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CLIENT REPORT

# Impact of 2022 fuel prices on fuel poverty in Northern Ireland

Modelled using data from the Northern Ireland House Condition Survey 2016

Investigative analysis

Published 21<sup>st</sup> March 2024



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This report was produced by the Building Research Establishment (BRE) on behalf of the Northern Ireland Housing Executive. It is based on the findings of the House Condition Survey 2016, which is published on the Housing Executive's website: <https://www.nihe.gov.uk/Documents/Research/HCS-2016-Main-Reports/HCS-Main-Report-2016.aspx>

Please note: This report is classified as investigative analysis. It was commissioned by the Housing Executive to meet the needs of users, who indicated a requirement for analysis of the impact of 2022 fuel prices on fuel poverty in Northern Ireland. **It does not provide a 2022 fuel poverty estimate.** The purpose of this report is to inform discussion about fuel poverty in Northern Ireland.

For further information about the 'Impact of 2022 fuel prices on fuel poverty in Northern Ireland' report or the House Condition Survey contact:

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# 1. Introduction

In Northern Ireland, fuel poverty is defined under the 10% fuel poverty methodology, where a household is considered to be in fuel poverty if, in order to maintain a satisfactory level of heating (21°C in the main living room and 18°C in other occupied rooms), it is required to spend more than 10% of its household income on all fuel use.

In 2016, the Northern Ireland House Condition Survey (NIHCS) estimated that there were 160,000 households in fuel poverty, representing 22% of all households in Northern Ireland<sup>1</sup>. Fuel poverty was estimated to increase to 180,000 fuel poor households (24%) in 2020, decreasing slightly in 2021 to 179,000 households (24%). Both estimates were calculated by modelling changes between 2016 and 2020, and changes between 2016 and 2021, to fuel prices, household incomes, and the installation of energy efficiency measures in the stock<sup>2</sup>.

Following the surge in wholesale energy prices in 2021, the cost of heating the home in Northern Ireland has substantially increased. Alongside this, the cost of living has been increasing, with UK inflation rates reaching 11.1% in October 2022, a 41-year high<sup>3</sup>. To mitigate the effect of increasing energy and living costs, action was taken by the UK Government to provide support to all households in the form of: a unit rate discount on the price of gas and electricity (through the Energy Price Guarantee), energy rebates (through the Energy Bills Support Scheme, and the Alternative Fuels Payment), as well as targeted support to low income and vulnerable households (through the Cost of Living Payment, Disability Cost of Living Payment, and Pensioner Cost of Living Payment)<sup>4</sup>.

Due to the requirement for updated estimates on the levels of fuel poverty as a result of the cost of living crisis, the Housing Executive commissioned BRE to investigate the impact of the increase in fuel prices in 2022 on fuel poverty, and provide an estimate of the alleviation provided to households through the Government support packages. Fuel poverty has been calculated using the 2021 uplifted baseline components (as detailed in the “Estimates of fuel poverty in Northern Ireland in 2020 and 2021” report), and projecting changes to fuel prices and income, through the fuel price rises in October 2022 and Government support packages provided in 2022-23; no further uplift of household incomes or energy efficiency measures has been attempted, **and therefore the fuel poverty estimates should not be regarded as 2022 estimates, instead they are 2021 estimates of fuel poverty where the impact of the October 2022 fuel prices has been explored through this investigative analysis.**

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<sup>1</sup> For more information see <https://www.nihe.gov.uk/Documents/Research/HCS-2016-Main-Reports/HCS-Main-Report-2016.aspx>

<sup>2</sup> [Estimates of fuel poverty in Northern Ireland in 2020 and 2021 \(nihe.gov.uk\)](https://www.nihe.gov.uk)

<sup>3</sup> <https://commonslibrary.parliament.uk/research-briefings/cbp-9428/>

<sup>4</sup> <https://www.gov.uk/cost-of-living>

## 2. Executive summary

Table 1 shows the 2016 fuel poverty base position, the 2021 fuel poverty estimates (modelled following adjustments to fuel prices, household incomes, and simulating the installation of energy efficiency measures in Northern Ireland) and the impact of 2022 fuel prices and Government support on the 2021 fuel poverty estimates. The latter includes the modelling of: fuel prices at October 2022 used to estimate annual fuel costs, the inclusion of the Energy Price Guarantee for metered fuels, the £600 Government energy support payments, and the 2022-23 cost of living payments for those who receive means-tested benefits, disability benefits, or for pensioner households.

The impact of the 2022 fuel prices and Government support was to increase fuel poverty from the 2021 estimates of 179,000 fuel poor households (24%) to 197,000 fuel poor households (27%), when keeping incomes and energy efficiency the same, and assuming no changes to household composition; had none of the measures of support been implemented, fuel poverty estimates were predicted to rise to 76% of all households.

**Table 1. Estimates of fuel poverty in Northern Ireland, 2021, including the impact of the October 2022 fuel prices and Government support schemes**

Fuel poor households (full income definition)	2016 (base position from NIHCS)	2021 (modelled estimates)	2021 with 2022 prices & support (modelled)
Number of households	160,000	179,000	197,000
% of households	22	24	27

**Base: all households, Northern Ireland 2016**

Table 2 shows the impact of the range of government interventions on the 2021 fuel poverty estimate with 2022 fuel prices.

**Table 2. Proportion of fuel poor households, 2021 with 2022 fuel prices and support**

	In fuel poverty (%)
2021 fuel poverty estimate	24
2021 estimate with 2022 fuel prices <b>without</b> Energy Price Guarantee	76
2021 estimate with 2022 fuel prices <b>and</b> Energy Price Guarantee (EPG)	50
2021 estimate with 2022 fuel prices and EPG and additional support	27

**Base: all households, Northern Ireland 2016**

## 3. Methodology

In October 2023, estimates of fuel poverty in Northern Ireland in 2020 and 2021 were published, calculated using the 10% definition of fuel poverty and modelled using data from the 2016 NIHCS, and using external data to project changes to the three components that determine fuel poverty levels (fuel prices, household incomes and energy efficiency). The impact of 2022 fuel prices and Government support packages on estimated levels of fuel poverty in Northern Ireland has been analysed using the 2021 fuel poverty components as a baseline, and uplifting fuel prices to October 2022 levels. Fuel poverty was then re-calculated.

Fuel poverty estimates are to be interpreted as 2021 fuel poverty estimates showing the impact of the 2022 fuel prices and additional Government support. All analysis and results in this report should be considered as investigative analysis, and further information on the strengths and weaknesses behind the statistics are detailed in Appendix B.

### 3.1 Base data

The 2021 Northern Ireland fuel poverty estimates have been used as a base, to calculate the impact of the 2022 fuel prices and Government support packages on fuel poverty. The 2021 fuel poverty estimates were calculated using dwelling and household data collected in the 2016 Northern Ireland House Condition Survey (NIHCS) uplifted to 2021 using external data on changes to fuel prices, household incomes, and the addition of energy efficiency improvement measures in the stock. Details on the methodology used to derive the 2021 fuel poverty estimates is provided in the report “Estimates of fuel poverty in Northern Ireland in 2020 and 2021”<sup>5</sup>.

### 3.2 Fuel prices

The reference point for modelling the impact of the 2022 fuel prices has been taken as October 2022, which can be considered as the mid-point of the survey year.

#### **Metered fuels in Northern Ireland**

Gas and electricity are metered fuels in Northern Ireland. From the 1<sup>st</sup> November 2022, the Energy Price Guarantee (EPG) was implemented as a cap on the unit cost of gas and electricity, providing backdated support from October 2022 in line with the EPG provided in the rest of Great Britain<sup>6</sup>. To be able to separate out the effect of the EPG from the original proposed gas and electricity tariffs, price comparison tables from the Consumer Council were used<sup>7</sup>.

Gas and electricity prices, for each method of payment (direct debit, standard credit, and pre-payment), weighted by the market share of each supplier (as published by the Utility Regulator<sup>8</sup>) were used to update metered fuel prices to October 2022 for gas, standard electricity, and off-peak electricity (Economy 7). The effect of the EPG was then calculated by deducting the rate discount (pence per kilowatt hour) from each of the gas and electricity unit prices. The rate discount has been applied in the modelling based on the

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<sup>5</sup> [Estimates of fuel poverty in Northern Ireland in 2020 and 2021 \(nihe.gov.uk\)](https://www.nihe.gov.uk/estimates-of-fuel-poverty-in-northern-ireland-in-2020-and-2021)

<sup>6</sup> <https://www.gov.uk/government/publications/energy-bills-support/energy-bills-support-factsheet-8-september-2022>

<sup>7</sup> <https://www.consumer council.org.uk/energy-tables>

<sup>8</sup> <https://www.uregni.gov.uk/bills-and-prices>

equivalent rate discounts from Great Britain, of 17p/kWh for electricity and 4.2p/kWh for gas (excluding VAT)<sup>9</sup>.

### Non-metered fuels in Northern Ireland

The majority of households in Northern Ireland use heating oil to heat their homes<sup>10</sup>, which is a non-metered fuel in Northern Ireland. The fuel prices for heating oil were obtained from the December 2022 Sutherland Tables, which provide average fuel prices for the three months preceding publication (October to December 2022) in Northern Ireland<sup>11</sup>. The heating oil fuel prices were validated against the UK monthly CPI data from QEP table 2.1.3, and Northern Ireland heating oil prices published by the consumer council. Consumer council average heating oil prices in Northern Ireland for October to December were within 5% of the prices from the Sutherland tables.

Prices of other non-metered fuels (coal, smokeless fuel, anthracite, bulk LPG and bottled fuel) were also obtained from the Sutherland Tables, based on the December 2022 publication. Finally, fuel prices for coal and communal heating were updated to 2022 using October CPI data from QEP table 2.1.3, in line with the standard fuel poverty projections methodology.

## 3.3 Additional Government support

All households in Northern Ireland were eligible to receive a single payment of £600 in early 2023 to help with their energy bills, regardless of how they heat their home<sup>12</sup>. This was comprised of £400 from the Energy Bills Support Scheme (EBSS) and £200 from the Alternative Fuels Payment (AFP) and was provided by electricity suppliers. The £200 payment was not directed to households using non-metered fuels to heat their homes due to the difficulties in the timely targeting of this support. Therefore, all households in Northern Ireland were modelled to receive a £600 energy rebate (deducted from their total modelled fuel costs).

In addition to the energy rebate, cost of living payments have been made to households on means-tested benefits, disability benefits, and pensioners<sup>13</sup>. This support has been modelled for each household based on eligibility criteria, with payments of up to £1,100 available for 2022-23. The details of the eligibility requirements for each payment are as follows:

- Low-income cost of living payment: £650 based on receipt of means-tested benefits, as recorded by the 2016 NIHCS, for the HRP and partner. Incapacity benefit is modelled in place of Employment Support Allowance, and it is assumed that Job Seekers Allowance is means-tested. Only one payment is modelled for the household if the HRP and partner are both eligible.
- Disability cost of living payment: £150 separately to the HRP or partner, if they state they are in receipt of a 'disability benefit' from the survey. This assumes inclusion of: Attendance Allowance, Disability Living Allowance, Personal Independence Payment, Armed Forces Independence Payment, and War Pension Mobility Supplement.
- Pensioner cost of living payment: £300 if household is modelled to receive the Winter Fuel Payment (HRP, partner and additional adults).

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<sup>9</sup> For Economy 7 tariffs, the rate discount was assumed to be the same for the day and night rate.

<sup>10</sup> Approximately 68% of dwellings in Northern Ireland used oil central heating in 2016, see Section 7.4 of the [NIHCS main report](#).

<sup>11</sup> [Sutherland tables](#)

<sup>12</sup> <https://www.gov.uk/guidance/getting-household-energy-bill-support-in-northern-ireland>

<sup>13</sup> <https://www.nidirect.gov.uk/articles/cost-living-payments>

The energy rebate was deducted from the total modelled fuel costs for each household in Northern Ireland, while the cost of living payments were added to each eligible household's full net income. Fuel poverty was then re-calculated as detailed in Section 3.4.

### 3.4 Fuel poverty estimates

The impact of the 2022 fuel prices on fuel poverty levels has been calculated using the 2016 base data, with incomes and energy efficiency measures uplifted to 2021. The October 2022 fuel prices have then been used to estimate annual energy costs for each household, were fuel prices to remain elevated. Additional Government support provided in 2022-23, in the form of the EPG, energy rebates and cost of living payments have then been modelled to analyse the impact on fuel poverty, in the following stages:

1. Fuel prices were uplifted to October 2022 levels, to determine the impact on fuel poverty had the EPG not been introduced
2. Fuel prices were uplifted to October 2022 levels, and gas and electricity prices were adjusted to account for the EPG
3. Fuel prices were uplifted to October 2022 levels, gas and electricity prices were adjusted to account for the EPG, and further Governmental support was modelled, including: EPSS, AFP, and cost of living payments to support low income households on means tested benefits, disability benefits, or pensioner households.



## 4. Results

The findings from the analysis of the impact of the 2022 fuel prices and additional Governmental support packages on 2021 fuel poverty estimates is detailed in this section. Firstly, the change in household energy costs (Section 4.1) and household incomes (Section 4.2) is explored, then the impact of each of the following scenarios is reported in Section 4.3:

- Fuel prices uplifted to October 2022, using the full tariff rates for gas and electricity
- Fuel prices uplifted to October 2022, with the EPG
- Fuel prices uplifted to October 2022, with the EPG, and additional Government support

### 4.1 Household energy costs

Energy prices increased considerably between 2021 and 2022, with price increases observed of 114% for heating oil, 241% for gas, and 78% for standard electricity<sup>14</sup>. It is therefore not surprising that the median monthly energy costs, modelled for households in Northern Ireland based on the 2022 fuel prices, would have more than doubled (Table 3) if the EPG had not been introduced to protect households from the steep rise in fuel costs.

The median monthly energy costs for all households increased from £128 per month to £185 per month between 2021 and October 2022, when accounting for fuel price rises and the EPG. With the additional £600 energy rebate (provided through the EBSS and the AFP schemes), the median monthly energy costs for all households were reduced to around £135 per month. Table 3 shows the median fuel costs for all households, for the 2016 base position, the 2021 modelled estimates, and the three scenarios looking at the impact of the 2022 fuel prices and support in 2022-23.

**Table 3. Median monthly household energy costs, 2021 with the impact of 2022 fuel prices**

Fuel costs (fuel price and energy improvements)	2016 (base position from NIHCS)	2021 (modelled estimates)	2021 with 2022 prices (modelled)	2021 with 2022 prices & EPG (modelled)	2021 with 2022 prices & EPG & support (modelled)
Median	£119	£128	£260	£185	£135
Lower quartile	£94	£104	£212	£149	£99
Upper quartile	£151	£160	£321	£234	£184

<sup>14</sup> Based on the percentage change between 2021 fuel prices and October 2022 fuel prices. Gas and electricity prices are based on the standard credit method of payment and represent the full tariff rates as of 1<sup>st</sup> October 2022.

## 4.2 Household incomes

Table 4 shows the impact of the cost of living payments on household income in Northern Ireland in 2021. The payments were targeted to households in receipt of means-tested benefits, disability benefits, or pensioner households, with an overall effect to increase the median income of all households by 2%, from £20,900 to £21,300.

**Table 4. Median household full income, 2021 with the impact of 2022 support**

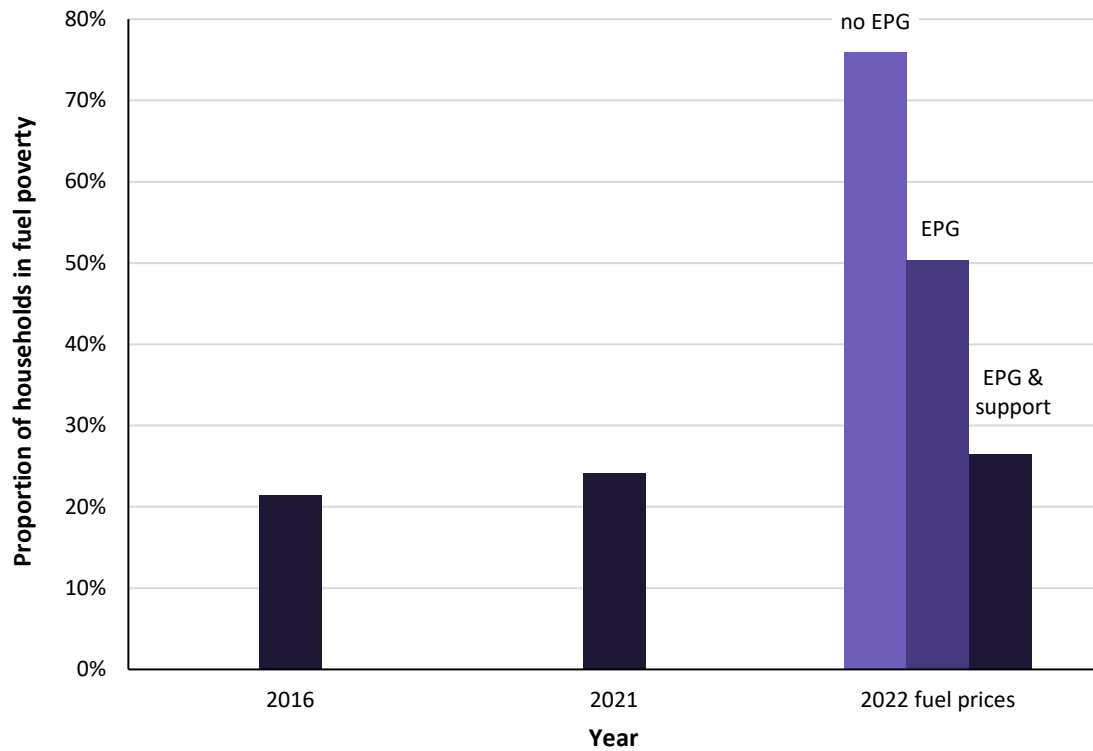
Household full income	2016 (base position from NIHCS)	2021 (modelled estimates)	2021 with 2022 support (modelled)
Median	£20,100	£20,900	£21,300
Lower quartile	£13,900	£14,300	£14,800
Upper quartile	£31,800	£35,000	£35,200

## 4.3 Impact of 2022 fuel prices on fuel poverty

The impact of 2022 fuel prices and additional Government support, on the 2021 estimates of fuel poverty, is shown in Figure 1. Overall, when assuming that the October 2022 fuel prices represent the fuel tariffs for a whole year, fuel poverty was predicted to increase to around three-quarters (76%) of households in Northern Ireland. When accounting for the impact of the EPG, fuel poverty was predicted to increase to around half of households in Northern Ireland. Only when the EPG was combined with additional support packages, was fuel poverty reduced to levels only slightly higher than 2021, with an estimated 27% of households (197,000) in fuel poverty. Further details on the sample and confidence intervals for these modelled estimates are provided in Appendix A.

These estimations of fuel poverty give an indication of the potential impact that the inflated fuel prices could have on households in Northern Ireland, if sustained over an annual period, and demonstrate how important the additional support measures (both targeted and non-targeted) are at keeping fuel poverty at a lower level in Northern Ireland.

**Figure 1. Proportion of households estimated to be in fuel poverty in 2021, with the impact of the 2022 fuel prices shown**



**Base: all households, Northern Ireland 2016**

## Appendix A - Confidence intervals

Standard errors measure the uncertainty around the survey estimates. Confidence intervals are calculated from standard errors and provide a method of assessing the magnitude of sampling errors by indicating the range of random variation in survey estimates. Note: The confidence intervals do not account for all potential sources of error e.g., the NIHCS 2016 survey design, measurement error and surveyor variability.

The fuel poverty projections should be interpreted as indicative estimates based on the assumptions and modelling techniques used.

**Table A1: Proportion of fuel poor households, 2021 with 2022 fuel prices and support**

	Unweighted base	In fuel poverty (%)	95% confidence interval	
			Lower	Upper
2021 fuel poverty projections	1,917	24.2	22.0	26.5
2021 projections with 2022 fuel prices without EPG	1,917	75.9	73.6	78.1
2021 projections with 2022 fuel prices and EPG	1,917	50.4	47.8	53.0
2021 projections with 2022 fuel prices and EPG and additional support	1,917	26.5	24.2	28.9

**Base: all households, Northern Ireland 2016**

# Appendix B - User guide

## a. Method

The BRE 'Impact of 2022 fuel prices on fuel poverty in Northern Ireland methodology' comprises of data modelling of the 2016 NIHCS to simulate a 2021 position, accounting for the impact of 2022 fuel prices and Governmental support packages.

The 2016 NIHCS data, uplifted to 2021, was adjusted to account for:

- Changes in fuel prices between 2021 and October 2022
- Changes in fuel prices, with the EPG, between 2021 and October 2022
- Changes in fuel costs and incomes when accounting for the impact of the Government energy rebates and cost of living payments.

Following these adjustments, the number of households in fuel poverty was calculated for 2021, when accounting for the impact of the 2022 fuel prices and additional support. To aid understanding, further information about the methodology along with the various outputs is contained in the body of the report. For more information on fuel poverty and how it is measured see Appendix E page 136 of the main 2016 NIHCS report<sup>15</sup>.

## b. Quality information

The quality assurance of the modelling work used to produce this report focused on ensuring that the data translation and modelling processes were performed correctly, to provide accurate and reliable results. The process of development and the creation of results followed an internal procedure so the work undertaken could be reviewed and assessed by project managers.

Examples of the quality assurance undertaken to validate the model and results included:

- Updating and revising the methodology using the latest assumptions for this area of work
- Checking of transformations undertaken and mathematical formulae
- Internal checks of data inputs to assure translation was completed correctly
- Checks of correct units for calculations
- Check correct and latest external data sources were used
- Sense check of results
- Internal review of results and reporting.

Surveyors working on the 2016 NIHCS received training and support to help ensure their collection of energy related data were consistent and robust. A re-fresher training session in 2016 explained the principles, how the form should be completed as well as conducting practical exercises with feedback sessions. While these measures ensure a good level of consistency in judgements, some surveyor variability is to be expected.

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<sup>15</sup> <https://www.nihe.gov.uk/Documents/Research/HCS-2016-Main-Reports/HCS-Main-Report-2016.aspx>

## c. Strengths and weaknesses

### Strengths

The basis of this report is the 2016 NIHCS dataset, as used to model estimates of fuel poverty in 2021. All results should be taken in the context of this background, and the survey and modelling assumptions which occur within these. Further details are provided in the “Estimates of fuel poverty in Northern Ireland in 2020 and 2021” report<sup>16</sup>.

The size of the sample for the NI House Condition Survey 2016 was 3,000 addresses. A weighting and grossing process translated the information gathered into figures that reflected the real world. This provided robust data at Northern Ireland level. Further information on the sampling, and weighting and grossing processes for the Northern Ireland House Condition Survey 2016 is available in the report<sup>17</sup>. See Appendix A page 88 of the main 2016 House Condition Survey report for more information on for the survey’s user guide.

### Weaknesses

In the calculation of the 2021 fuel poverty estimates, updated to account for the impact of fuel prices in 2022, it was assumed that household composition remained stable since 2016. This includes: the number of households in Northern Ireland, the composition of individual households, and the employment status of individuals in households. Further modelling and adjustments would be required using external data on demographic changes, to account for any compositional changes over time, and are subject to the quality of the base data and external data. Due to concerns with the complexity of undertaking such an adjustment process and assessing the robustness of the remodelled estimates, no adjustments have been made.

The methodology used to update fuel prices to October 2022 differs from the methodology used in the standard annual fuel poverty projections. The December 2022 Sutherland Tables publication has been used to uplift fuel prices for the majority of non-metered fuels, including heating oil. This provided a snapshot of the fuel prices in October 2022 (representing the average prices for the preceding three months to publication), while for the standard approach, data is averaged across a three-year retrospective period.

For metered fuels, prices from October 2022 have been used to estimate energy costs, and therefore any tariff price changes before or after this point are not reflected in the fuel poverty estimates; the results provide an indication of fuel poverty were prices maintained at this level over the year. It is noted that there were further electricity price increases in November 2022, however these were outside of the timeframe considered for this investigative analysis and were not included. While the Energy Price Guarantee was not provided to household bills in Northern Ireland until 1 November 2022, households received backdated support to reflect that households in Great Britain received support from 1 October 2022, and therefore this support has been included in the 2021 fuel poverty estimates with 2022 fuel prices.

Finally, there was some variation in the October 2022 tariff prices, due to the different tariffs provided by each supplier, and variation between suppliers. As the price variations within the different tariffs offered by each supplier were small, average prices by payment method have been used; the impact of this assumption on fuel poverty will be minimal. Greater variation in tariff rates exists between different suppliers, therefore this has been accounted for by adjusting prices based on the market-share of each supplier.

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<sup>16</sup> [Estimates of fuel poverty in Northern Ireland in 2020 and 2021 \(nihe.gov.uk\)](https://www.nihe.gov.uk/Documents/Research/HCS-Main-Reports-2016/HCS-Main-Report-2016.aspx)

<sup>17</sup> <https://www.nihe.gov.uk/Documents/Research/HCS-Main-Reports-2016/HCS-Main-Report-2016.aspx>