Conservation Act<sup>2</sup> characterises fuel poverty as the problem of someone on a “lower income [living] in a home which cannot be kept warm at a reasonable cost”. Fuel poverty in England is measured using the Low Income High Costs (LIHC) indicator. Under the LIHC indicator, a household is fuel poor if:

1. they have required fuel costs that are above average (the national median level);
2. and, were they to spend that amount, they would be left with a residual income below the official poverty line.

Using LIHC, all households fall into one of four quadrants (Figure 1), with low income high costs (shaded blue) capturing fuel poor households, an estimated 11.1 per cent of all households in 2016.

**Figure 1: Fuel poverty quadrants under the low income high costs indicator, 2016**



For more information on the latest fuel poverty statistics, please refer to the annual fuel poverty statistics report, published June 2018, covering 2016 data at:

[www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018](http://www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018).

<sup>1</sup> This analysis is only an illustrative projection of fuel poverty churn and does not represent the actual movement of households in and out of fuel poverty.

<sup>2</sup> Warm Homes and Energy Conservation Act 2000 [www.legislation.gov.uk/ukpga/2000/31/contents](http://www.legislation.gov.uk/ukpga/2000/31/contents)

## **Relative nature of fuel poverty**

Fuel poverty, as defined by the LIHC metric, is a relative measure. The fuel costs threshold and income threshold change year on year, thereby reflecting contemporary trends. The relative nature of the indicator means that the proportion of households in fuel poverty remains, overall, stable over time (between 10-12 per cent). Although, importantly, these are not the same 10-12 per cent as households move in and out of fuel poverty dependent on their circumstances relative to the population. This movement of households is referred to as fuel poverty churn.

## **Projecting churn**

BEIS' annual fuel poverty statistics are based on households sampled in the annual English Housing Survey<sup>3</sup> (EHS). The EHS is analysed by BEIS to give an annual snapshot of fuel poverty in England. As a new sample is drawn each year, it is not possible to track how an individual household's fuel poverty status changes year on year. Our projections modelling shows that there is a net change in the number of fuel poor households each year, but we have not been able to provide robust evidence on the movement of households in and out of fuel poverty in our annual statistics to date.

This year we have utilised our internal projections model in order to quantify the annual churn. The model was developed to project the fuel poverty headline figures, and progress against the fuel poverty target. In June 2018, annual fuel poverty statistics for 2016 and projected headline figures for 2017 and 2018 were published. For more information on the projections, please see Chapter 5 of our annual publication<sup>4</sup> and Chapter 7 of the methodology document<sup>5</sup>

The projections model is based on the latest EHS sample and captures the projected impacts on fuel poverty of changes to the three key drivers – incomes, energy efficiency and fuel prices. Using the model, we can see whether we project individual households to change fuel poverty status year on year. The projections model takes an average of 100 randomised runs to calculate the headline figures. For illustrative purposes, the following weighted figures are based on the average movement across 5 runs. Please see the methodological Annex (page 92) for more detailed information.

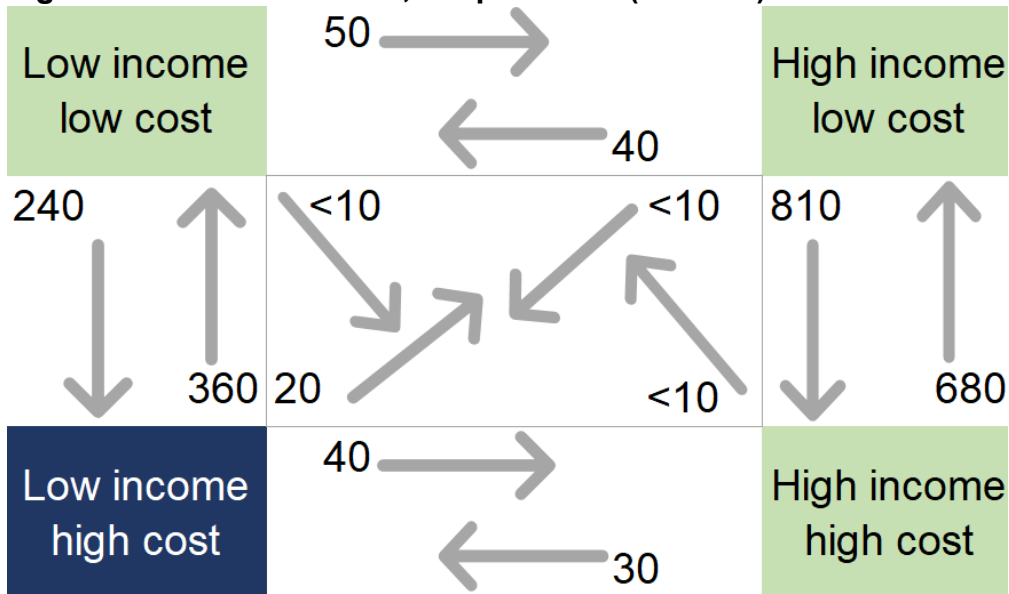
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<sup>3</sup> See [www.gov.uk/government/collections/english-housing-survey](http://www.gov.uk/government/collections/english-housing-survey) for more information on the English Housing Survey

<sup>4</sup> [www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018](http://www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2018)

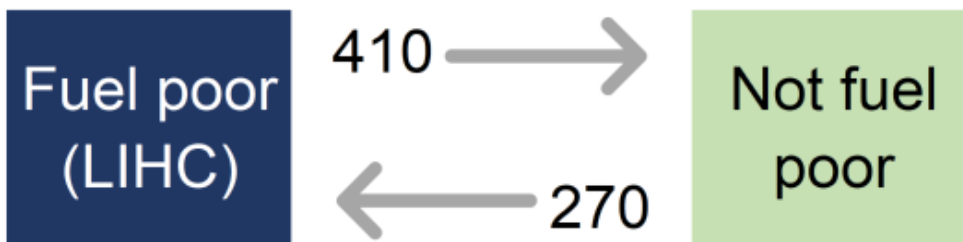
<sup>5</sup> [www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook](http://www.gov.uk/government/publications/fuel-poverty-statistics-methodology-handbook)

**Figure 2: Churn estimates, all quadrants (2016-17)<sup>6</sup>**



Note, figures are in thousands, rounded to the nearest 10,000. Figures therefore may not sum due to rounding.

**Figure 3: Churn estimates LIHC (2016-17)<sup>5</sup>**



Note, figures are in thousands, rounded to the nearest 10,000. Figures therefore may not sum due to rounding.

Figure 2 shows the number of households we project will change quadrant between 2016 and 2017. This shows there is movement between all the quadrants, not just those relating to fuel poverty status. Figure 3 shows how many households we project will change fuel poverty status between 2016 and 2017. We project the net number of households in fuel poverty to decrease by 140,000 between 2016 and 2017, from 11.1 per cent to 10.4 per cent. This net movement represents 680,000 households where their fuel poverty status changes, 3 per cent of the overall housing stock<sup>7</sup>. Approximately 16 per cent (410,000) of fuel poor households in 2016<sup>8</sup> are projected to move out of fuel poverty, and 11 per cent (270,000) of those households that we project are fuel poor in 2017<sup>9</sup> were not fuel poor in 2016.

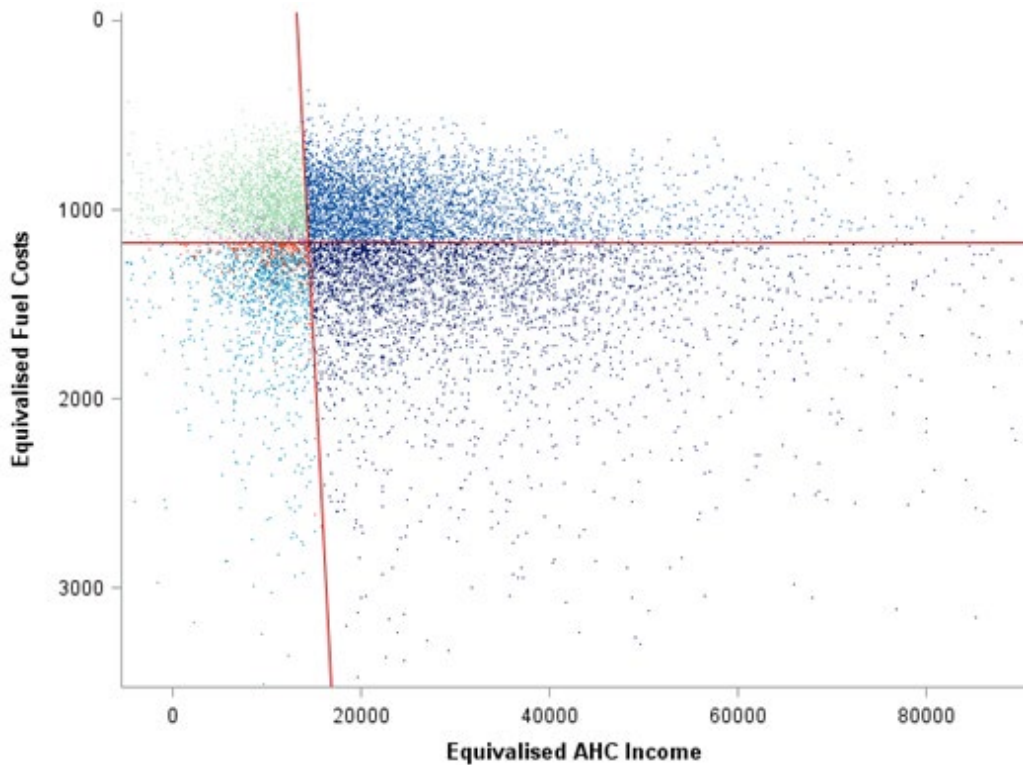
<sup>6</sup> Figures are based on weighted values of the EHS sample, where each household sampled is weighted up to give the total number of households in England: approximately 23 million in 2016.

<sup>7</sup> There is a total of 23 million households in England in 2016, according to the EHS. Note that the 2016 sample is used as the basis for 2017 projections so newly built properties are not accounted for

<sup>8</sup> Where the number of households that are fuel poor in 2016 is estimated to be 2.55 million

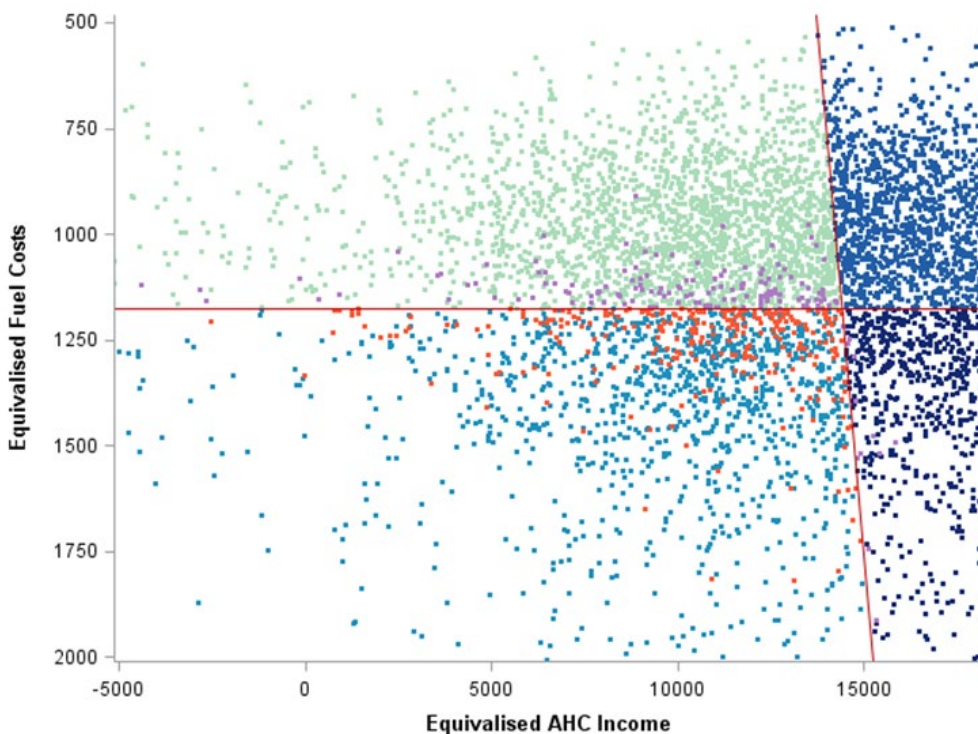
<sup>9</sup> Where the number of households that are fuel poor in 2017 is projected to be 2.40 million

**Figure 4: Households in each quadrant (2017 projections)<sup>10</sup>**



In Figures 4 and Figures 5 (below) each dot represents one household in the survey sample of 11,924 and the red lines represent the income and fuel costs threshold projected for 2017.

**Figure 5: Households clustered round the fuel costs threshold (2017 projections)<sup>8</sup>**



<sup>10</sup> Each dot represents one household in the sample of 11,924

In Figure 5, the purple circles represent households that we project will move into fuel poverty in 2017 and orange circles represent the households that we project will move out of fuel poverty in 2017.

### **Proximity to the fuel costs threshold**

The households whose fuel poverty status changes are mainly clustered around the threshold. Therefore, as the thresholds move year on year, and household circumstances change, these households near the threshold have the potential to move into and out of fuel poverty.

In 2016, over half a million households<sup>5</sup>, around 2% of the total population, were within £30 of the fuel poverty costs threshold<sup>11</sup>. Around 300,000 households had an average gap less than £30 *above* the threshold (not in fuel poverty) and 240,000 households had an average gap less than £30 *below* the threshold (in fuel poverty). Further, around 1.7 million households, approximately 7% of the total population, were within £100 of the fuel poverty threshold, with 930,000 households less than £100 *above* the threshold (not in fuel poverty) and 780,000 households less than £100 *below* the threshold (in fuel poverty).

### **Summary**

This article provides quantitative evidence that there is a substantial amount of churn in fuel poverty year on year and illustrates some the reasons for this high level of movement. Between 2016 and 2017 we project 680,000 households' fuel poverty status will change, with 16 per cent of fuel poor households in 2016<sup>12</sup> projected to move out of fuel poverty. The projections model includes projected changes to the energy efficiency of homes, fuel prices and income. In addition to the churn discussed in this article, we would also expect additional churn which has not been captured here. For example, due to householders moving home, or changing their employment status.

We welcome all feedback from users; please send any comments or queries regarding this article to the contact details below.

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<sup>11</sup> Represented by the horizontal red line in Figures 4 and 5

<sup>12</sup> Where the number of households that are fuel poor in 2016 is estimated to be 2.55 million

## **Methodological Annex**

The projections model calculates the forecasted changes to a household's income, energy efficiency and fuel costs based on a series of randomised runs. A representative average of 100 randomised runs is used for our headline projected figures. To demonstrate how much churn there is on an annual basis, the movement of households between the four quadrants was averaged across 5 random runs. A sample of 5 was chosen due to the time taken to run individual iterations of the model.

This article presents what is illustrative of movement between 2016 and 2017. This does not represent the actual movement of households in and out of fuel poverty. Further, there are some known limitations of the projections model. For example, newly built properties are not accounted for, as the 2016 sample is used as the basis for projections. This is discussed in Chapter 5 of the annual fuel poverty report<sup>3</sup>.